8557345

THE UNITED STATES OF AMERICA

TO ALL TO WHOM THESE PRESENTS SHALL COME:

UNITED STATES DEPARTMENT OF COMMERCE

United States Patent and Trademark Office

January 02, 2025

THIS IS TO CERTIFY THAT ANNEXED IS A TRUE COPY FROM THE RECORDS OF THIS OFFICE OF THE FILE WRAPPER AND CONTENTS OF:

APPLICATION NUMBER: *14/253,204*
FILING DATE: *April 15, 2014*
PATENT NUMBER: *9147296*
ISSUE DATE: *September 29, 2015*

Certified by

Acting Under Secretary of Commerce
for Intellectual Property
and Acting Director of the United States
Patent and Trademark Office

PTO/AIA/14 (12-13)
Approved for use through 01/31/2014. OMB 0651-0032
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Application Data Sheet 37 CFR 1.76	Attorney Docket Number	6583-561
	Application Number	
Title of Invention	CUSTOMIZATION OF VEHICLE CONTROLS AND SETTINGS BASED ON USER PROFILE DATA	

The application data sheet is part of the provisional or nonprovisional application for which it is being submitted. The following form contains the bibliographic data arranged in a format specified by the United States Patent and Trademark Office as outlined in 37 CFR 1.76.
This document may be completed electronically and submitted to the Office in electronic format using the Electronic Filing System (EFS) or the document may be printed and included in a paper filed application.

Secrecy Order 37 CFR 5.2

☐ Portions or all of the application associated with this Application Data Sheet may fall under a Secrecy Order pursuant to 37 CFR 5.2 (Paper filers only. Applications that fall under Secrecy Order may not be filed electronically.)

Inventor Information:

Inventor 1 Remove

Legal Name

Prefix	Given Name	Middle Name	Family Name	Suffix
	Christopher	P.	Ricci	

Residence Information (Select One) ◉ US Residency ○ Non US Residency ○ Active US Military Service

City	Saratoga	State/Province	CA	Country of Residence i	US

Mailing Address of Inventor:

Address 1	20650 4th Street, Unit 2		
Address 2			
City	Saratoga	State/Province	CA
Postal Code	95070	Country i	US

All Inventors Must Be Listed - Additional Inventor Information blocks may be generated within this form by selecting the **Add** button. Add

Correspondence Information:

Enter either Customer Number or complete the Correspondence Information section below.
For further information see 37 CFR 1.33(a).

☐ **An Address is being provided for the correspondence Information of this application.**

Customer Number	111285		
Email Address	flexpatents@sheridanross.com	Add Email	Remove Email

Application Information:

Title of the Invention	CUSTOMIZATION OF VEHICLE CONTROLS AND SETTINGS BASED ON USER PROFILE DATA		
Attorney Docket Number	6583-561	Small Entity Status Claimed	☐
Application Type	Nonprovisional		
Subject Matter	Utility		
Total Number of Drawing Sheets (if any)	41	Suggested Figure for Publication (if any)	

Filing By Reference :

Application Data Sheet 37 CFR 1.76	Attorney Docket Number	6583-561
	Application Number	
Title of Invention	CUSTOMIZATION OF VEHICLE CONTROLS AND SETTINGS BASED ON USER PROFILE DATA	

Only complete this section when filing an application by reference under 35 U.S.C. 111(c) and 37 CFR 1.57(a). Do not complete this section if application papers including a specification and any drawings are being filed. Any domestic benefit or foreign priority information must be provided in the appropriate section(s) below (i.e., "Domestic Benefit/National Stage Information" and "Foreign Priority Information").

For the purposes of a filing date under 37 CFR 1.53(b), the description and any drawings of the present application are replaced by this reference to the previously filed application, subject to conditions and requirements of 37 CFR 1.57(a).

Application number of the previously filed application	Filing date (YYYY-MM-DD)	Intellectual Property Authority or Country

Publication Information:

☐ Request Early Publication (Fee required at time of Request 37 CFR 1.219)

☐ **Request Not to Publish.** I hereby request that the attached application not be published under 35 U.S.C. 122(b) and certify that the invention disclosed in the attached application **has not and will not** be the subject of an application filed in another country, or under a multilateral international agreement, that requires publication at eighteen months after filing.

Representative Information:

Representative information should be provided for all practitioners having a power of attorney in the application. Providing this information in the Application Data Sheet does not constitute a power of attorney in the application (see 37 CFR 1.32).
Either enter Customer Number or complete the Representative Name section below. If both sections are completed the customer Number will be used for the Representative Information during processing.

Please Select One:	◉ Customer Number	○ US Patent Practitioner	○ Limited Recognition (37 CFR 11.9)
Customer Number	111285		

Domestic Benefit/National Stage Information:

This section allows for the applicant to either claim benefit under 35 U.S.C. 119(e), 120, 121, or 365(c) or indicate National Stage entry from a PCT application. Providing this information in the application data sheet constitutes the specific reference required by 35 U.S.C. 119(e) or 120, and 37 CFR 1.78.
When referring to the current application, please leave the application number blank.

Prior Application Status	Pending		Remove
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)
	Claims benefit of provisional	61/811981	2013-04-15
Prior Application Status	Pending		Remove
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)
	Claims benefit of provisional	61/865954	2013-08-14
Prior Application Status	Pending		Remove

Application Data Sheet 37 CFR 1.76	Attorney Docket Number	6583-561
	Application Number	
Title of Invention	CUSTOMIZATION OF VEHICLE CONTROLS AND SETTINGS BASED ON USER PROFILE DATA	

Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)
	Claims benefit of provisional	61/870698	2013-08-27
Prior Application Status	Pending		Remove
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)
	Claims benefit of provisional	61/891217	2013-10-15
Prior Application Status	Pending		Remove
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)
	Claims benefit of provisional	61/904205	2013-11-14
Prior Application Status	Pending		Remove
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)
	Claims benefit of provisional	61/924572	2014-01-07
Prior Application Status	Pending		Remove
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)
	Claims benefit of provisional	61/926749	2014-01-13
Additional Domestic Benefit/National Stage Data may be generated within this form by selecting the **Add** button.			Add

Foreign Priority Information:

This section allows for the applicant to claim priority to a foreign application. Providing this information in the application data sheet constitutes the claim for priority as required by 35 U.S.C. 119(b) and 37 CFR 1.55(d). When priority is claimed to a foreign application that is eligible for retrieval under the priority document exchange program (PDX) [i] the information will be used by the Office to automatically attempt retrieval pursuant to 37 CFR 1.55(h)(1) and (2). Under the PDX program, applicant bears the ultimate responsibility for ensuring that a copy of the foreign application is received by the Office from the participating foreign intellectual property office, or a certified copy of the foreign priority application is filed, within the time period specified in 37 CFR 1.55(g)(1).

			Remove
Application Number	Country [i]	Filing Date (YYYY-MM-DD)	Access Code [i] (if applicable)
Additional Foreign Priority Data may be generated within this form by selecting the **Add** button.			Add

Application Data Sheet 37 CFR 1.76	Attorney Docket Number	6583-561
	Application Number	
Title of Invention	CUSTOMIZATION OF VEHICLE CONTROLS AND SETTINGS BASED ON USER PROFILE DATA	

Statement under 37 CFR 1.55 or 1.78 for AIA (First Inventor to File) Transition Applications

☐ This application (1) claims priority to or the benefit of an application filed before March 16, 2013 and (2) also contains, or contained at any time, a claim to a claimed invention that has an effective filing date on or after March 16, 2013.
NOTE: By providing this statement under 37 CFR 1.55 or 1.78, this application, with a filing date on or after March 16, 2013, will be examined under the first inventor to file provisions of the AIA.

Authorization to Permit Access:

☒ Authorization to Permit Access to the Instant Application by the Participating Offices

If checked, the undersigned hereby grants the USPTO authority to provide the European Patent Office (EPO), the Japan Patent Office (JPO), the Korean Intellectual Property Office (KIPO), the World Intellectual Property Office (WIPO), and any other intellectual property offices in which a foreign application claiming priority to the instant patent application is filed access to the instant patent application. See 37 CFR 1.14(c) and (h). This box should not be checked if the applicant does not wish the EPO, JPO, KIPO, WIPO, or other intellectual property office in which a foreign application claiming priority to the instant patent application is filed to have access to the instant patent application.

In accordance with 37 CFR 1.14(h)(3), access will be provided to a copy of the instant patent application with respect to: 1) the instant patent application-as-filed; 2) any foreign application to which the instant patent application claims priority under 35 U.S.C. 119(a)-(d) if a copy of the foreign application that satisfies the certified copy requirement of 37 CFR 1.55 has been filed in the instant patent application; and 3) any U.S. application-as-filed from which benefit is sought in the instant patent application.

In accordance with 37 CFR 1.14(c), access may be provided to information concerning the date of filing this Authorization.

Applicant Information:

Providing assignment information in this section does not substitute for compliance with any requirement of part 3 of Title 37 of CFR to have an assignment recorded by the Office.

PTO/AIA/14 (12-13)
Approved for use through 01/31/2014. OMB 0651-0032
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Application Data Sheet 37 CFR 1.76	Attorney Docket Number	6583-561
	Application Number	
Title of Invention	CUSTOMIZATION OF VEHICLE CONTROLS AND SETTINGS BASED ON USER PROFILE DATA	

Applicant 1 Remove

If the applicant is the inventor (or the remaining joint inventor or inventors under 37 CFR 1.45), this section should not be completed. The information to be provided in this section is the name and address of the legal representative who is the applicant under 37 CFR 1.43; or the name and address of the assignee, person to whom the inventor is under an obligation to assign the invention, or person who otherwise shows sufficient proprietary interest in the matter who is the applicant under 37 CFR 1.46. If the applicant is an applicant under 37 CFR 1.46 (assignee, person to whom the inventor is obligated to assign, or person who otherwise shows sufficient proprietary interest) together with one or more joint inventors, then the joint inventor or inventors who are also the applicant should be identified in this section.

Clear

(•) Assignee	( ) Legal Representative under 35 U.S.C. 117	( ) Joint Inventor
( ) Person to whom the inventor is obligated to assign.	( ) Person who shows sufficient proprietary interest	

If applicant is the legal representative, indicate the authority to file the patent application, the inventor is:

Name of the Deceased or Legally Incapacitated Inventor :

If the Applicant is an Organization check here. [X]

Organization Name	Flextronics AP, LLC		
Mailing Address Information:			
Address 1	6201 America Center Drive		
Address 2			
City	San Jose	**State/Province**	CA
Country [i]	US	Postal Code	95002
Phone Number		Fax Number	
Email Address			

Additional Applicant Data may be generated within this form by selecting the Add button. Add

Assignee Information including Non-Applicant Assignee Information:

Providing assignment information in this section does not subsitute for compliance with any requirement of part 3 of Title 37 of CFR to have an assignment recorded by the Office.

Assignee 1

Complete this section if assignee information, including non-applicant assignee information, is desired to be included on the patent application publication . An assignee-applicant identified in the "Applicant Information" section will appear on the patent application publication as an applicant. For an assignee-applicant, complete this section only if identification as an assignee is also desired on the patent application publication.

Remove

If the Assignee or Non-Applicant Assignee is an Organization check here. [ ]

PTO/AIA/14 (12-13)
Approved for use through 01/31/2014. OMB 0651-0032
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Application Data Sheet 37 CFR 1.76	Attorney Docket Number	6583-561
	Application Number	
Title of Invention	CUSTOMIZATION OF VEHICLE CONTROLS AND SETTINGS BASED ON USER PROFILE DATA	

Prefix	**Given Name**	Middle Name	**Family Name**	Suffix

Mailing Address Information For Assignee including Non-Applicant Assignee:

Address 1			
Address 2			
City		**State/Province**	
Country i		Postal Code	
Phone Number		Fax Number	
Email Address			

Additional Assignee or Non-Applicant Assignee Data may be generated within this form by selecting the Add button. Add

Signature:

Remove

NOTE: This form must be signed in accordance with 37 CFR 1.33. See 37 CFR 1.4 for signature requirements and certifications

Signature	/Thaine Lennox-Gentle/			Date (YYYY-MM-DD)	2014-04-15
First Name	Thaine	Last Name	Lennox-Gentle	Registration Number	65260

Additional Signature may be generated within this form by selecting the Add button. Add

This collection of information is required by 37 CFR 1.76. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 23 minutes to complete, including gathering, preparing, and submitting the completed application data sheet form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

Privacy Act Statement

The Privacy Act of 1974 (P.L. 93-579) requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C. 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether the Freedom of Information Act requires disclosure of these records.

2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.

3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.

4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).

5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.

6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).

7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.

8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspections or an issued patent.

9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

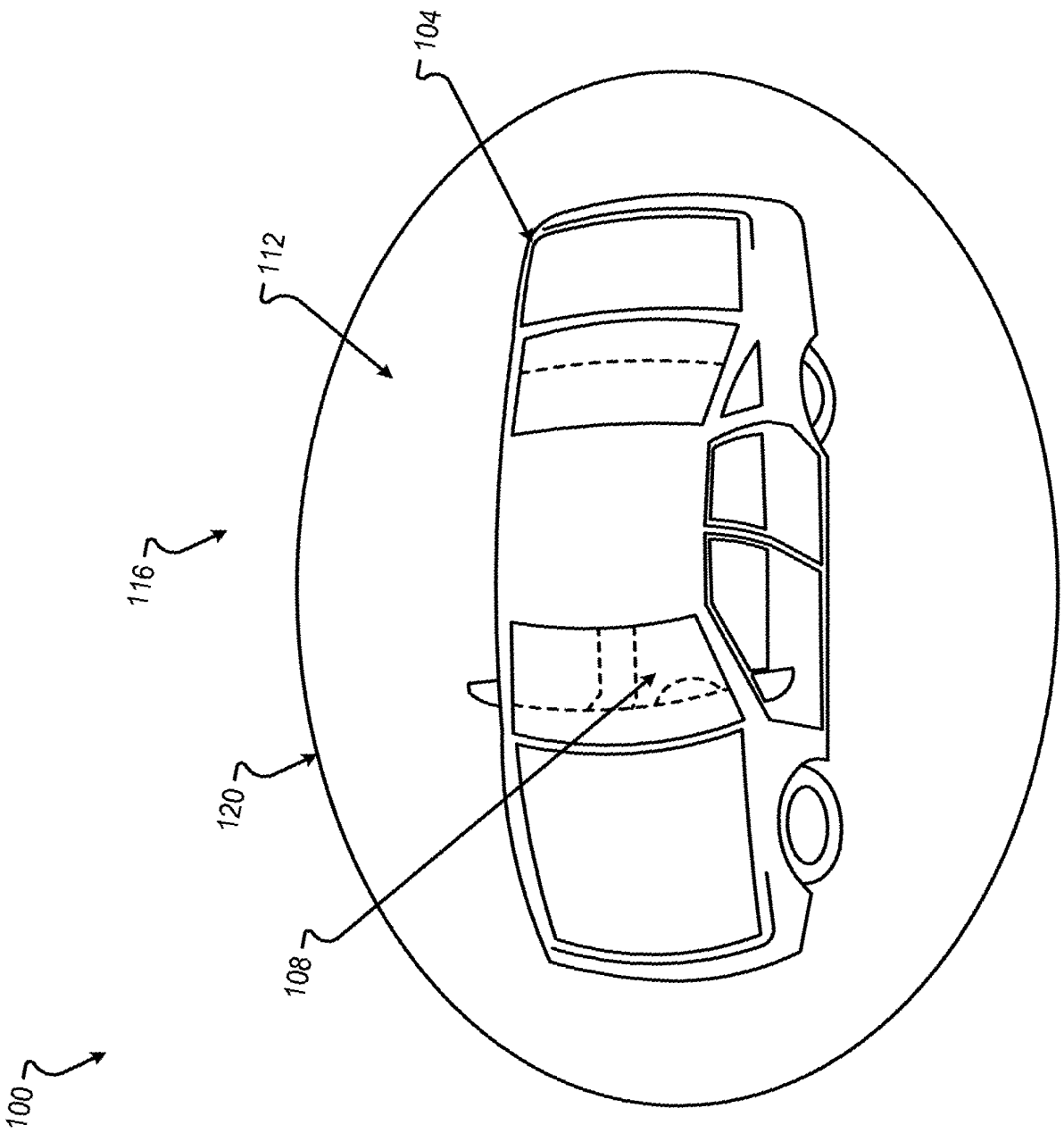


Fig. 1

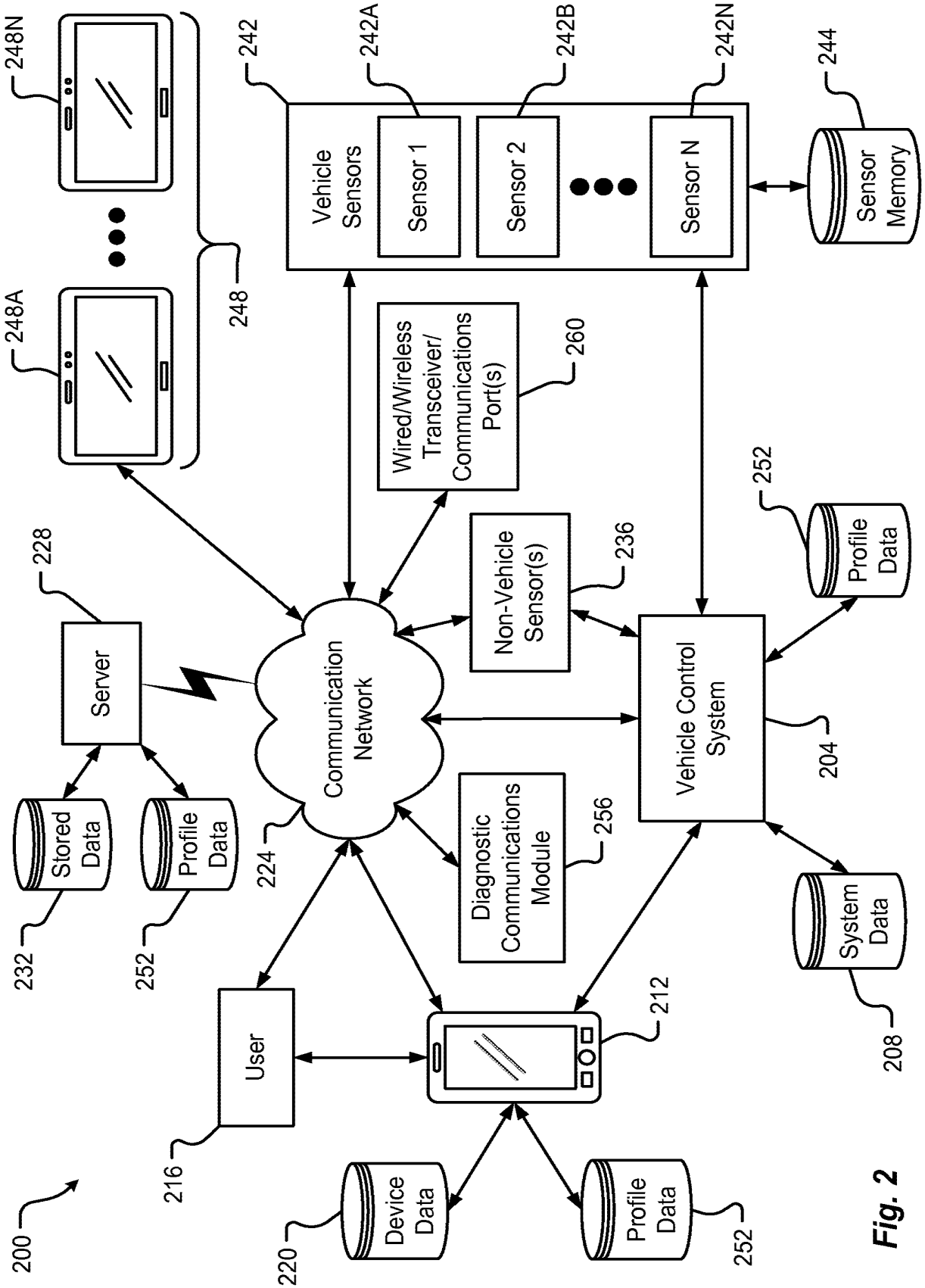

248N
248A
248
242
242A
242B
242N
244
Vehicle Sensors
Sensor 1
Sensor 2
Sensor N
Sensor Memory
Wired/Wireless Transceiver/ Communications Port(s)
260
252
Profile Data
228
Server
Non-Vehicle Sensor(s)
236
Communication Network
Vehicle Control System
204
Stored Data
Profile Data
232
252
224
Diagnostic Communications Module
256
System Data
208
User
212
216
Device Data
Profile Data
220
252
200

Fig. 2

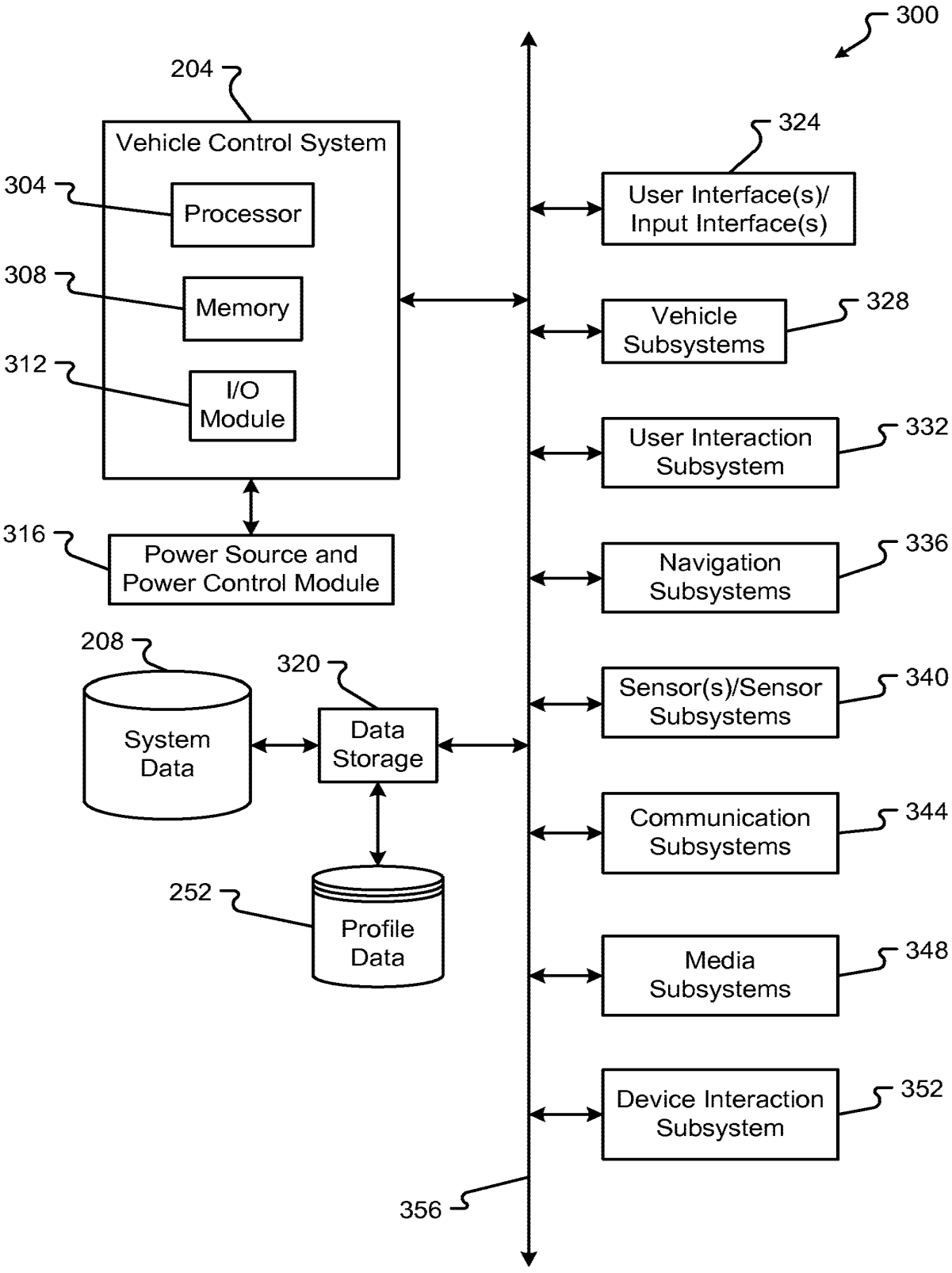

300
204
Vehicle Control System
304
Processor
308
Memory
312
I/O Module
316
Power Source and Power Control Module
208
System Data
320
Data Storage
252
Profile Data
324
User Interface(s)/ Input Interface(s)
328
Vehicle Subsystems
332
User Interaction Subsystem
336
Navigation Subsystems
340
Sensor(s)/Sensor Subsystems
344
Communication Subsystems
348
Media Subsystems
352
Device Interaction Subsystem
356

Fig. 3

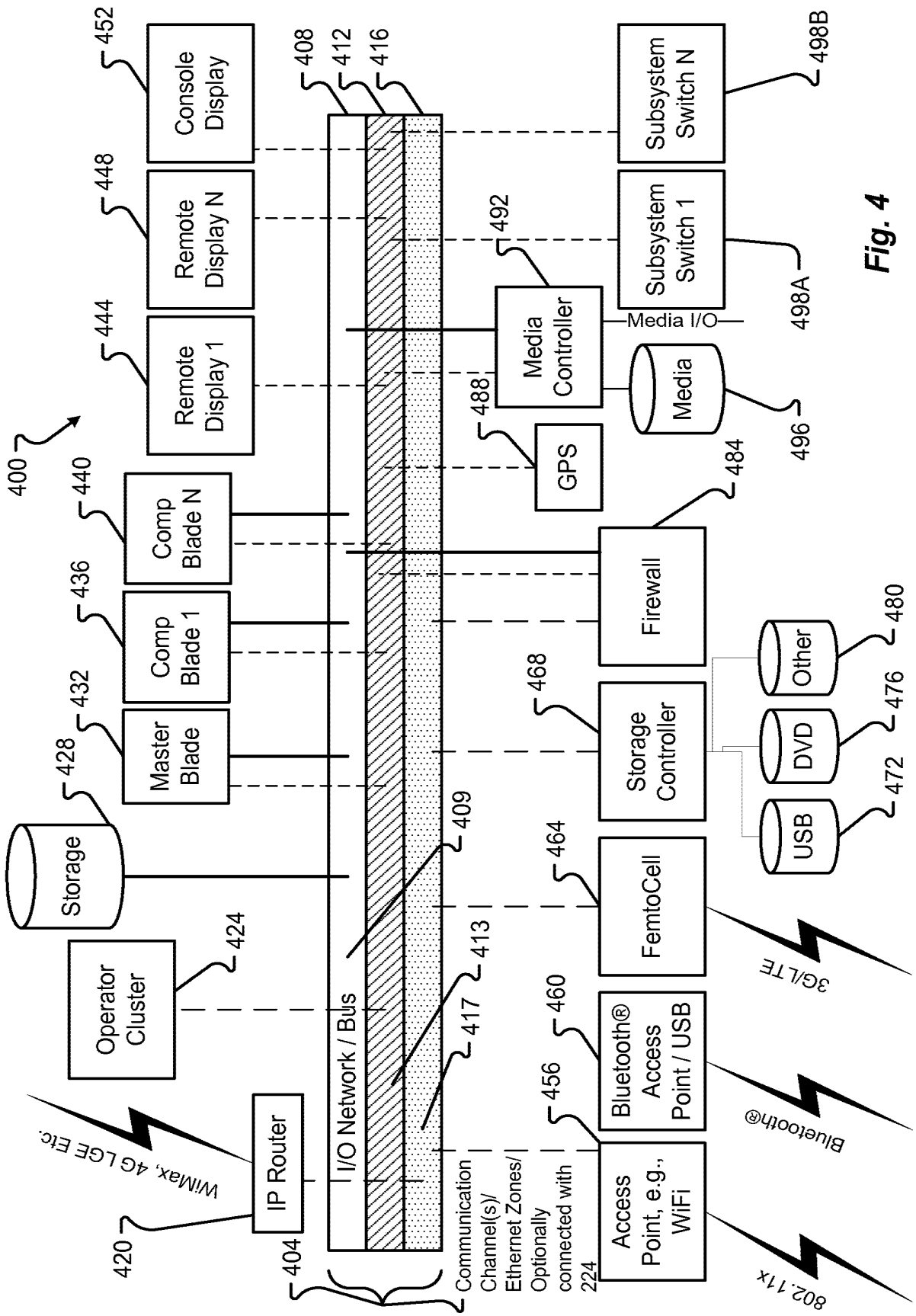

400
420
WiMax, 4G LGE Etc.
IP Router
404
I/O Network / Bus
Communication Channel(s)/ Ethernet Zones/ Optionally connected with 224
Operator Cluster
424
Storage
428
Master Blade
432
Comp Blade 1
436
Comp Blade N
440
Remote Display 1
444
Remote Display N
448
Console Display
452
Access Point, e.g., WiFi
456
Bluetooth® Access Point / USB
460
FemtoCell
464
Storage Controller
468
Firewall
484
GPS
488
Media Controller
492
Media
496
Subsystem Switch 1
498A
Subsystem Switch N
498B
Media I/O
USB
472
DVD
476
Other
480
802.11x
Bluetooth®
3G/LTE
408
412
416
409
413
417

Fig. 4

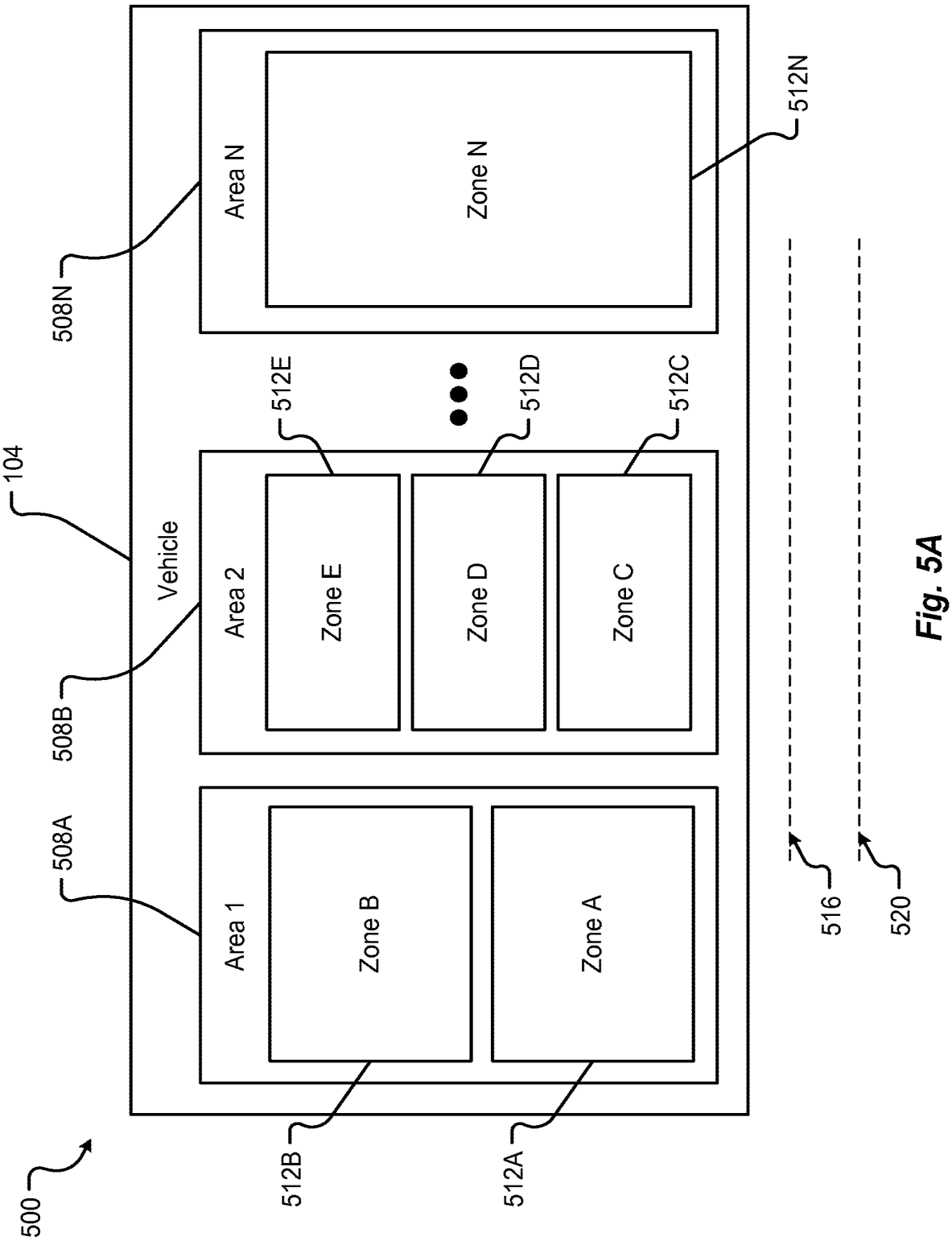

500
104
Vehicle
508A
Area 1
Zone B
Zone A
512B
512A
508B
Area 2
Zone E
Zone D
Zone C
512E
512D
512C
508N
Area N
Zone N
512N
516
520

Fig. 5A

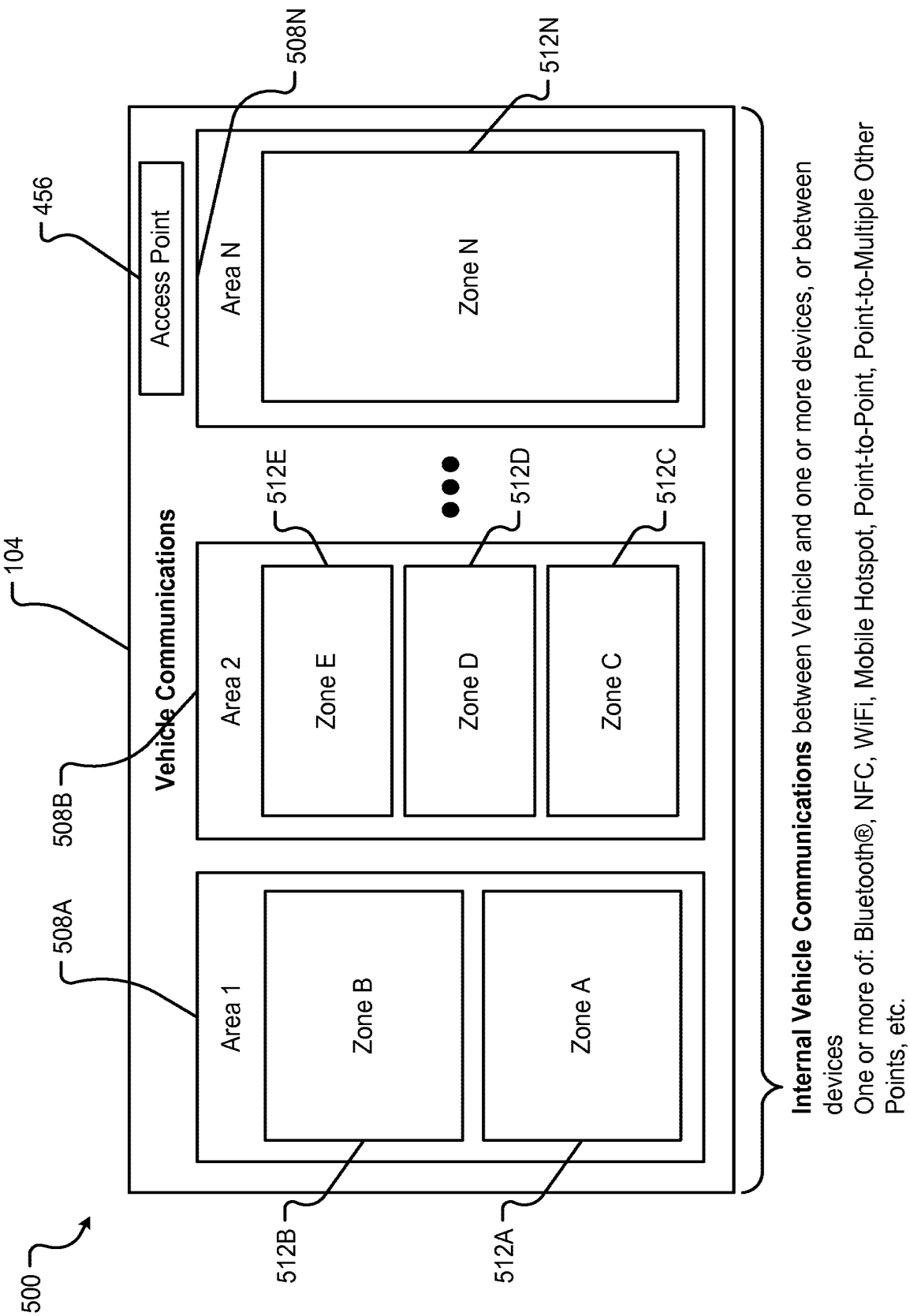

500
104
456
Access Point
Vehicle Communications
508A
508B
508N
Area 1
Area 2
Area N
Zone A
Zone B
Zone C
Zone D
Zone E
Zone N
512A
512B
512C
512D
512E
512N
Internal Vehicle Communications between Vehicle and one or more devices, or between devices
One or more of: Bluetooth®, NFC, WiFi, Mobile Hotspot, Point-to-Point, Point-to-Multiple Other Points, etc.

Fig. 5B

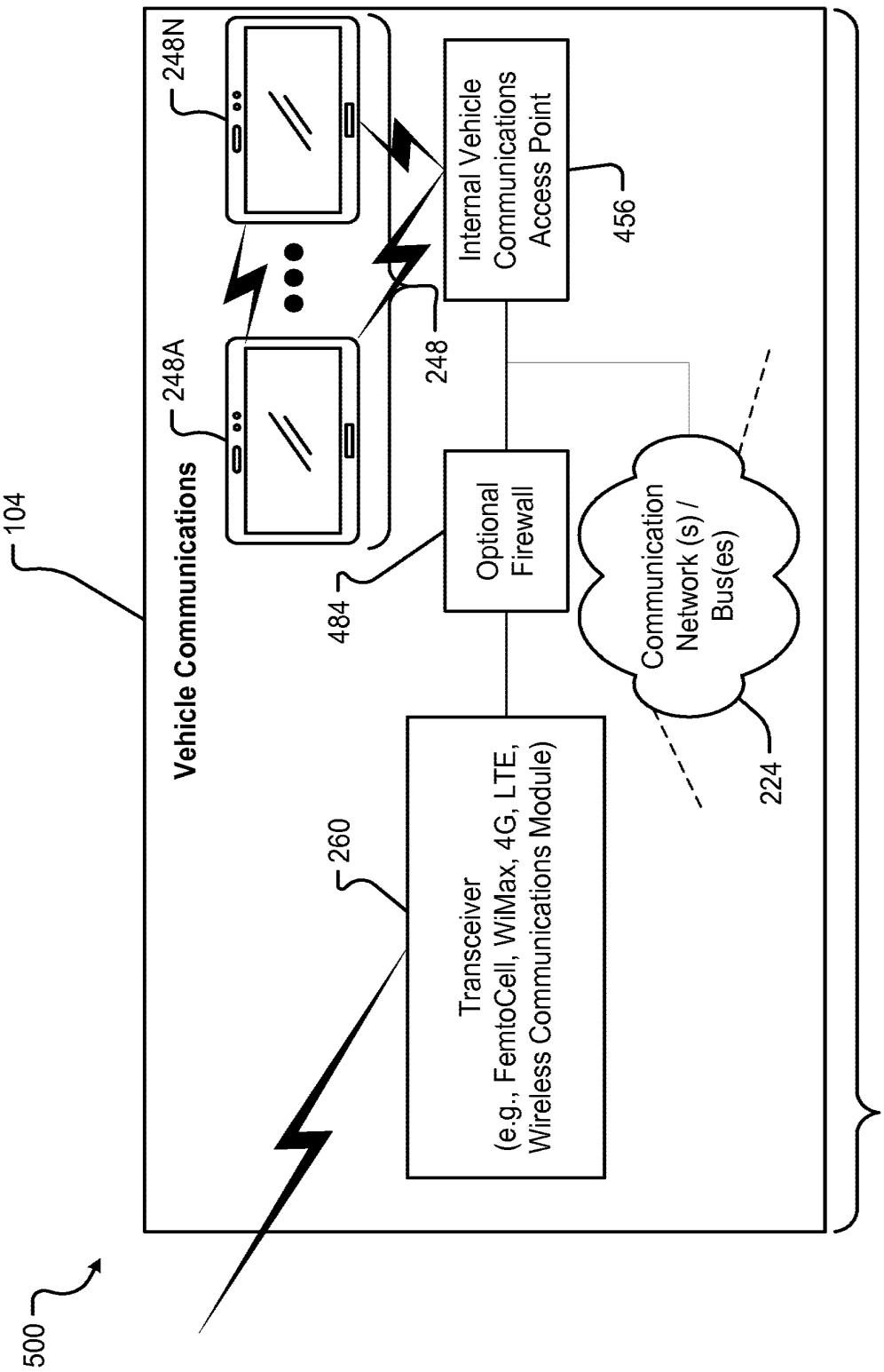

500
104
Vehicle Communications
248A
248N
248
Internal Vehicle Communications Access Point
456
484
Optional Firewall
260
Transceiver (e.g., FemtoCell, WiMax, 4G, LTE, Wireless Communications Module)
Communication Network (s) / Bus(es)
224
Internal Vehicle Communications between Vehicle and one or more devices, or between devices
One or more of: Bluetooth®, NFC, WiFi, Mobile Hotspot, Ethernet, 802.11(x), Point-to-Point, Point-to-Multiple Other Points, etc.

Fig. 5C

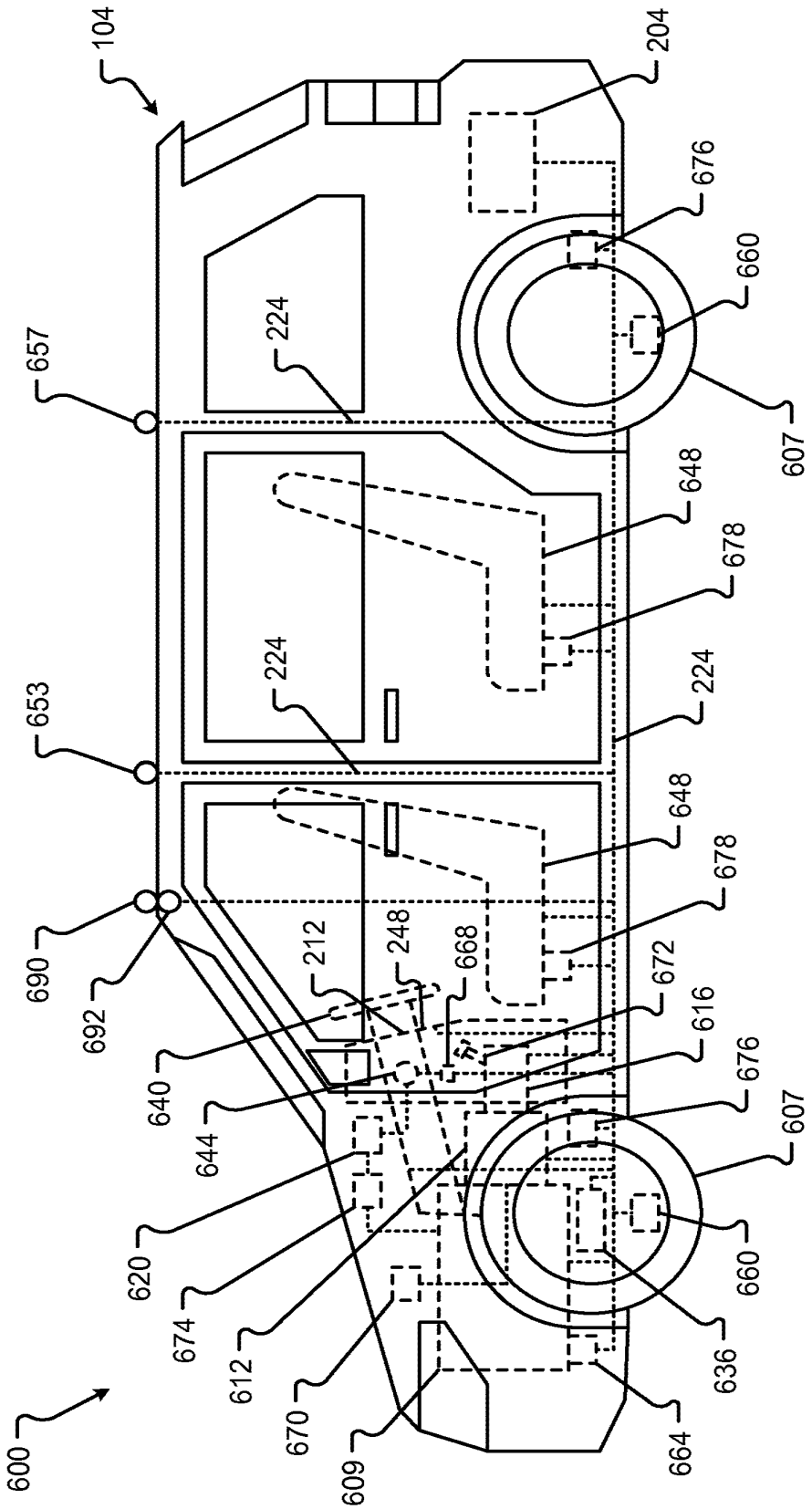

104
204
676
660
607
224
657
648
678
224
653
648
678
690
692
212
248
668
672
616
640
644
676
607
620
674
612
670
609
660
636
664
600

Fig. 6A

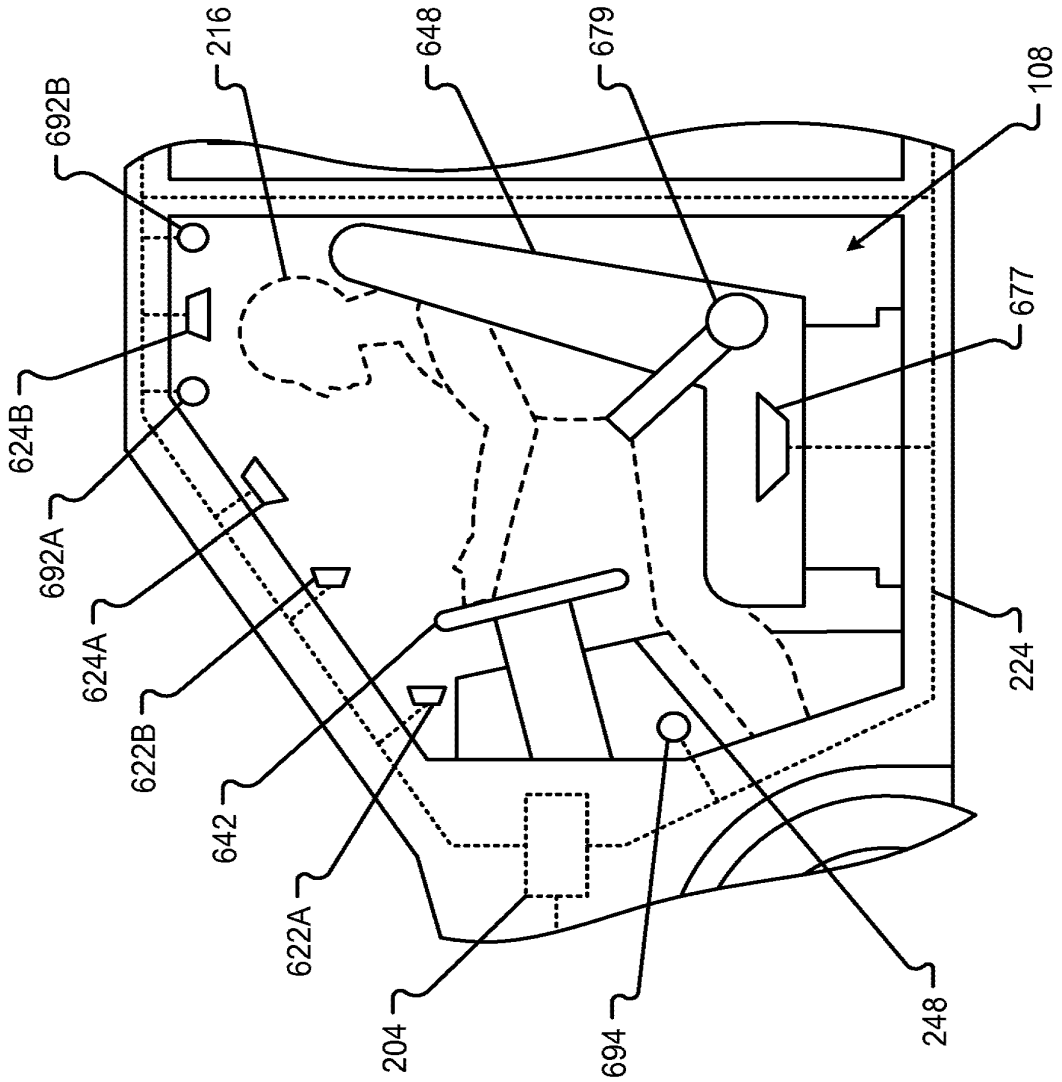

692B
216
648
679
108
624B
677
692A
624A
622B
642
622A
224
204
694
248

Fig. 6B

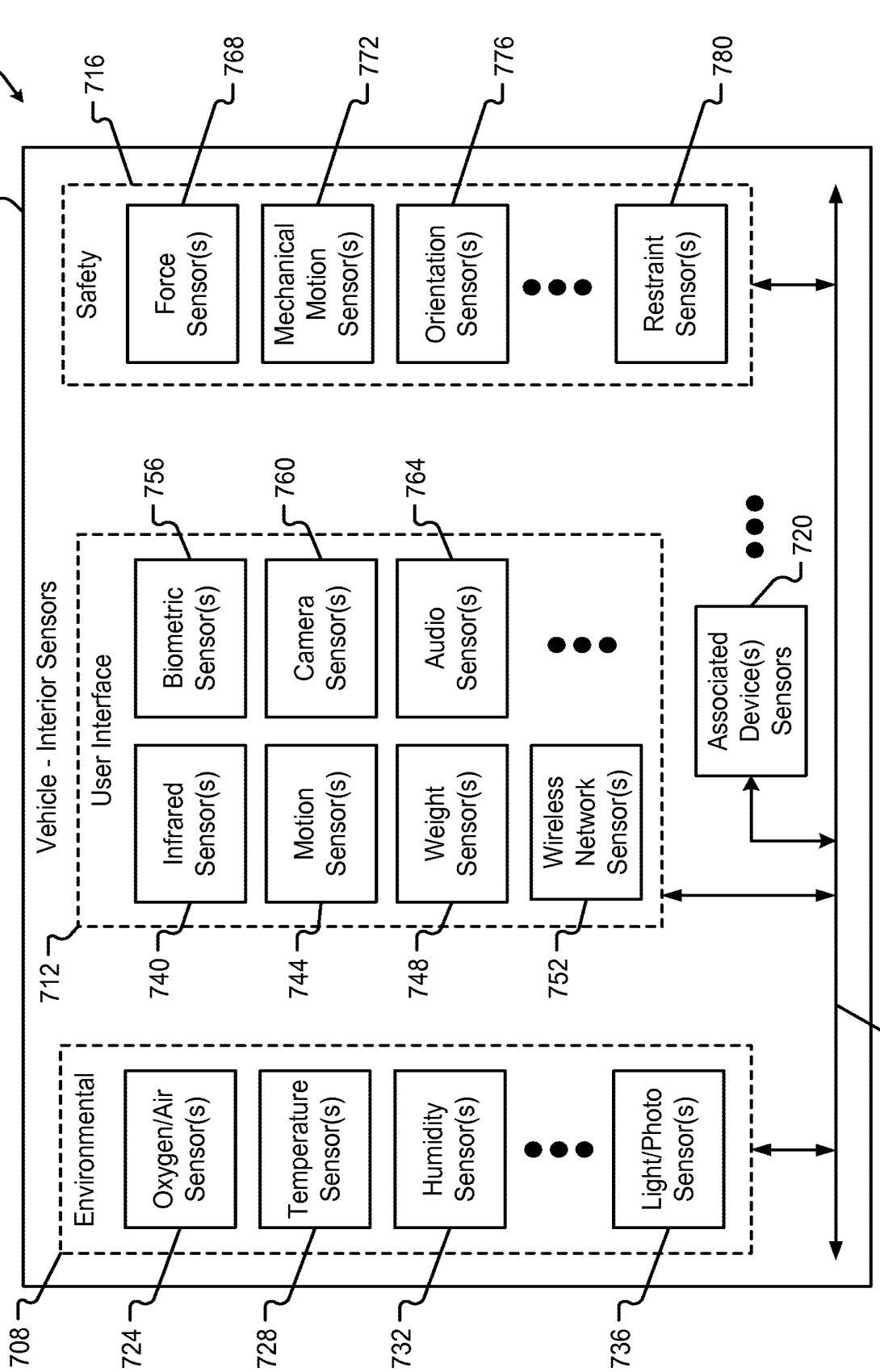

340
104
716
768
772
776
780
Safety
Force Sensor(s)
Mechanical Motion Sensor(s)
Orientation Sensor(s)
Restraint Sensor(s)
Vehicle - Interior Sensors
User Interface
712
756
760
764
Biometric Sensor(s)
Camera Sensor(s)
Audio Sensor(s)
Infrared Sensor(s)
Motion Sensor(s)
Weight Sensor(s)
Wireless Network Sensor(s)
740
744
748
752
720
Associated Device(s) Sensors
356
Environmental
708
Oxygen/Air Sensor(s)
Temperature Sensor(s)
Humidity Sensor(s)
Light/Photo Sensor(s)
724
728
732
736

Fig. 7A

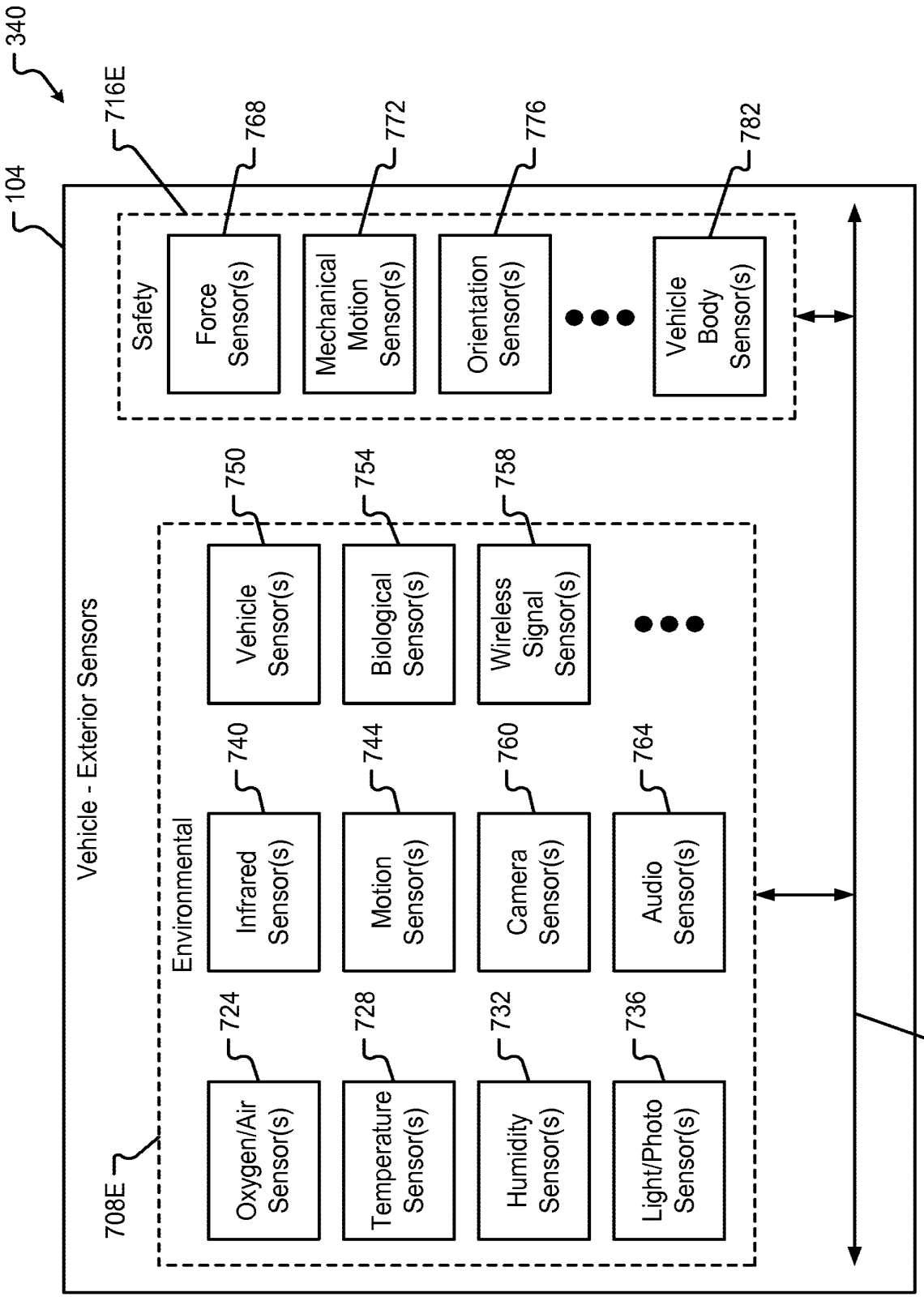

340
716E
768
772
776
782
104
Safety
Force Sensor(s)
Mechanical Motion Sensor(s)
Orientation Sensor(s)
Vehicle Body Sensor(s)
750
754
758
Vehicle - Exterior Sensors
Vehicle Sensor(s)
Biological Sensor(s)
Wireless Signal Sensor(s)
740
744
760
764
Environmental
Infrared Sensor(s)
Motion Sensor(s)
Camera Sensor(s)
Audio Sensor(s)
724
728
732
736
Oxygen/Air Sensor(s)
Temperature Sensor(s)
Humidity Sensor(s)
Light/Photo Sensor(s)
708E
356

Fig. 7B

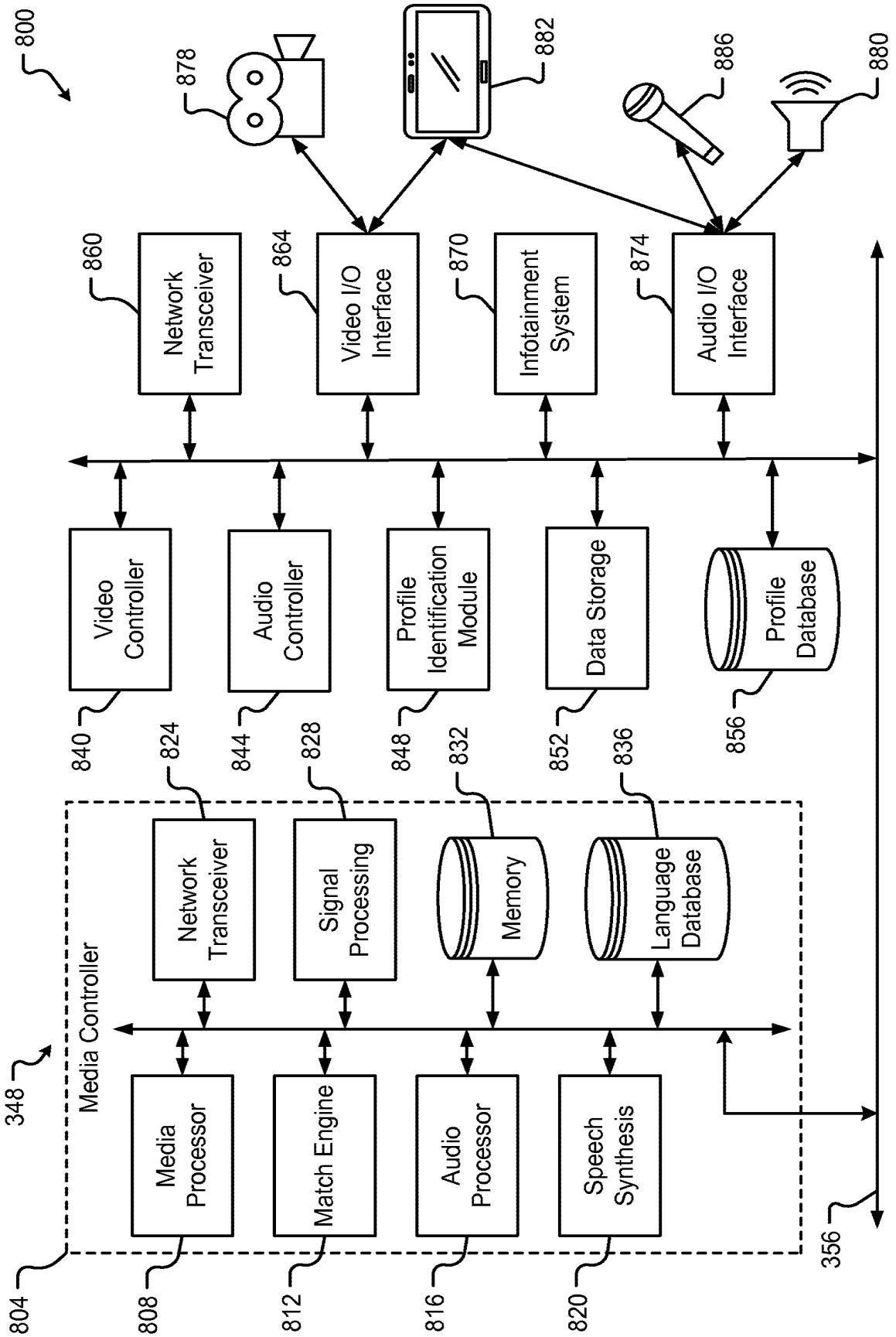

800
878
882
886
880
860
Network Transceiver
864
Video I/O Interface
870
Infotainment System
874
Audio I/O Interface
Video Controller
Audio Controller
Profile Identification Module
Data Storage
Profile Database
840
844
848
852
856
824
828
832
836
348
Media Controller
Network Transceiver
Signal Processing
Memory
Language Database
Media Processor
Match Engine
Audio Processor
Speech Synthesis
804
808
812
816
820
356

Fig. 8A

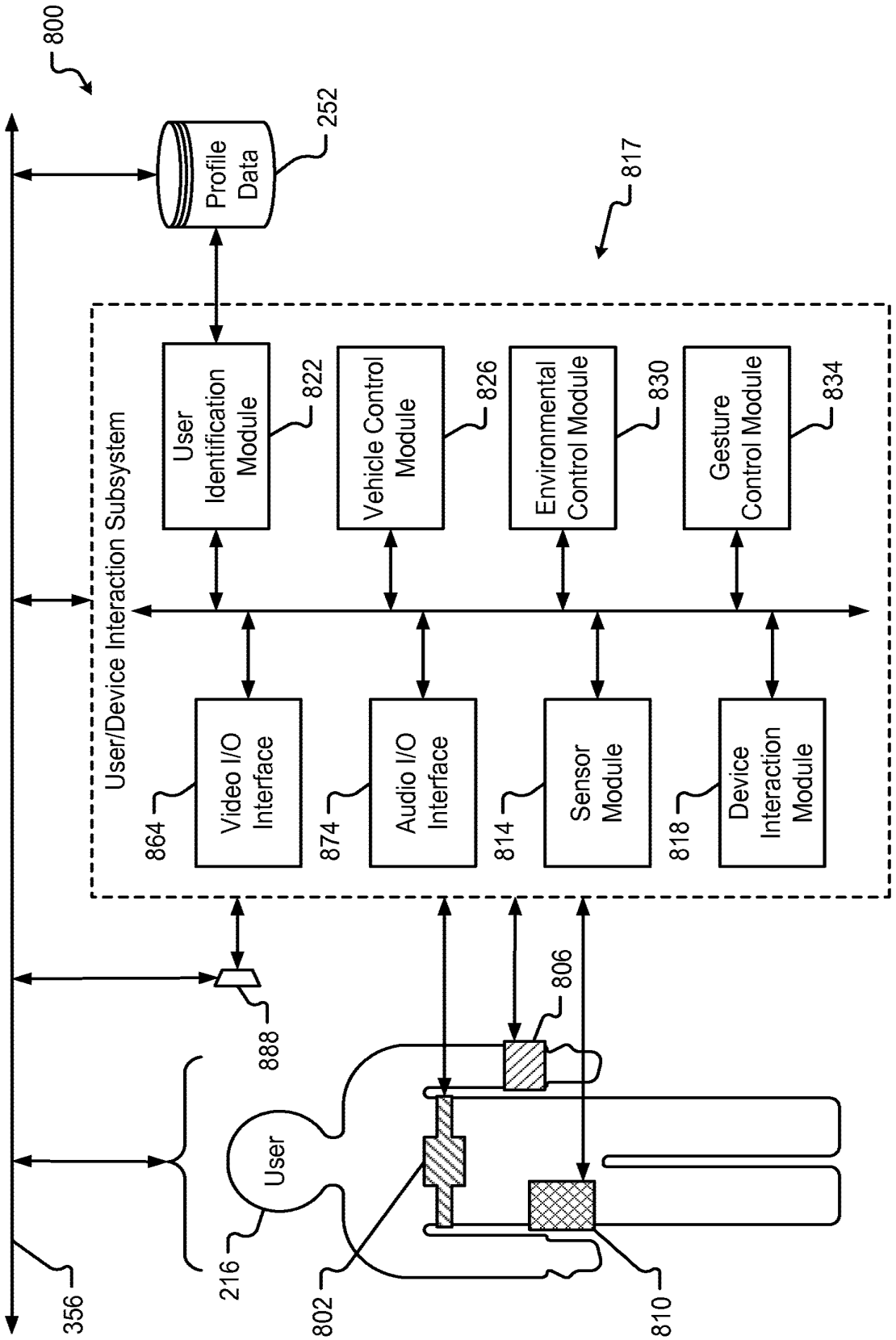

800
252
Profile Data
817
User/Device Interaction Subsystem
User Identification Module
822
Vehicle Control Module
826
Environmental Control Module
830
Gesture Control Module
834
Video I/O Interface
864
Audio I/O Interface
874
Sensor Module
814
Device Interaction Module
818
888
806
User
216
802
810
356

Fig. 8B

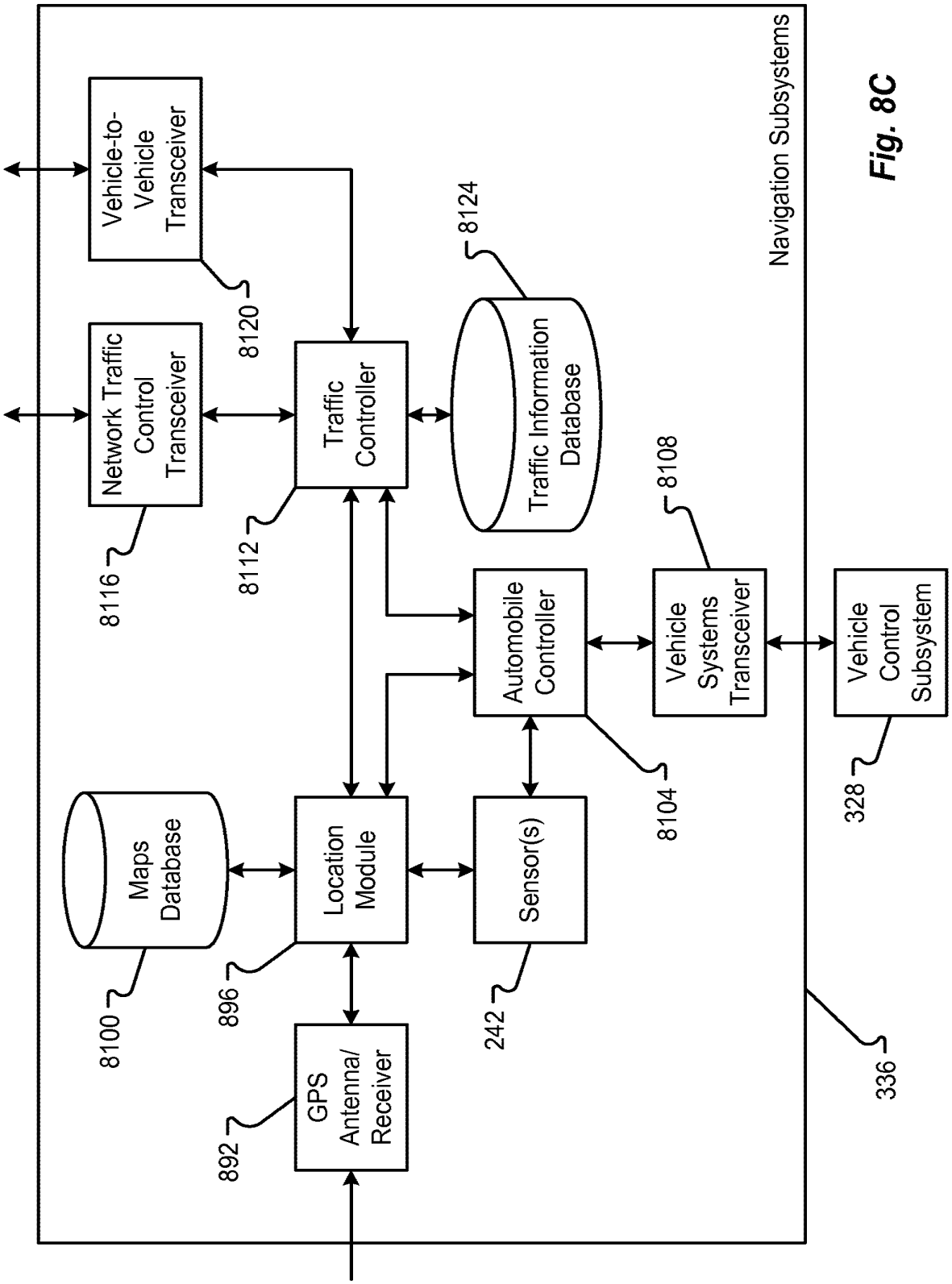

Navigation Subsystems
Vehicle-to-Vehicle Transceiver
8120
8124
Network Traffic Control Transceiver
Traffic Controller
Traffic Information Database
8116
8112
8108
Automobile Controller
Vehicle Systems Transceiver
Vehicle Control Subsystem
8104
328
Maps Database
Location Module
Sensor(s)
8100
896
242
GPS Antenna/ Receiver
892
336

Fig. 8C

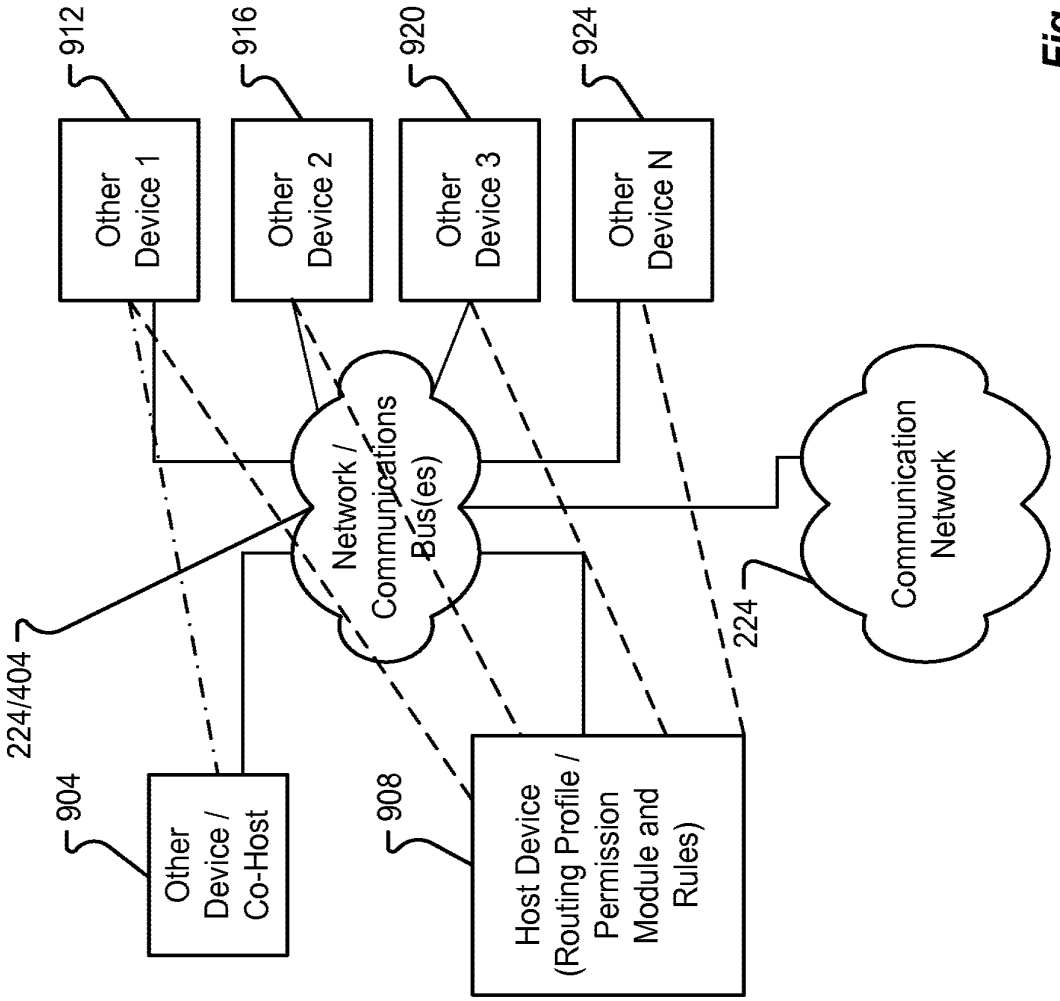

912
916
920
924
Other Device 1
Other Device 2
Other Device 3
Other Device N
Network / Communications Bus(es)
Communication Network
224/404
224
904
Other Device / Co-Host
908
Host Device (Routing Profile / Permission Module and Rules)

Fig. 9

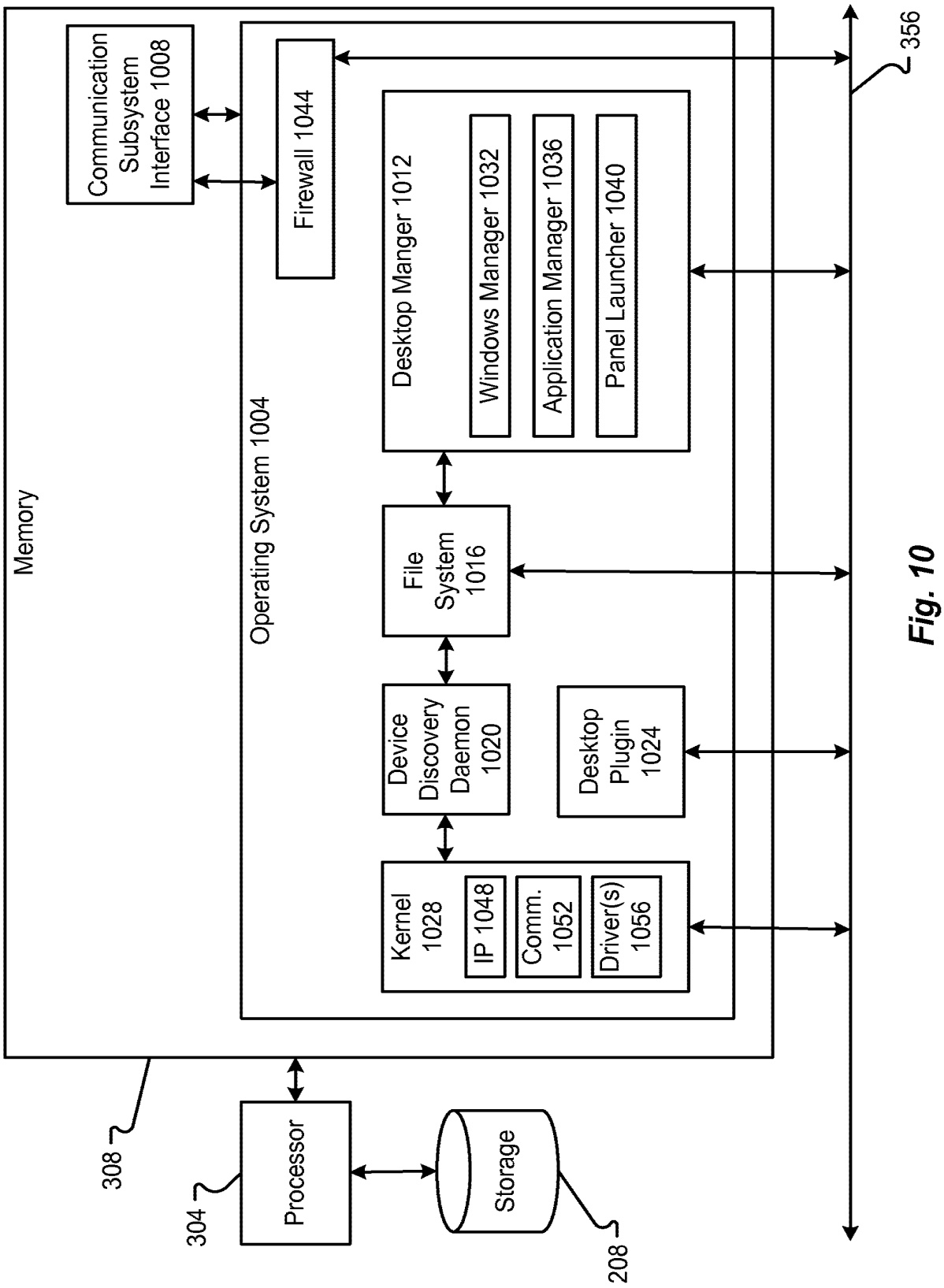

Memory
Communication Subsystem Interface 1008
Operating System 1004
Firewall 1044
Desktop Manger 1012
Windows Manager 1032
Application Manager 1036
Panel Launcher 1040
File System 1016
Device Discovery Daemon 1020
Desktop Plugin 1024
Kernel 1028
IP 1048
Comm. 1052
Driver(s) 1056
Processor
Storage
308
304
208
356

Fig. 10

Tap

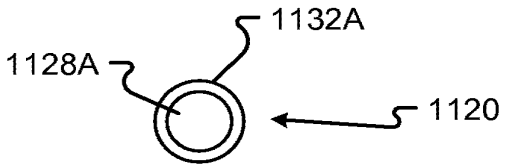


FIG. 11A

Long Press

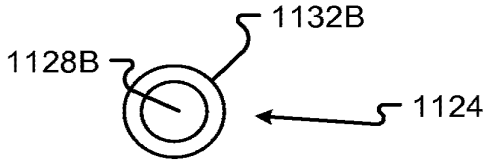


FIG. 11B

Drag

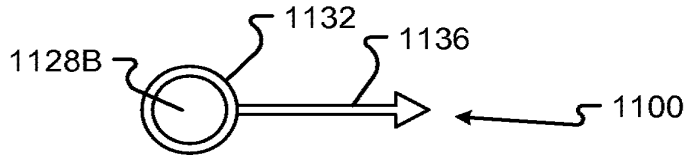


FIG. 11C

Flick

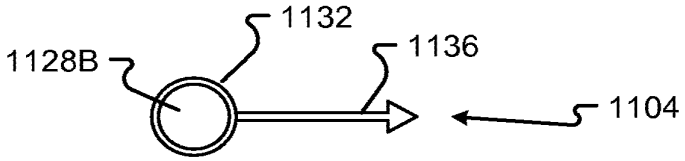


FIG. 11D

Pinch

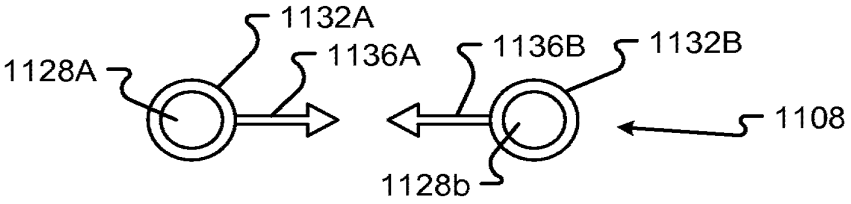


FIG. 11E

Spread

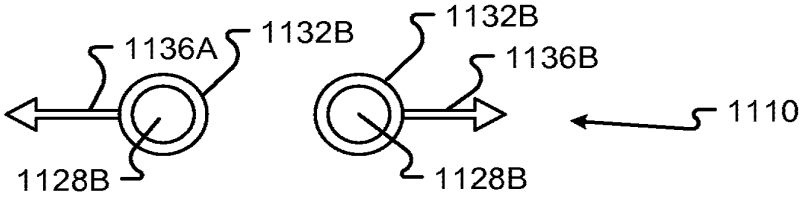


FIG. 11F

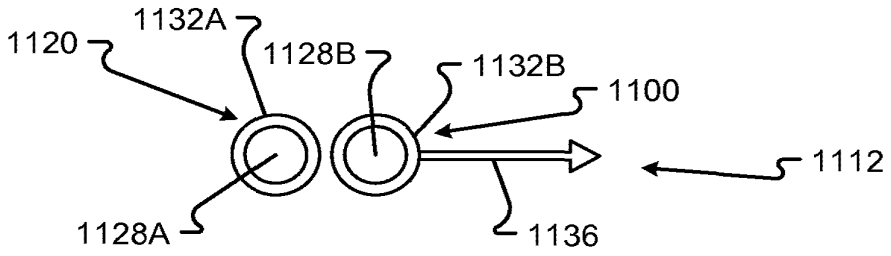


FIG. 11G

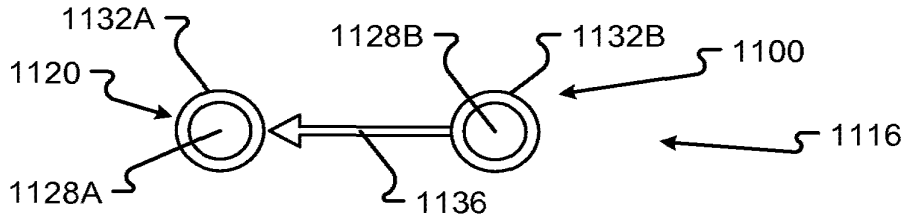


FIG. 11H

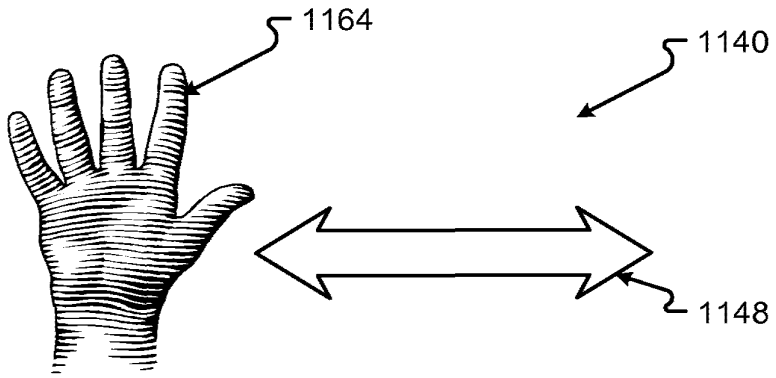


FIG. 11I

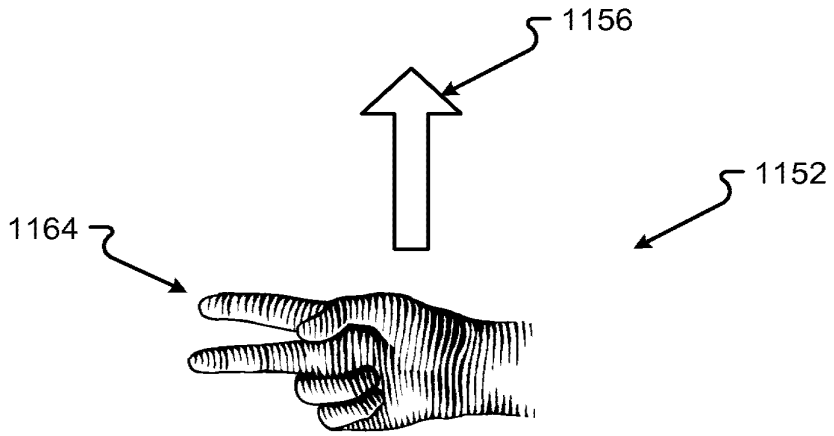


FIG. 11J

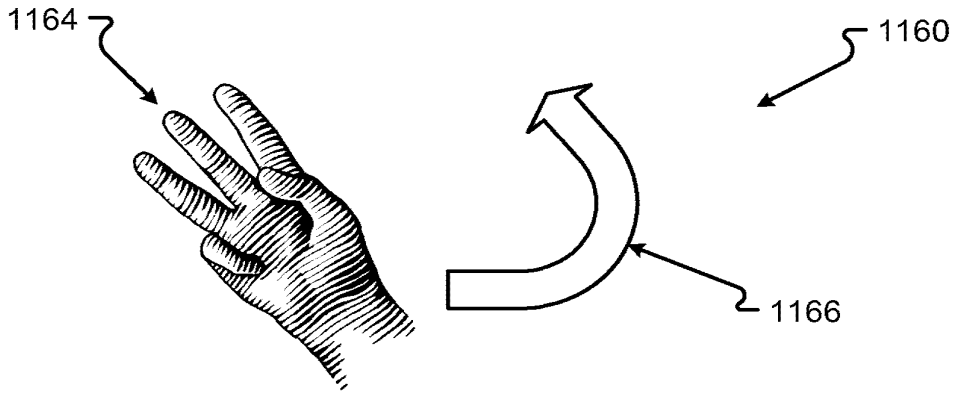


FIG. 11K

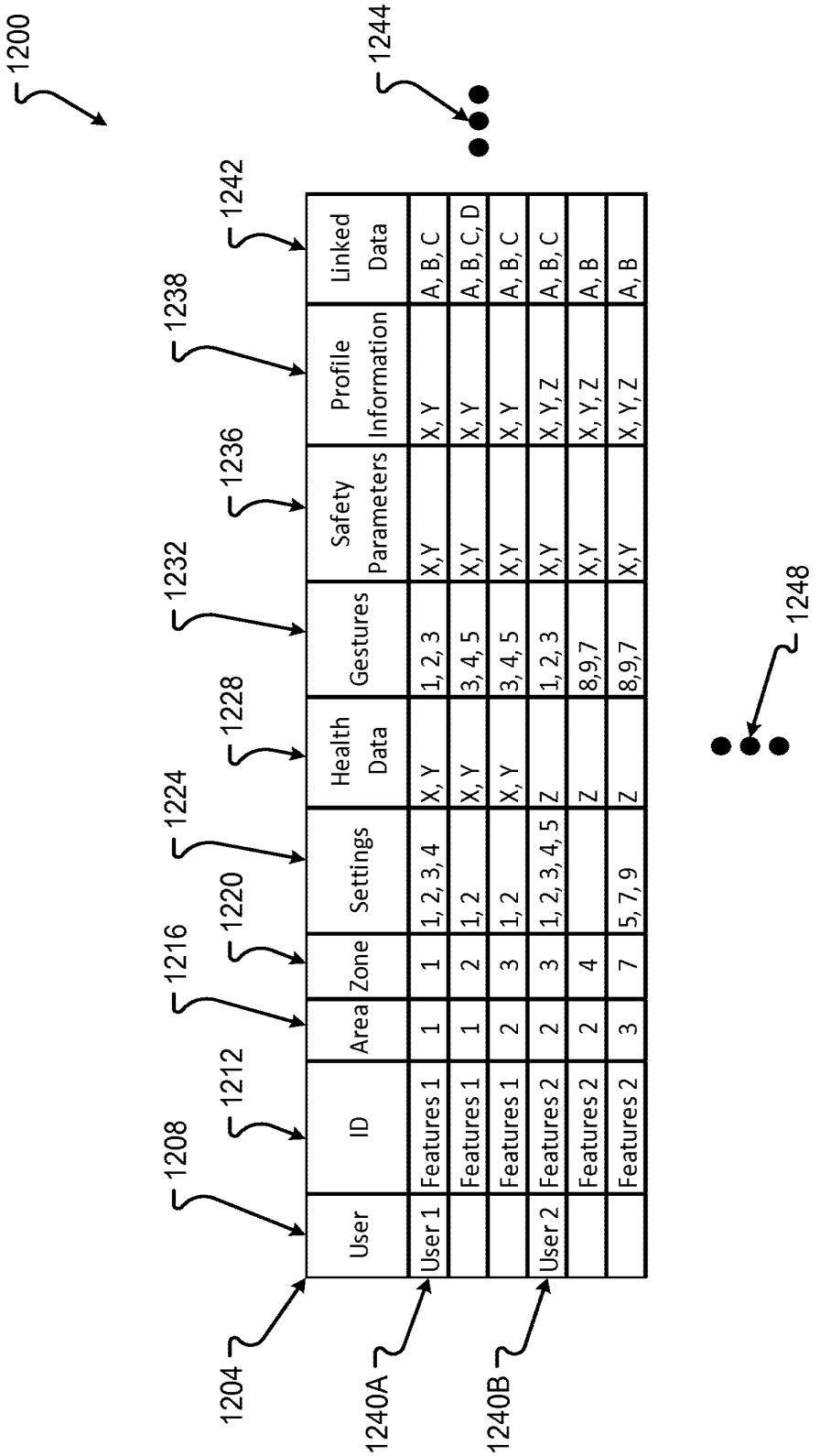
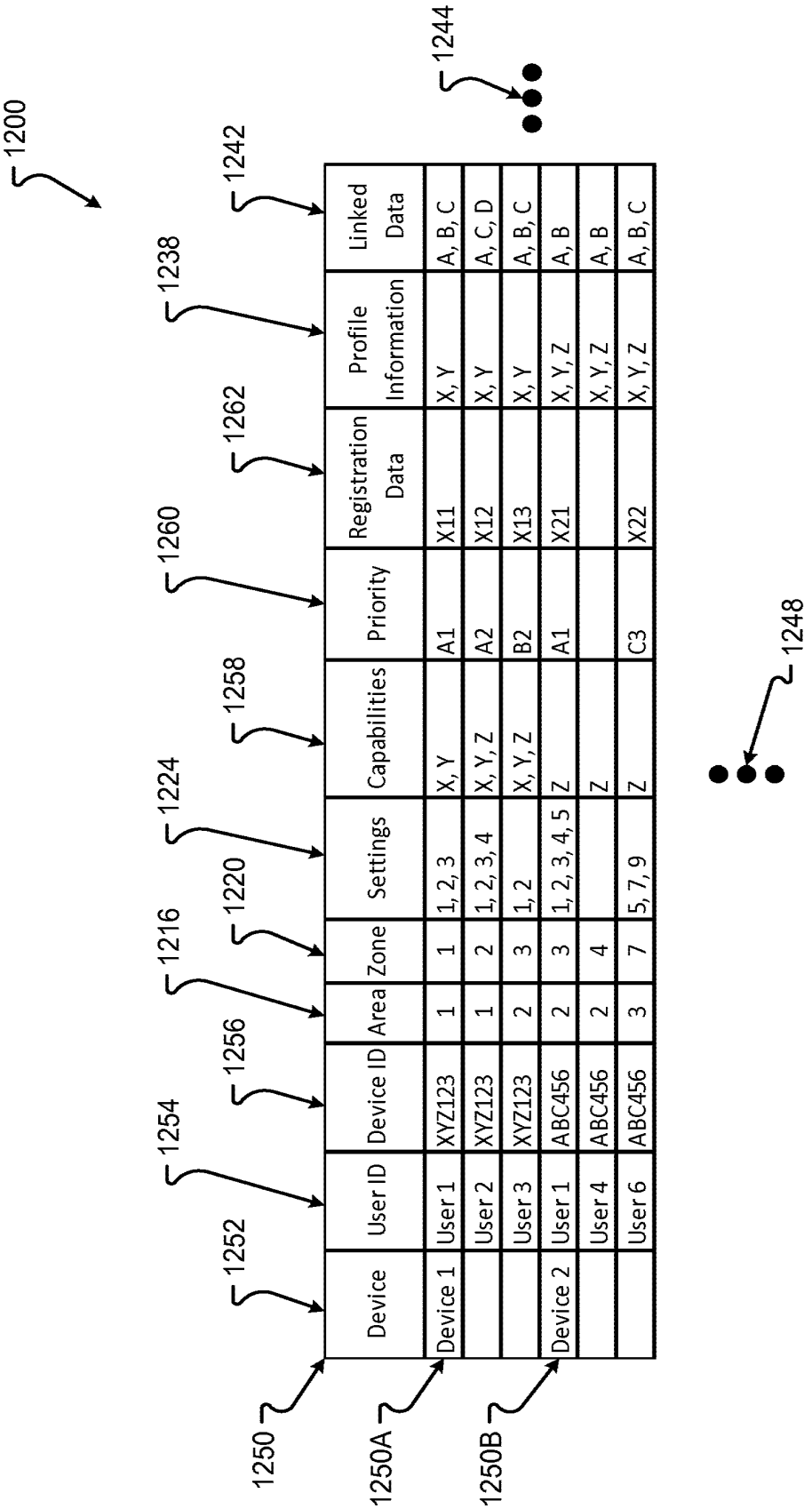
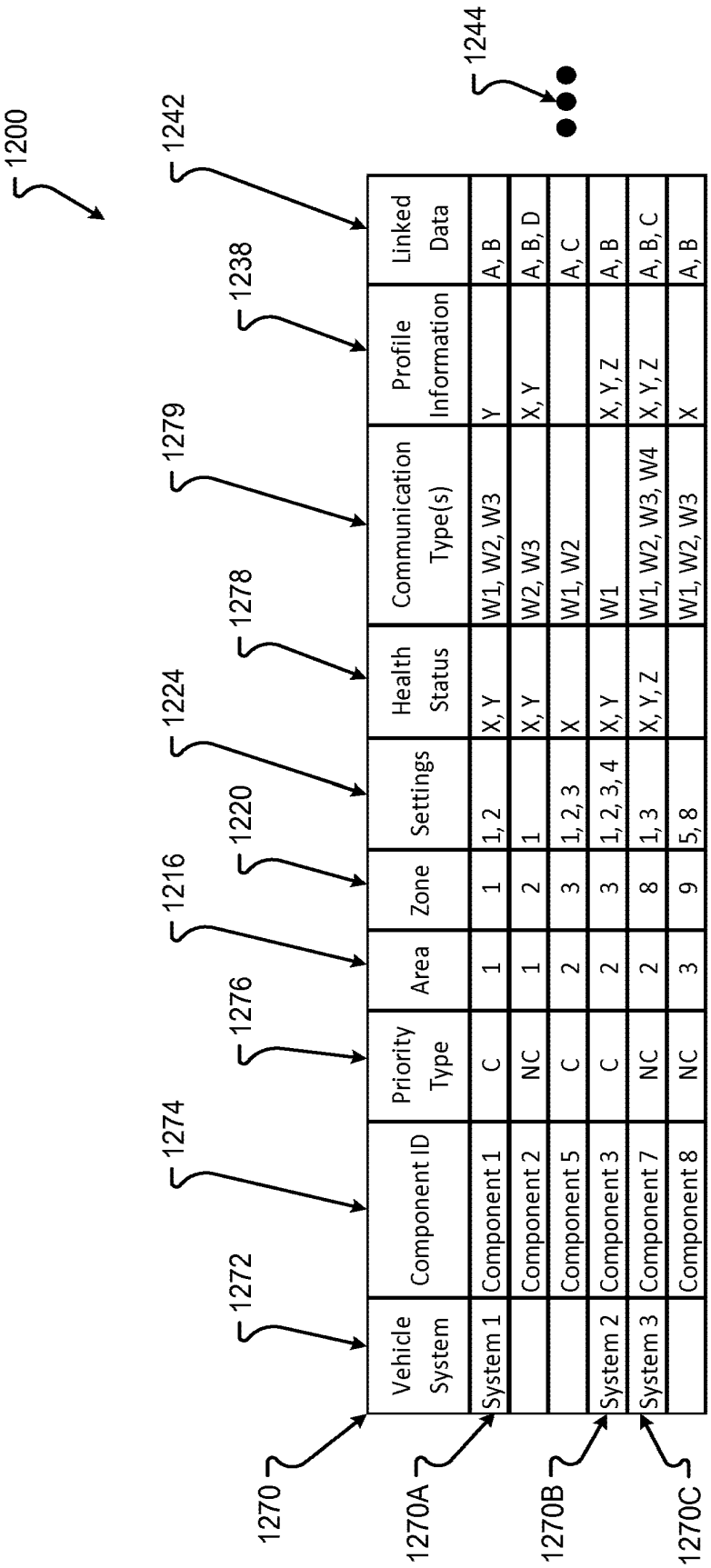

1200
1244
1208
1212
1216
1220
1224
1228
1232
1236
1238
1242
1204
1240A
1240B
1248
User
ID
Area
Zone
Settings
Health Data
Gestures
Safety Parameters
Profile Information
Linked Data
User 1
Features 1
1
1
1, 2, 3, 4
X, Y
1, 2, 3
X,Y
X, Y
A, B, C
Features 1
1
2
1, 2
X, Y
3, 4, 5
X,Y
X, Y
A, B, C, D
Features 1
2
3
1, 2
X, Y
3, 4, 5
X,Y
X, Y
A, B, C
User 2
Features 2
2
3
1, 2, 3, 4, 5
Z
1, 2, 3
X,Y
X, Y, Z
A, B, C
Features 2
2
4
Z
8,9,7
X,Y
X, Y, Z
A, B
Features 2
3
7
5, 7, 9
Z
8,9,7
X,Y
X, Y, Z
A, B

Fig. 12A



Device	User ID	Device ID	Area	Zone	Settings	Capabilities	Priority	Registration Data	Profile Information	Linked Data
Device 1	User 1	XYZ123	1	1	1, 2, 3	X, Y	A1	X11	X, Y	A, B, C
	User 2	XYZ123	1	2	1, 2, 3, 4	X, Y, Z	A2	X12	X, Y	A, C, D
	User 3	XYZ123	2	3	1, 2	X, Y, Z	B2	X13	X, Y	A, B, C
Device 2	User 1	ABC456	2	3	1, 2, 3, 4, 5	Z	A1	X21	X, Y, Z	A, B
	User 4	ABC456	2	4		Z			X, Y, Z	A, B
	User 6	ABC456	3	7	5, 7, 9	Z	C3	X22	X, Y, Z	A, B, C

Fig. 12B



Vehicle System	Component ID	Priority Type	Area	Zone	Settings	Health Status	Communication Type(s)	Profile Information	Linked Data
System 1	Component 1	C	1	1	1, 2	X, Y	W1, W2, W3	Y	A, B
	Component 2	NC	1	2	1	X, Y	W2, W3	X, Y	A, B, D
	Component 5	C	2	3	1, 2, 3	X	W1, W2		A, C
System 2	Component 3	C	2	3	1, 2, 3, 4	X, Y	W1	X, Y, Z	A, B
System 3	Component 7	NC	2	8	1, 3	X, Y, Z	W1, W2, W3, W4	X, Y, Z	A, B, C
	Component 8	NC	3	9	5, 8		W1, W2, W3	X	A, B

Fig. 12C

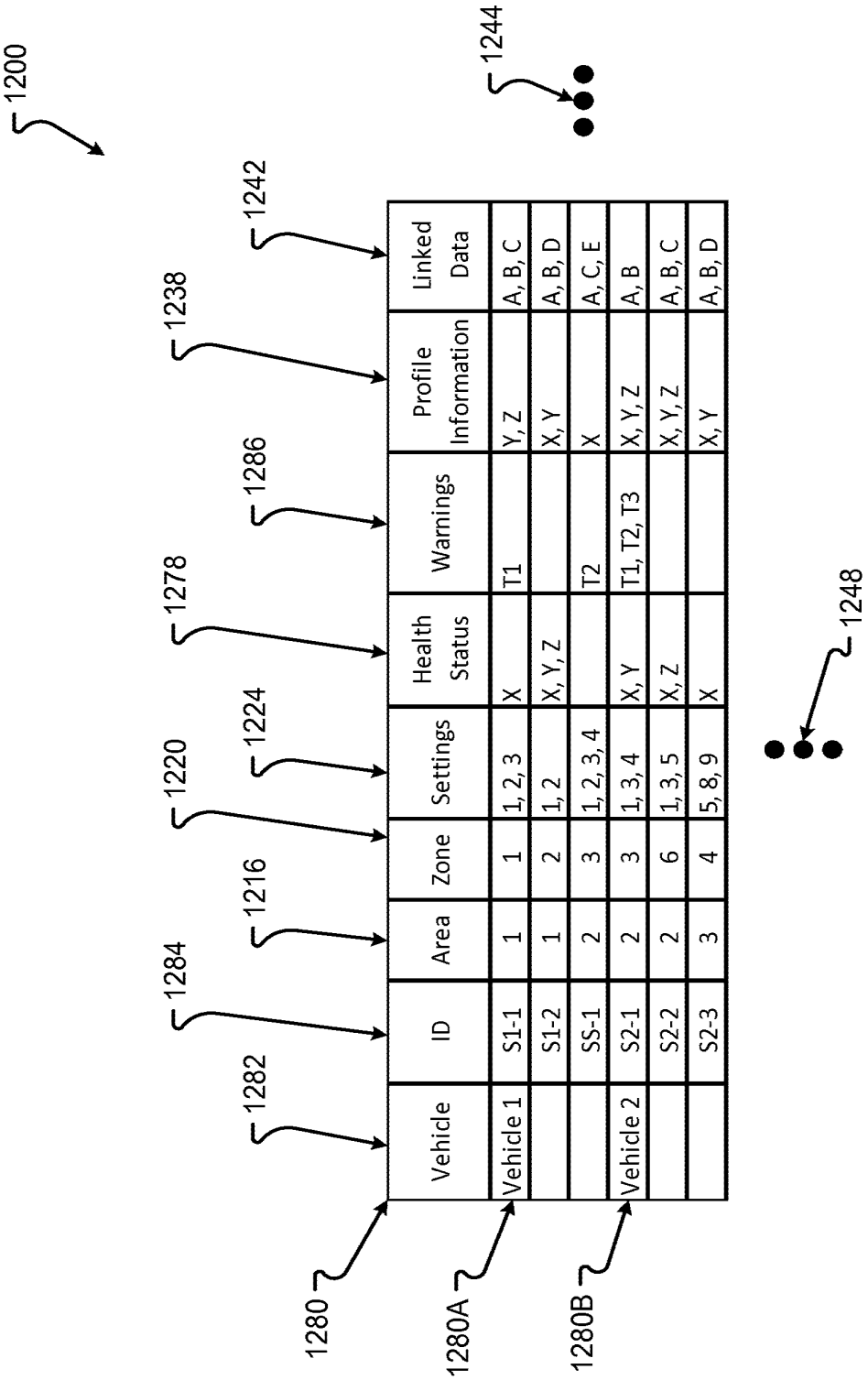

1200
1244
1242
1238
1286
1278
1220
1224
1216
1284
1282
1280
1280A
1280B
1248
Vehicle
ID
Area
Zone
Settings
Health Status
Warnings
Profile Information
Linked Data
Vehicle 1
S1-1
1
1
1, 2, 3
X
T1
Y, Z
A, B, C
S1-2
1
2
1, 2
X, Y, Z
X, Y
A, B, D
SS-1
2
3
1, 2, 3, 4
T2
X
A, C, E
Vehicle 2
S2-1
2
3
1, 3, 4
X, Y
T1, T2, T3
X, Y, Z
A, B
S2-2
2
6
1, 3, 5
X, Z
X, Y, Z
A, B, C
S2-3
3
4
5, 8, 9
X
X, Y
A, B, D

Fig. 12D

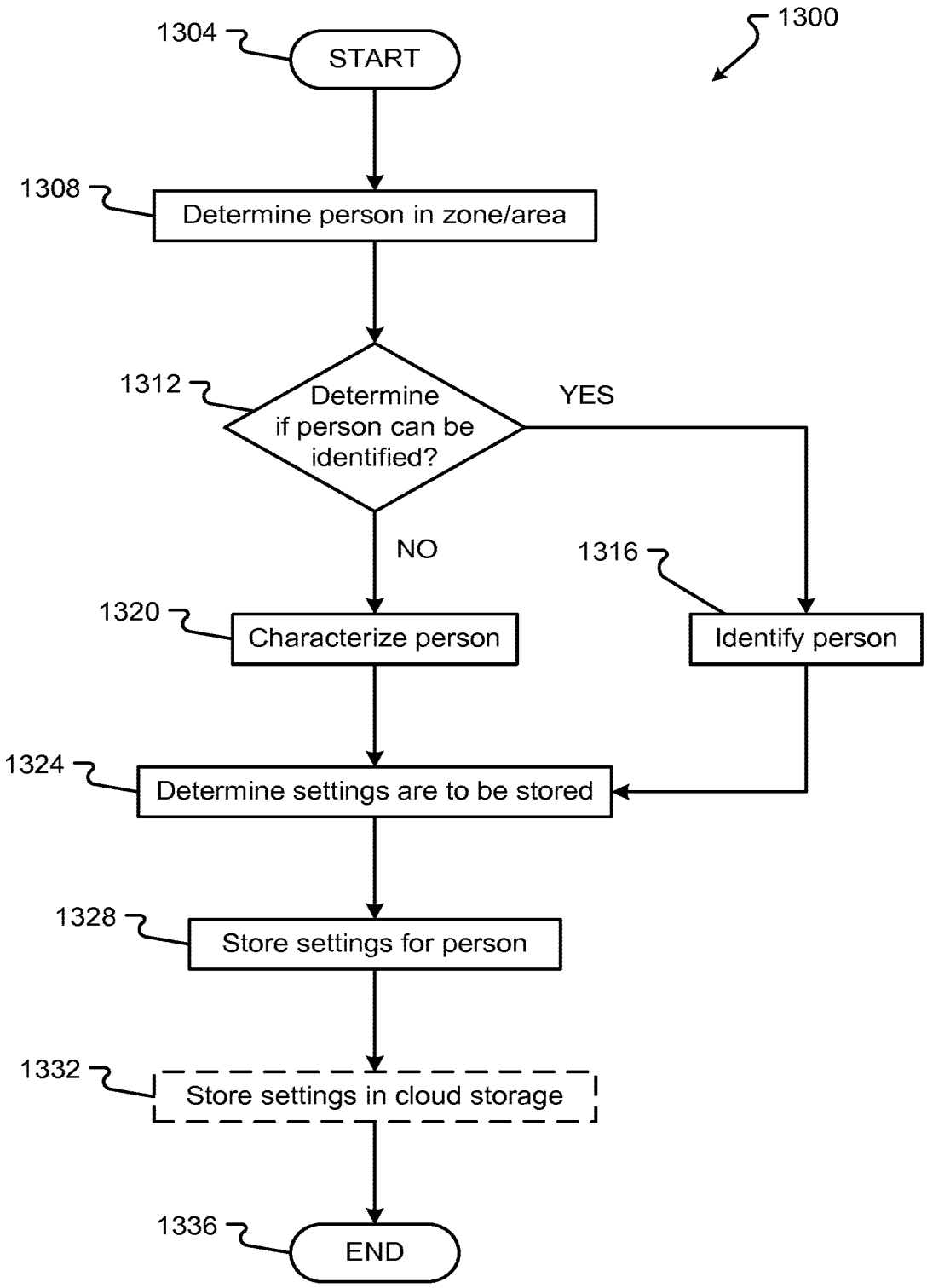

1300
1304
START
1308
Determine person in zone/area
1312
Determine if person can be identified?
YES
NO
1316
Identify person
1320
Characterize person
1324
Determine settings are to be stored
1328
Store settings for person
1332
Store settings in cloud storage
1336
END

Fig. 13

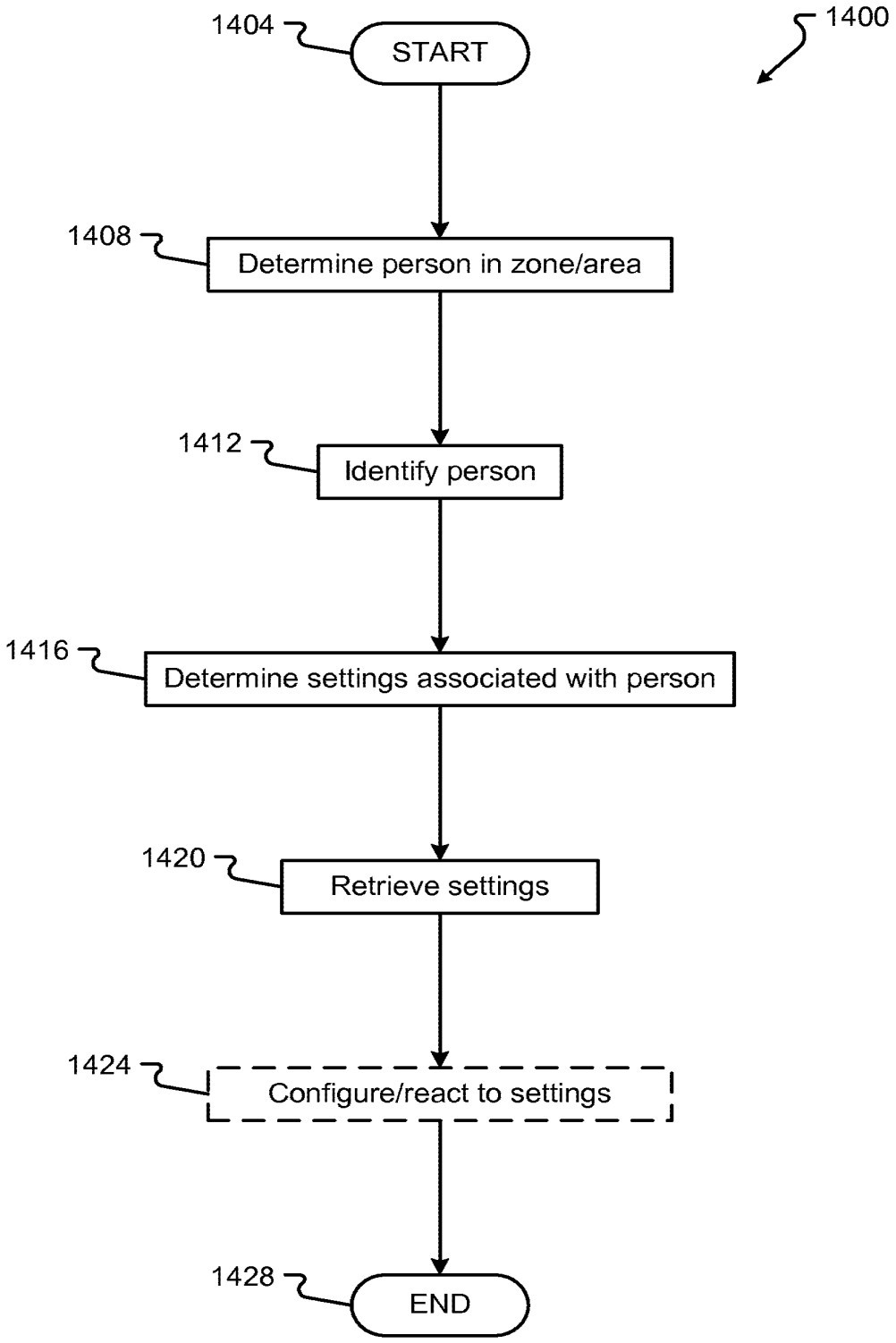

1400
1404
START
1408
Determine person in zone/area
1412
Identify person
1416
Determine settings associated with person
1420
Retrieve settings
1424
Configure/react to settings
1428
END

Fig. 14

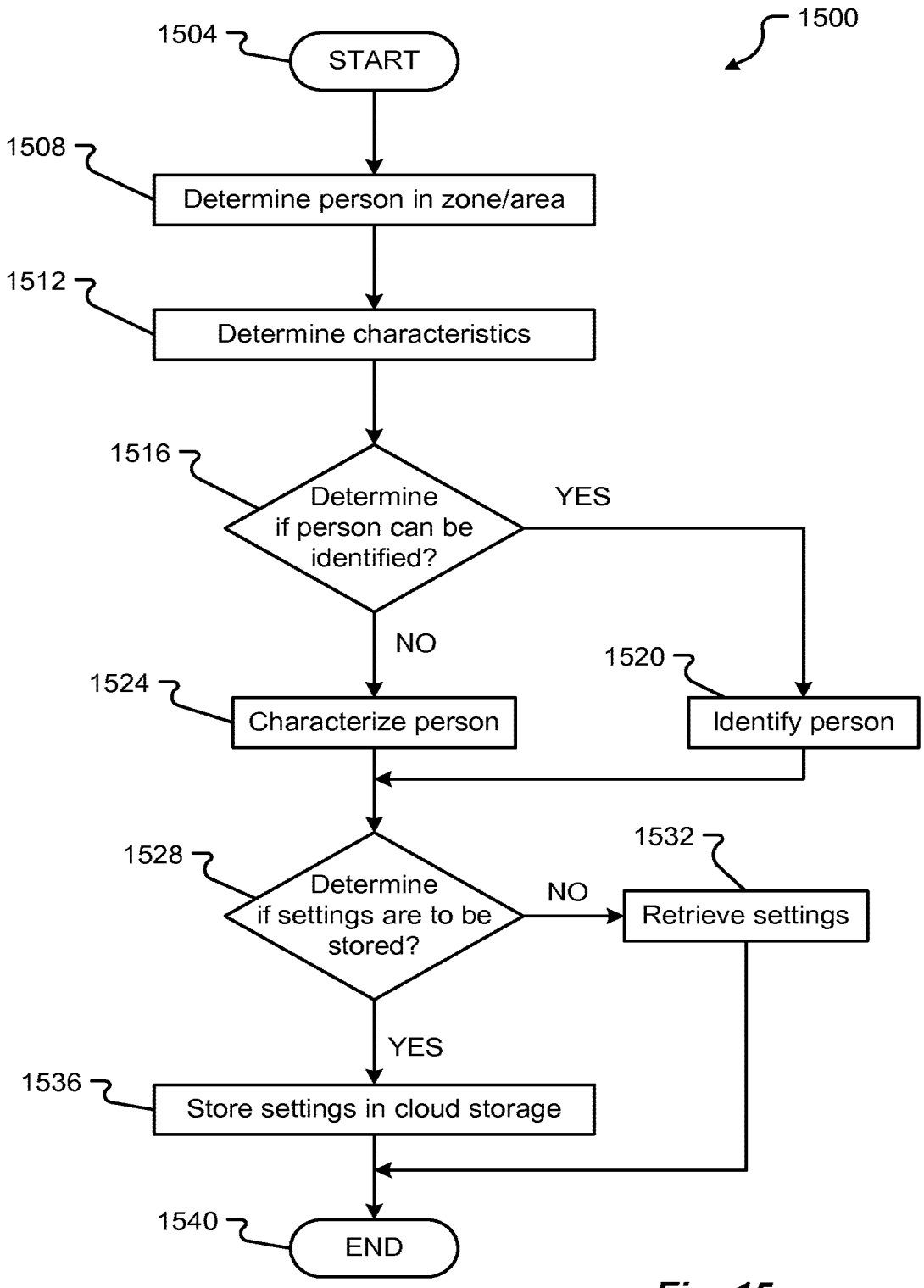

1500
1504
START
1508
Determine person in zone/area
1512
Determine characteristics
1516
Determine if person can be identified?
YES
NO
1520
Identify person
1524
Characterize person
1528
Determine if settings are to be stored?
NO
1532
Retrieve settings
YES
1536
Store settings in cloud storage
1540
END

Fig. 15

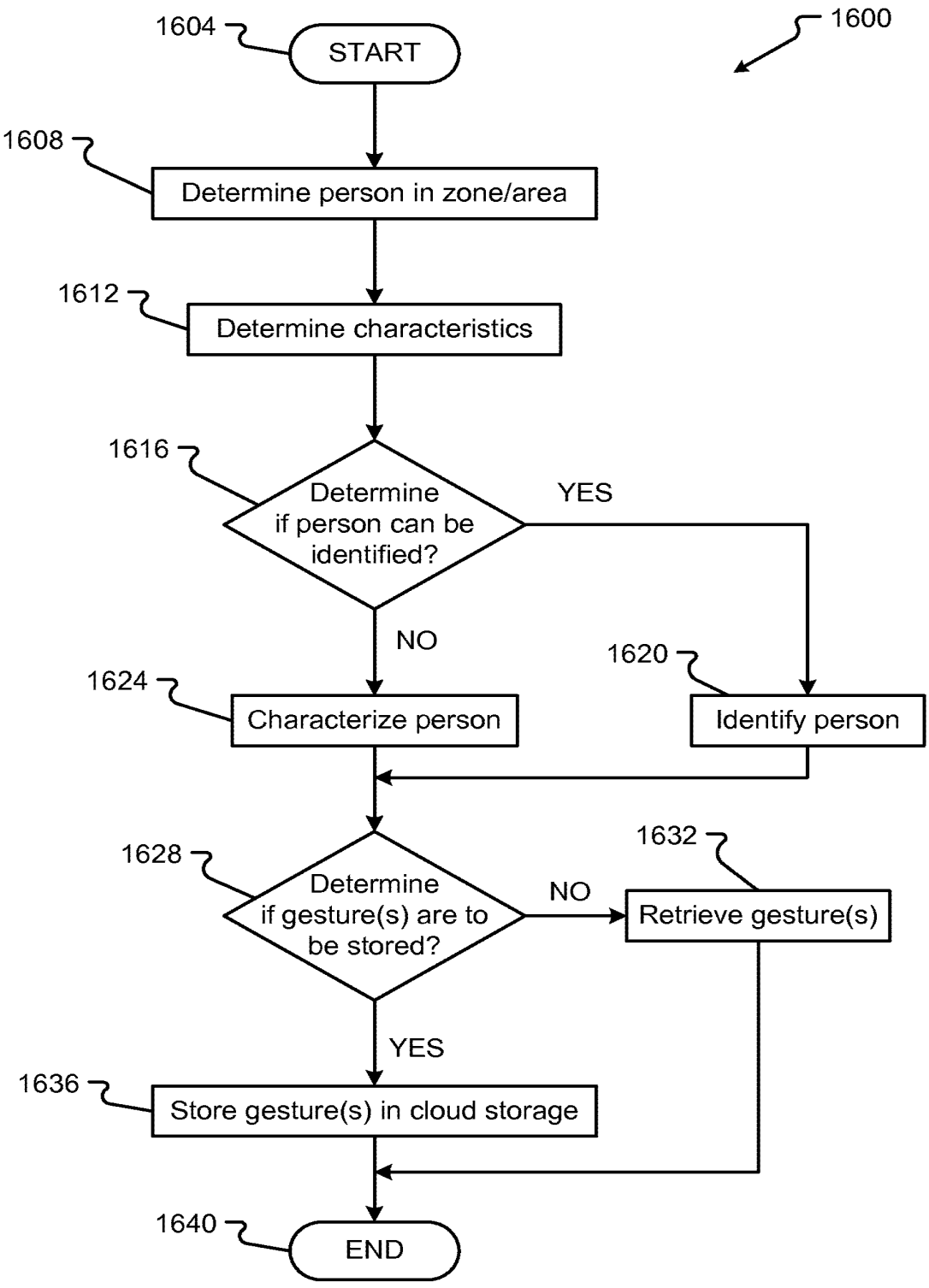

1600
1604
START
1608
Determine person in zone/area
1612
Determine characteristics
1616
Determine if person can be identified?
YES
NO
1620
Identify person
1624
Characterize person
1628
Determine if gesture(s) are to be stored?
NO
1632
Retrieve gesture(s)
YES
1636
Store gesture(s) in cloud storage
1640
END

Fig. 16

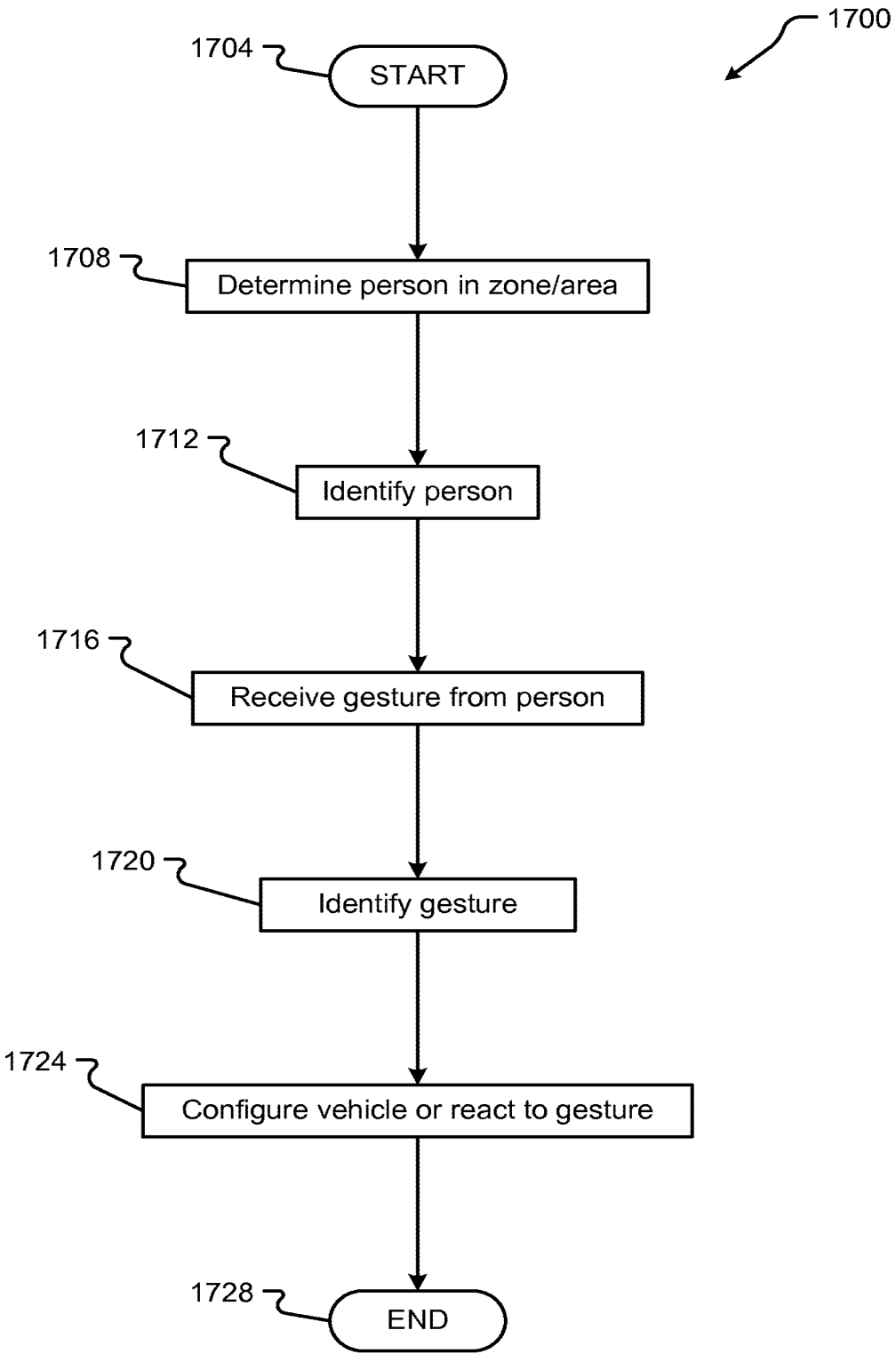

1700
1704
START
1708
Determine person in zone/area
1712
Identify person
1716
Receive gesture from person
1720
Identify gesture
1724
Configure vehicle or react to gesture
1728
END

Fig. 17

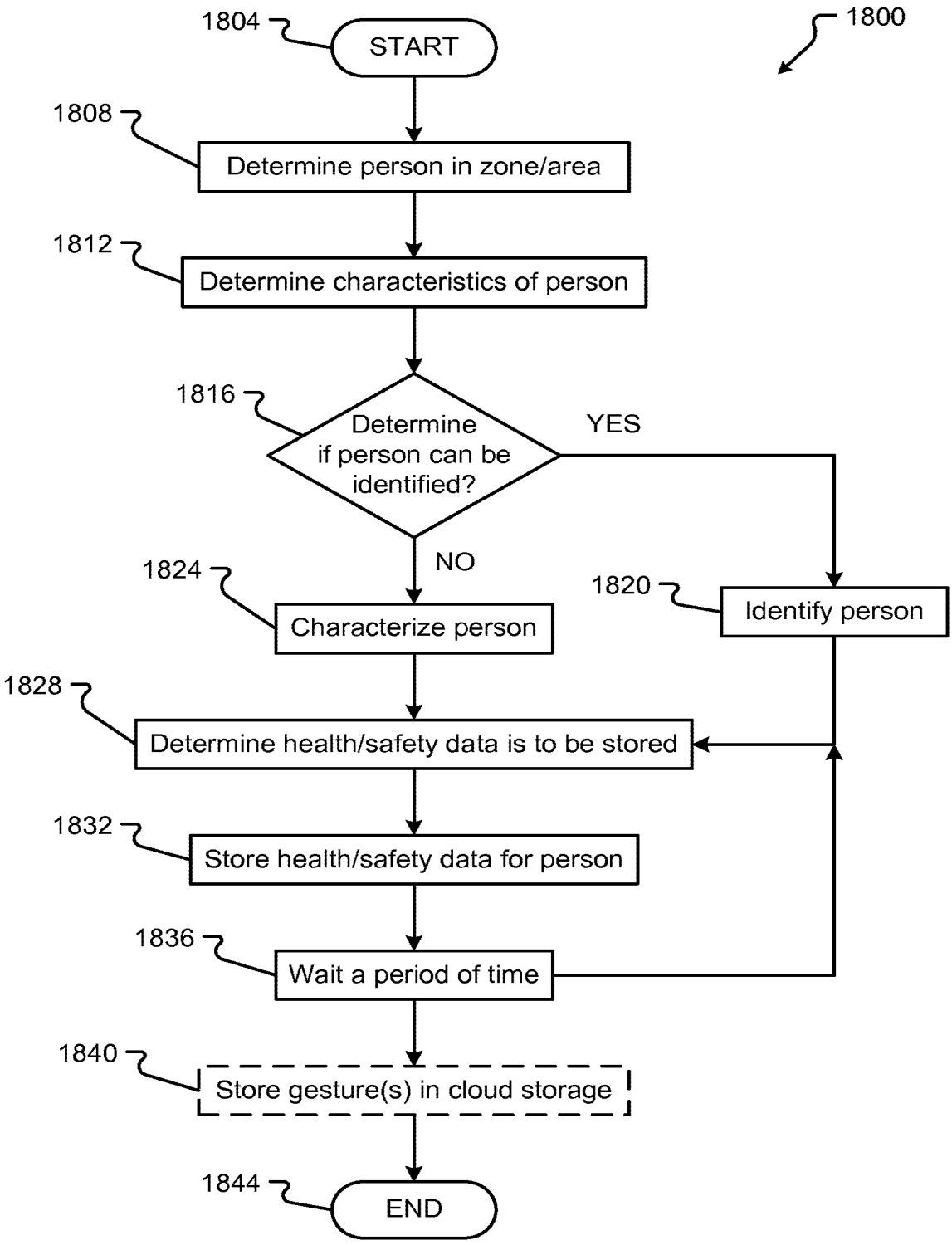

1800
1804
START
1808
Determine person in zone/area
1812
Determine characteristics of person
1816
Determine if person can be identified?
YES
NO
1820
Identify person
1824
Characterize person
1828
Determine health/safety data is to be stored
1832
Store health/safety data for person
1836
Wait a period of time
1840
Store gesture(s) in cloud storage
1844
END

Fig. 18

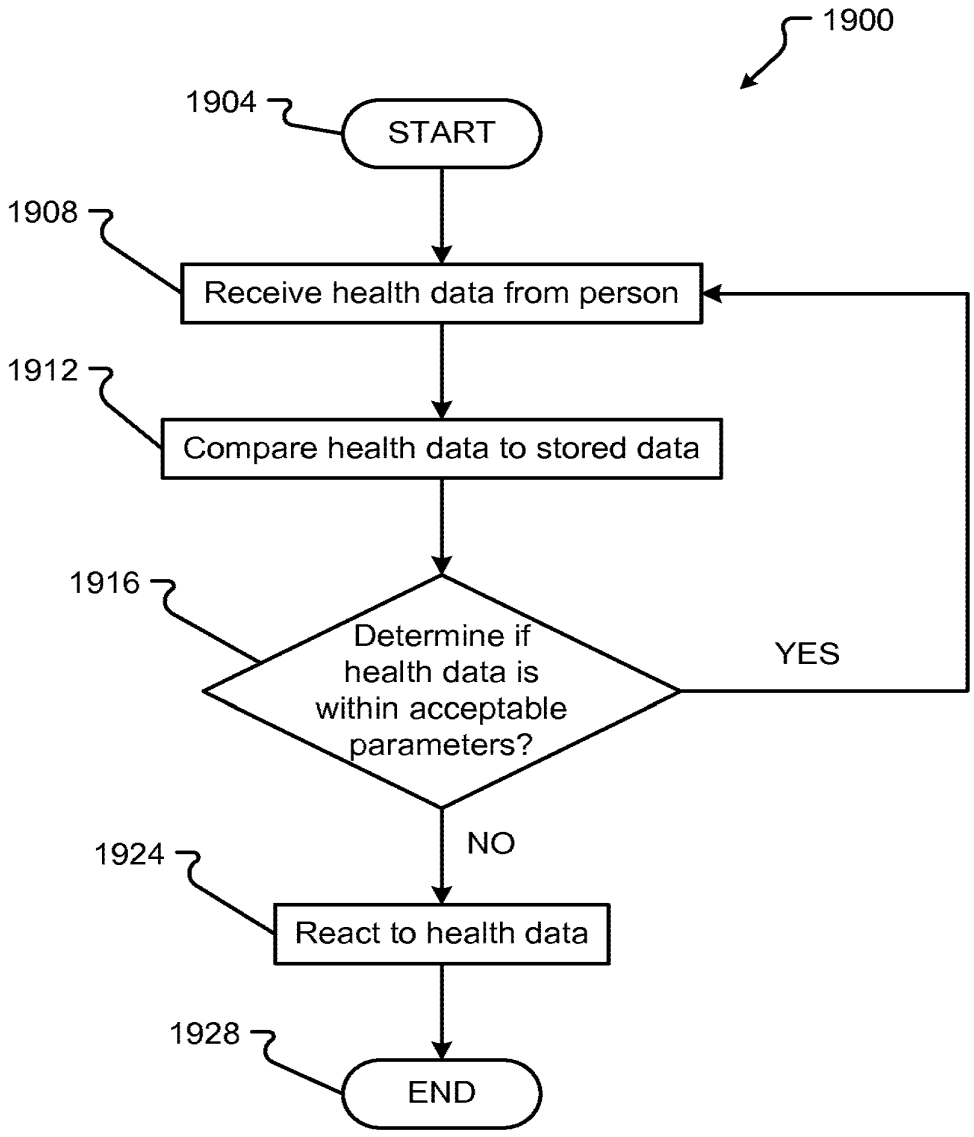

1900
1904
START
1908
Receive health data from person
1912
Compare health data to stored data
1916
Determine if health data is within acceptable parameters?
YES
NO
1924
React to health data
1928
END

Fig. 19

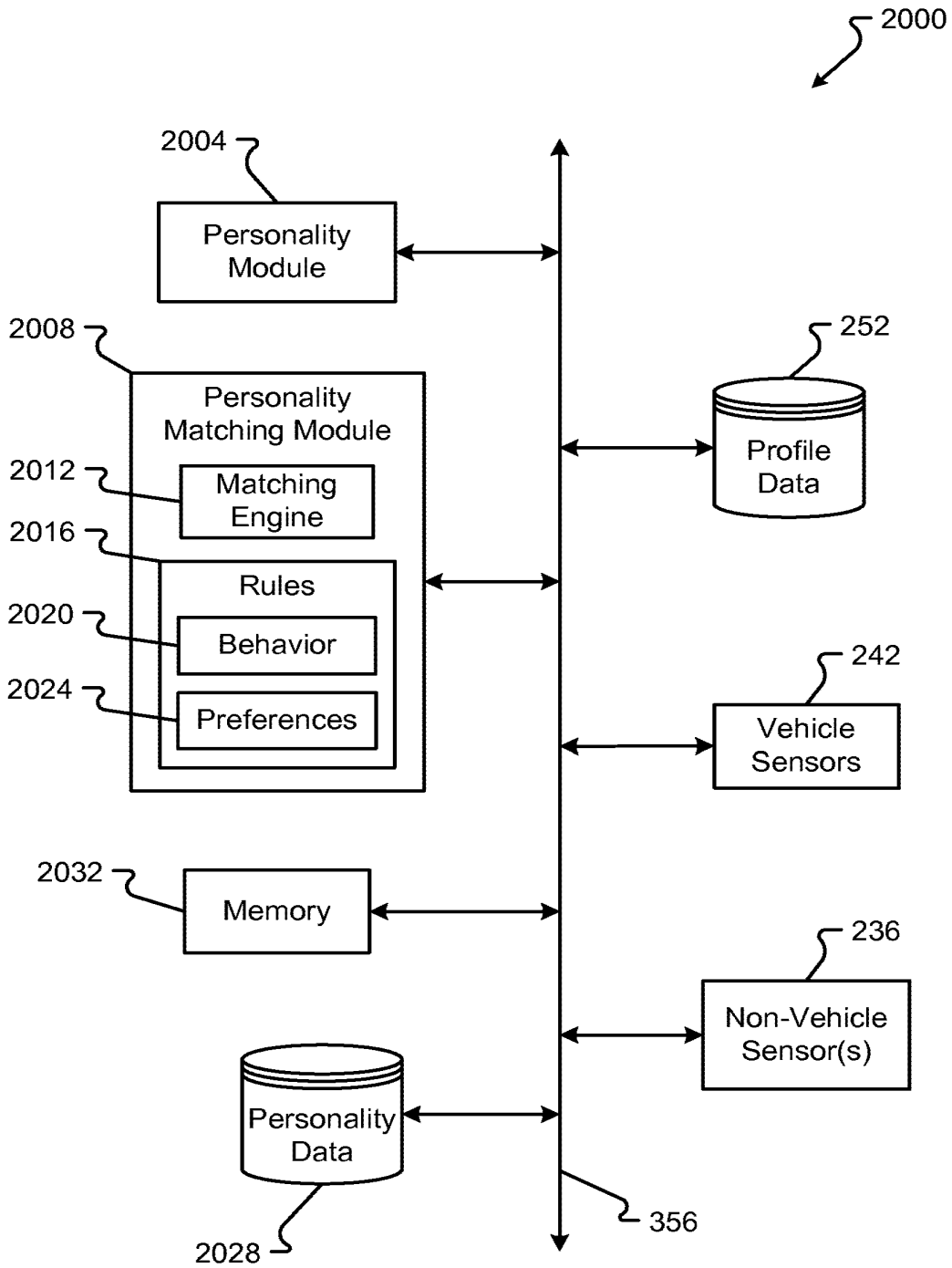

2000
2004
Personality Module
2008
Personality Matching Module
2012
Matching Engine
2016
Rules
2020
Behavior
2024
Preferences
252
Profile Data
242
Vehicle Sensors
2032
Memory
236
Non-Vehicle Sensor(s)
Personality Data
2028
356

Fig. 20

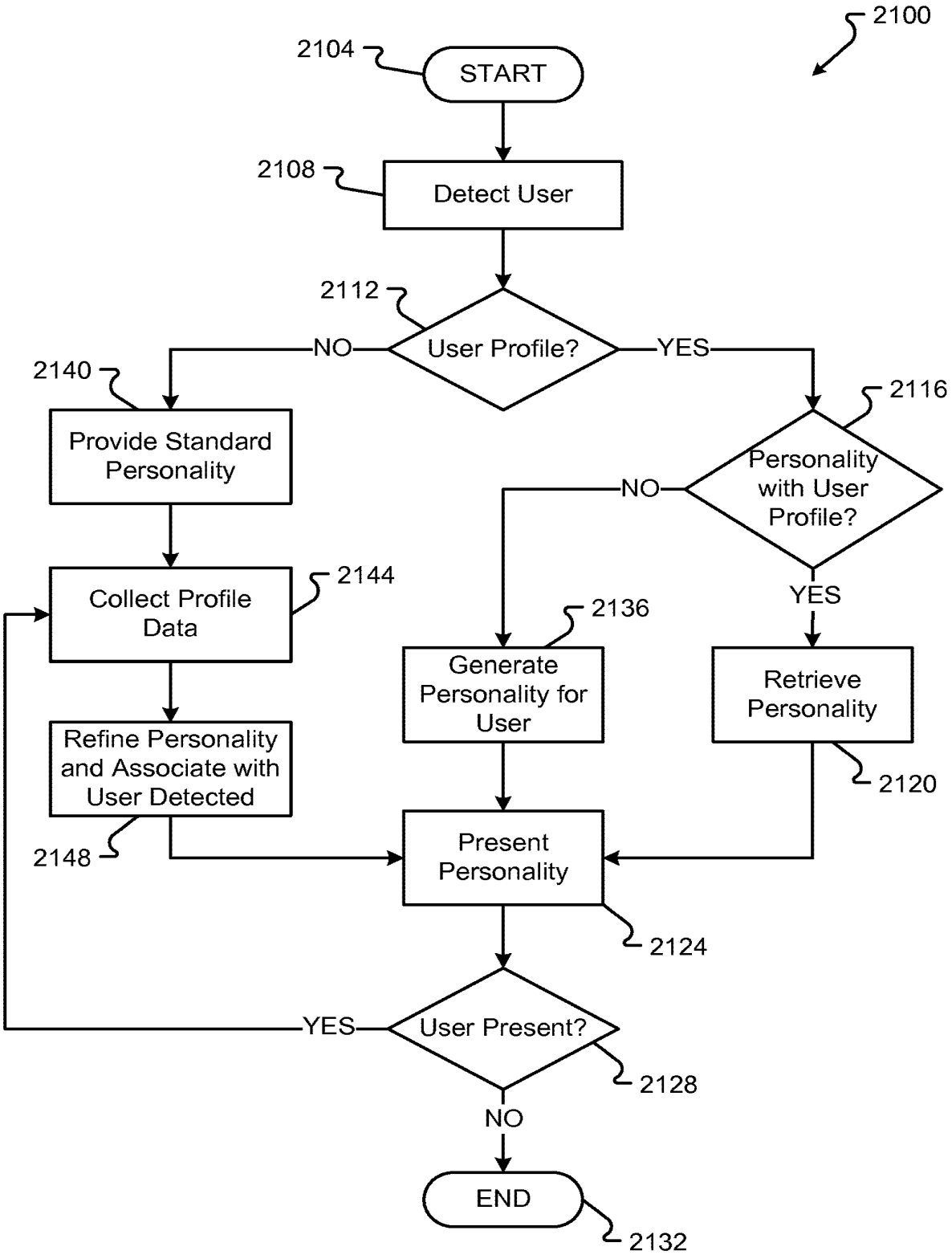

2100
2104
START
2108
Detect User
2112
User Profile?
NO
YES
2140
Provide Standard Personality
2116
Personality with User Profile?
NO
YES
2144
Collect Profile Data
2136
Generate Personality for User
Retrieve Personality
2120
Refine Personality and Associate with User Detected
2148
Present Personality
2124
YES
User Present?
2128
NO
END
2132

Fig. 21

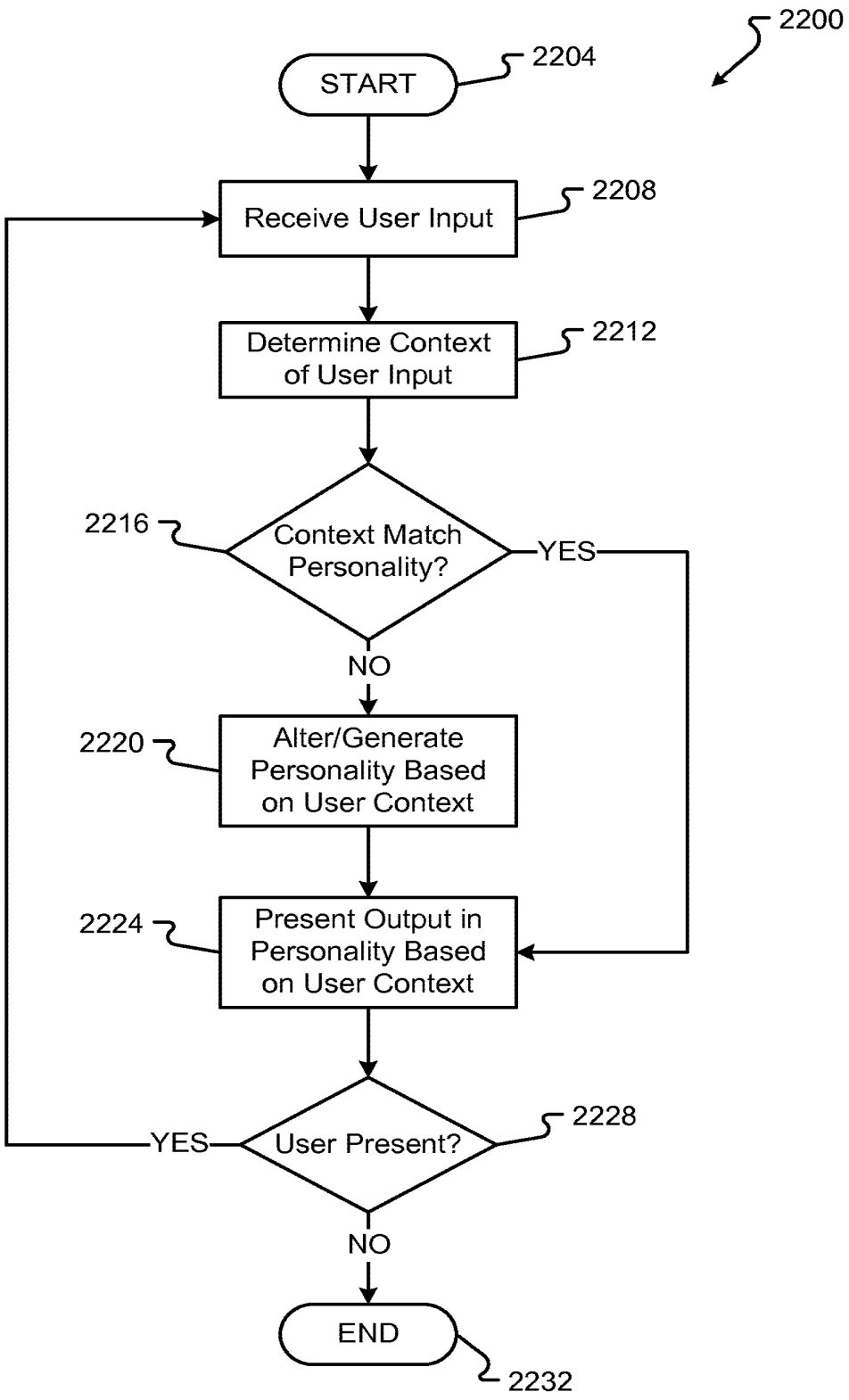

2200
START
2204
Receive User Input
2208
Determine Context of User Input
2212
Context Match Personality?
2216
YES
NO
Alter/Generate Personality Based on User Context
2220
Present Output in Personality Based on User Context
2224
User Present?
2228
YES
NO
END
2232

Fig. 22

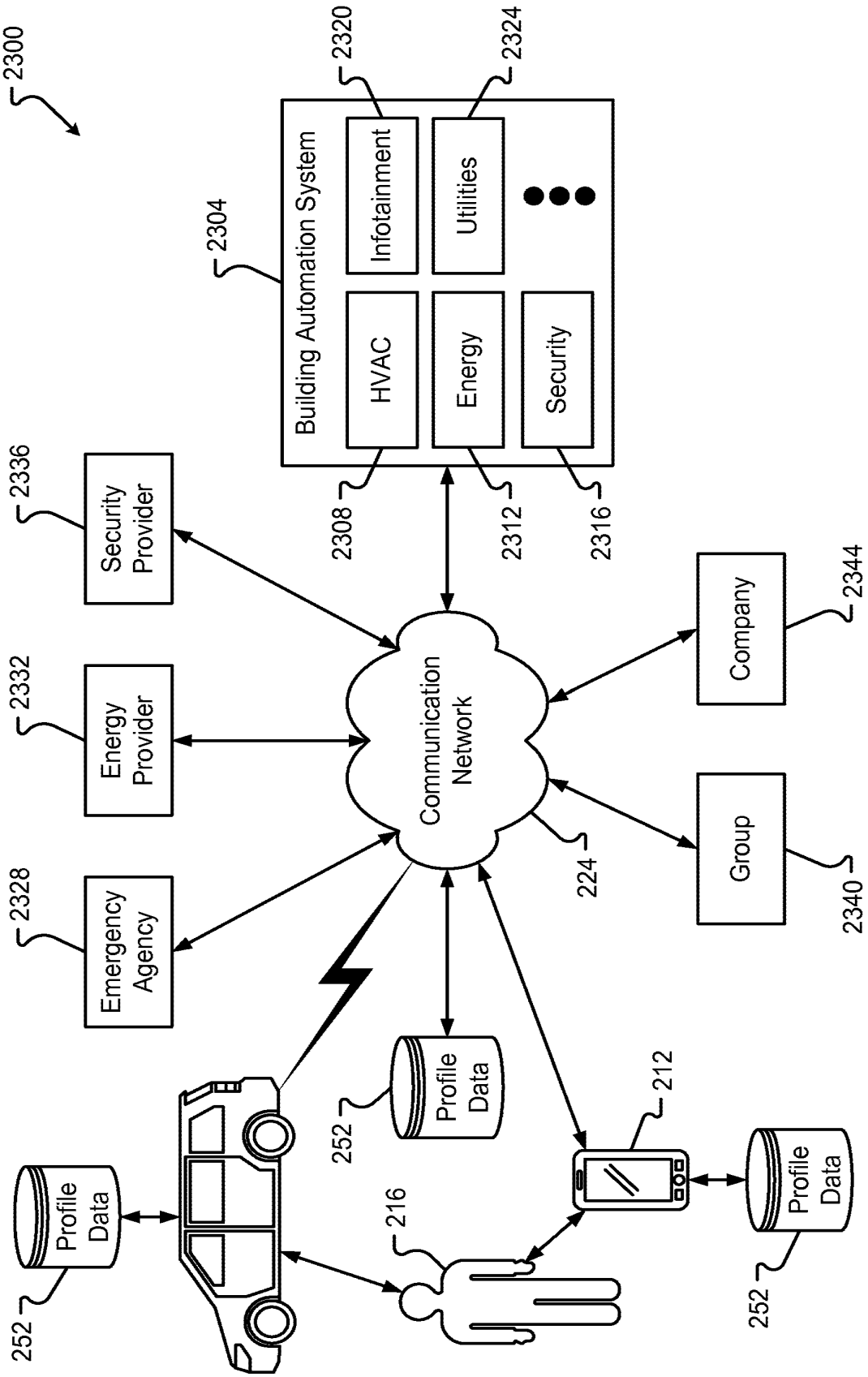

2300
2304
Building Automation System
2320
Infotainment
2324
Utilities
HVAC
Energy
Security
2308
2312
2316
2336
Security Provider
2332
Energy Provider
2328
Emergency Agency
Communication Network
224
2344
Company
Group
2340
Profile Data
252
212
216

Fig. 23

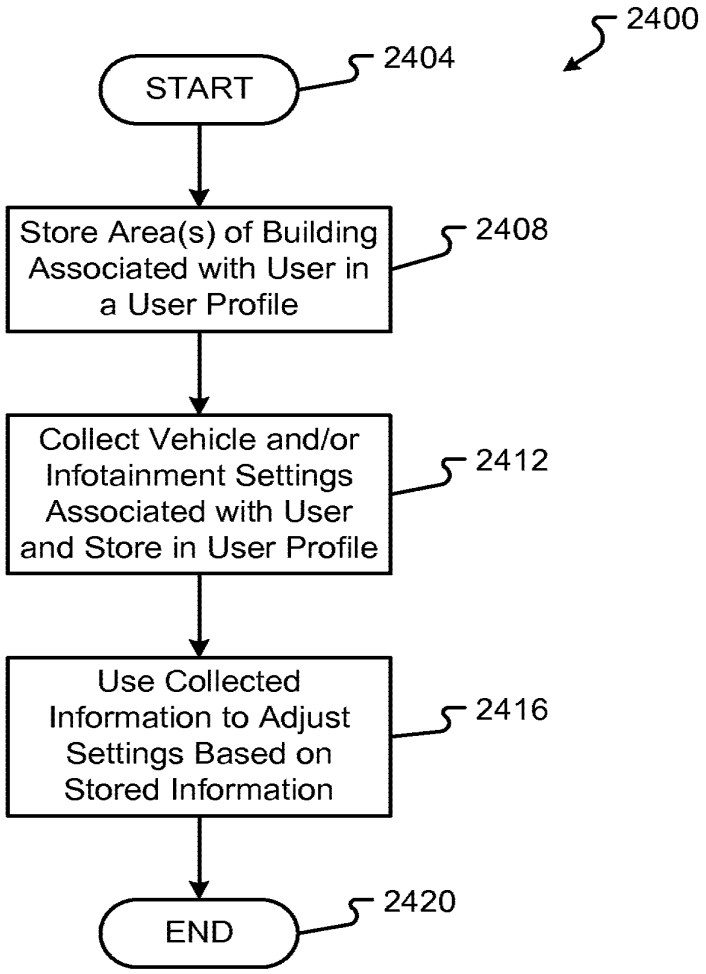

2400
START
2404
Store Area(s) of Building Associated with User in a User Profile
2408
Collect Vehicle and/or Infotainment Settings Associated with User and Store in User Profile
2412
Use Collected Information to Adjust Settings Based on Stored Information
2416
END
2420

Fig. 24

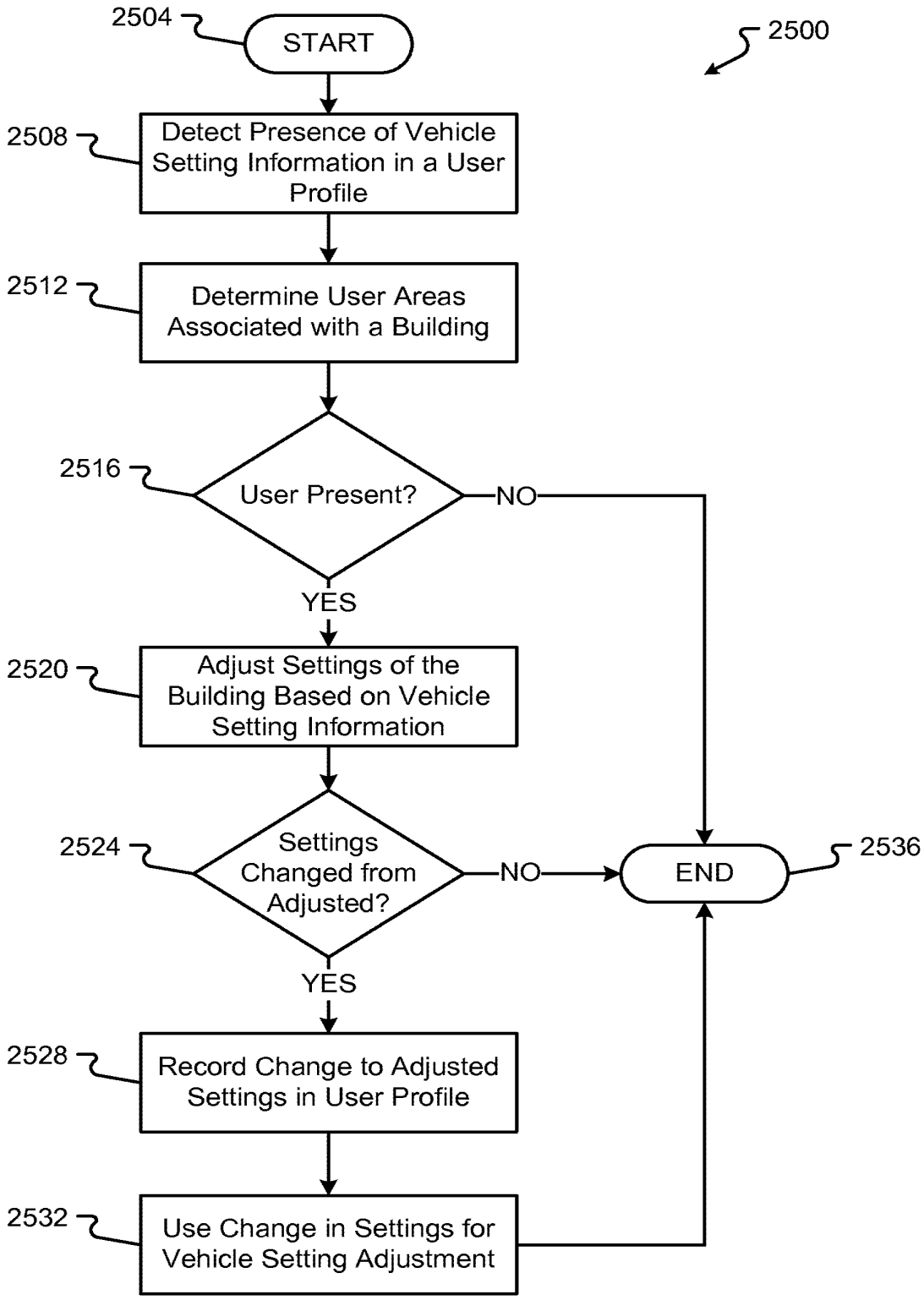

2504
START
2500
2508
Detect Presence of Vehicle Setting Information in a User Profile
2512
Determine User Areas Associated with a Building
2516
User Present?
NO
YES
2520
Adjust Settings of the Building Based on Vehicle Setting Information
2524
Settings Changed from Adjusted?
NO
END
2536
YES
2528
Record Change to Adjusted Settings in User Profile
2532
Use Change in Settings for Vehicle Setting Adjustment

Fig. 25

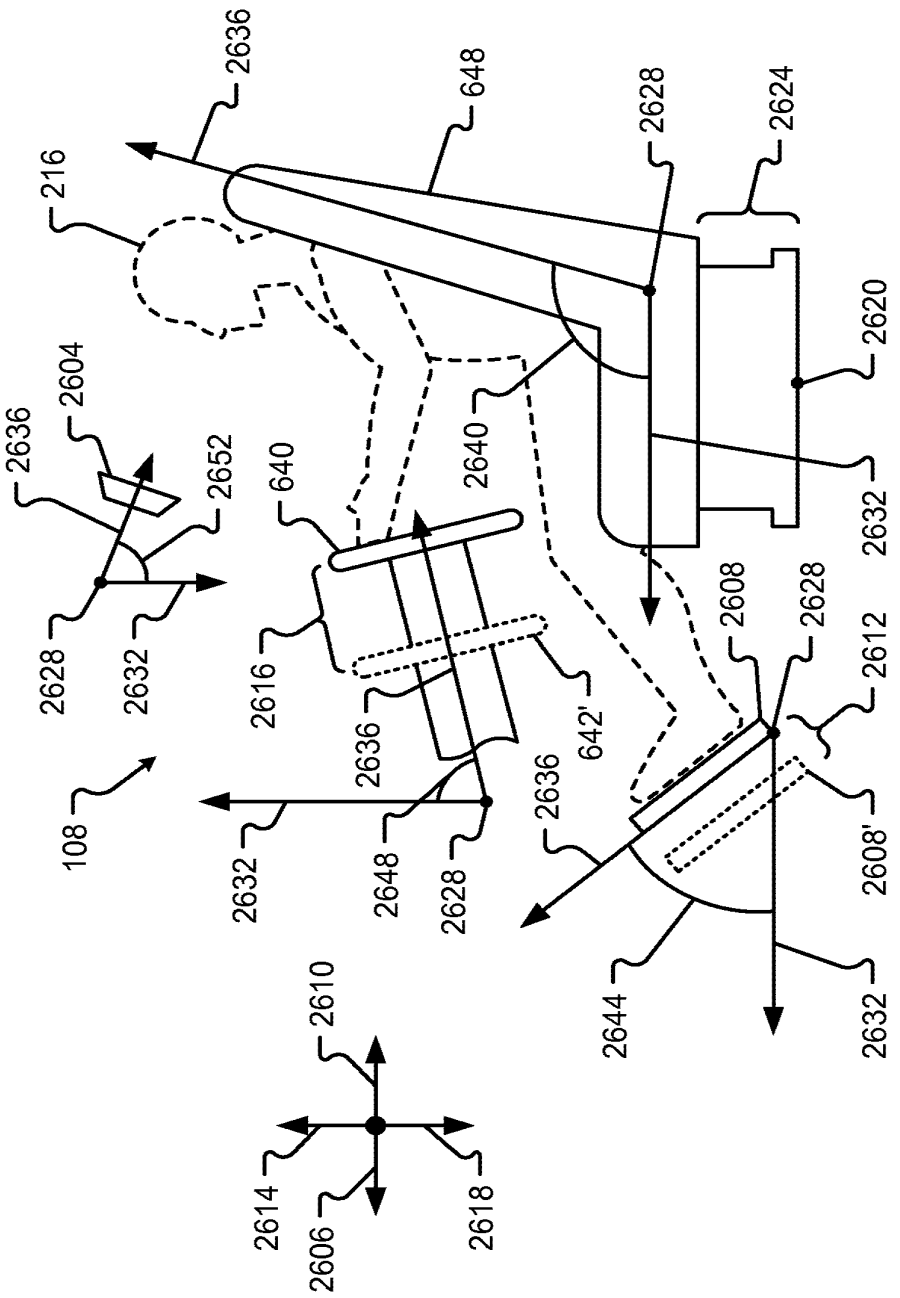

2636
648
2628
2624
216
2620
2604
2636
2652
640
2640
2632
2628
2632
2616
2608
2628
2612
2636
642'
2636
2608'
108
2632
2648
2628
2644
2632
2610
2614
2606
2618

Fig. 26

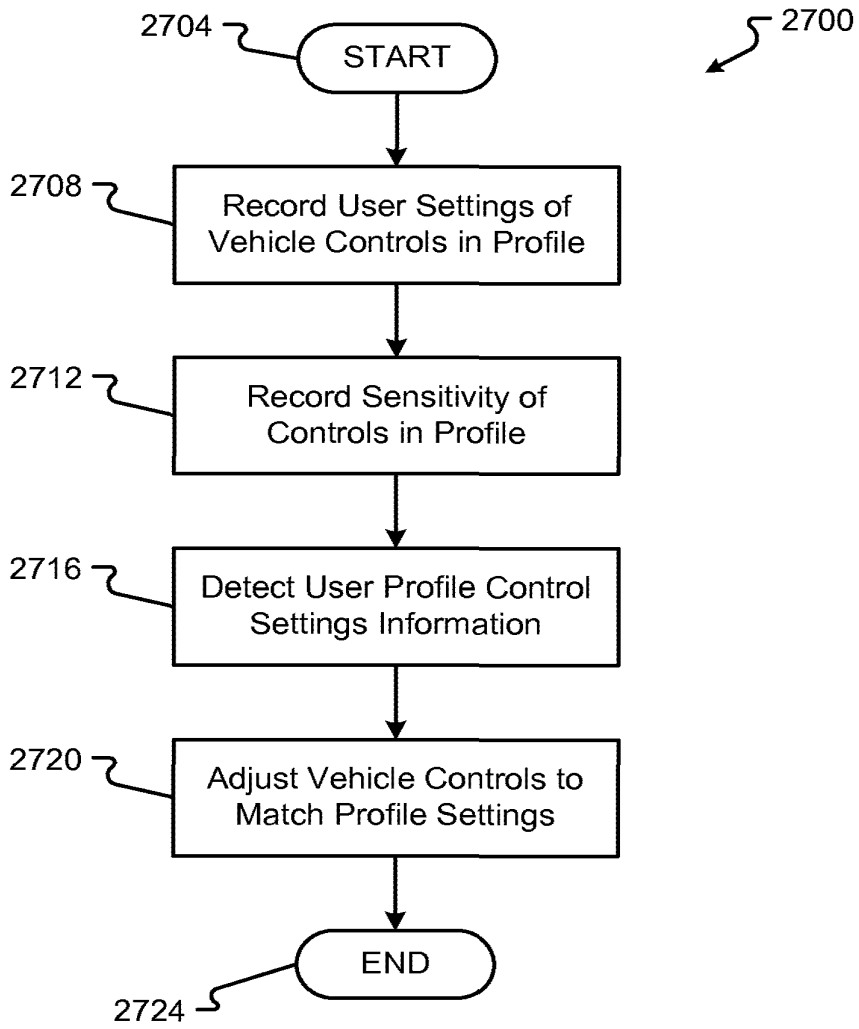

2704
START
2700
2708
Record User Settings of Vehicle Controls in Profile
2712
Record Sensitivity of Controls in Profile
2716
Detect User Profile Control Settings Information
2720
Adjust Vehicle Controls to Match Profile Settings
END
2724

Fig. 27

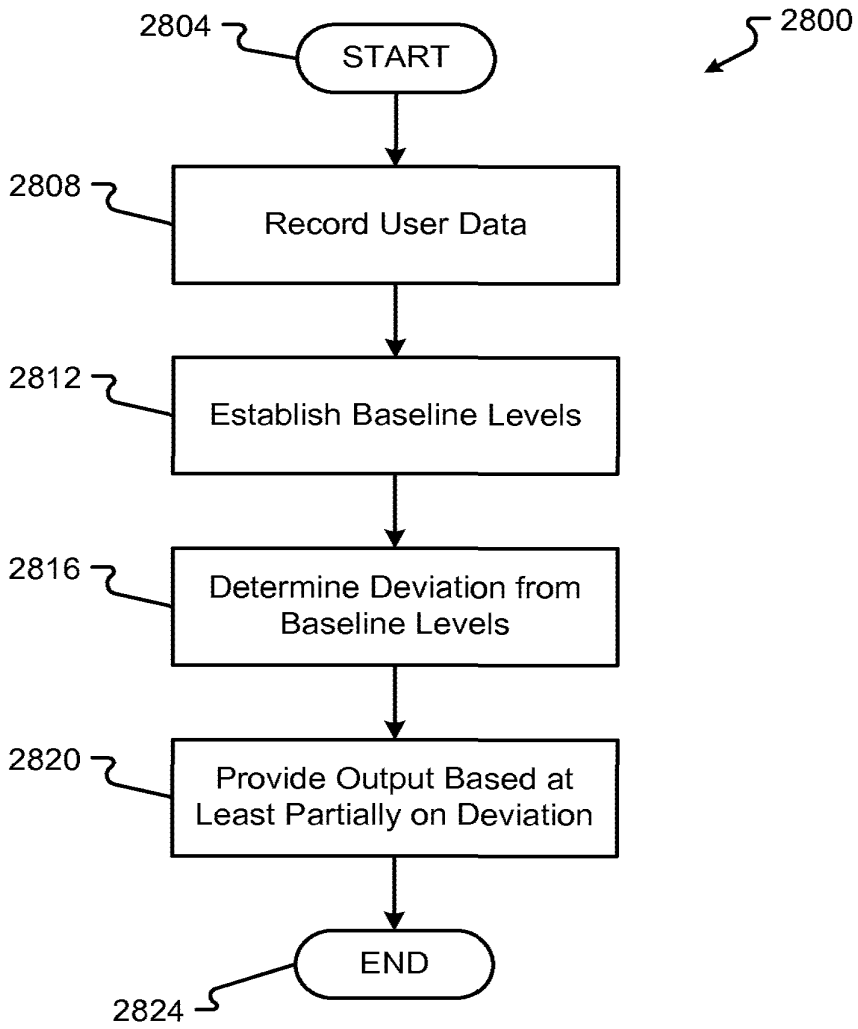

2804
START
2800
2808
Record User Data
2812
Establish Baseline Levels
2816
Determine Deviation from Baseline Levels
2820
Provide Output Based at Least Partially on Deviation
END
2824

Fig. 28

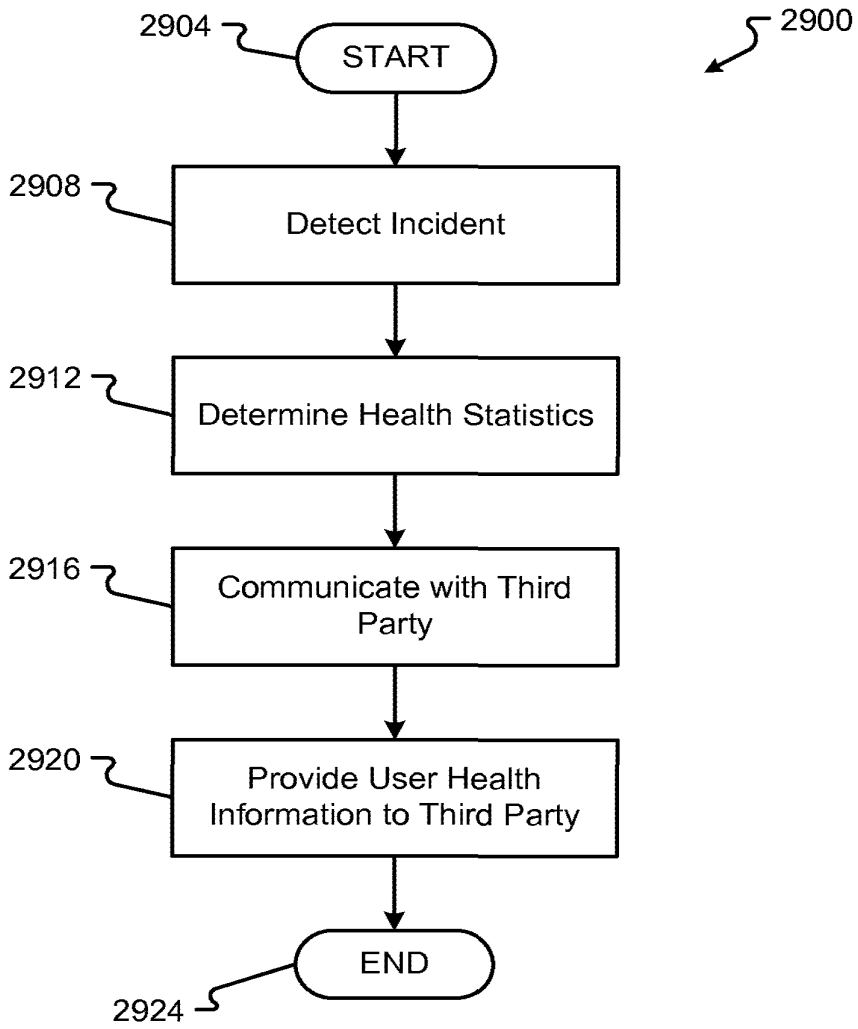

2904
START
2900
2908
Detect Incident
2912
Determine Health Statistics
2916
Communicate with Third Party
2920
Provide User Health Information to Third Party
END
2924

Fig. 29

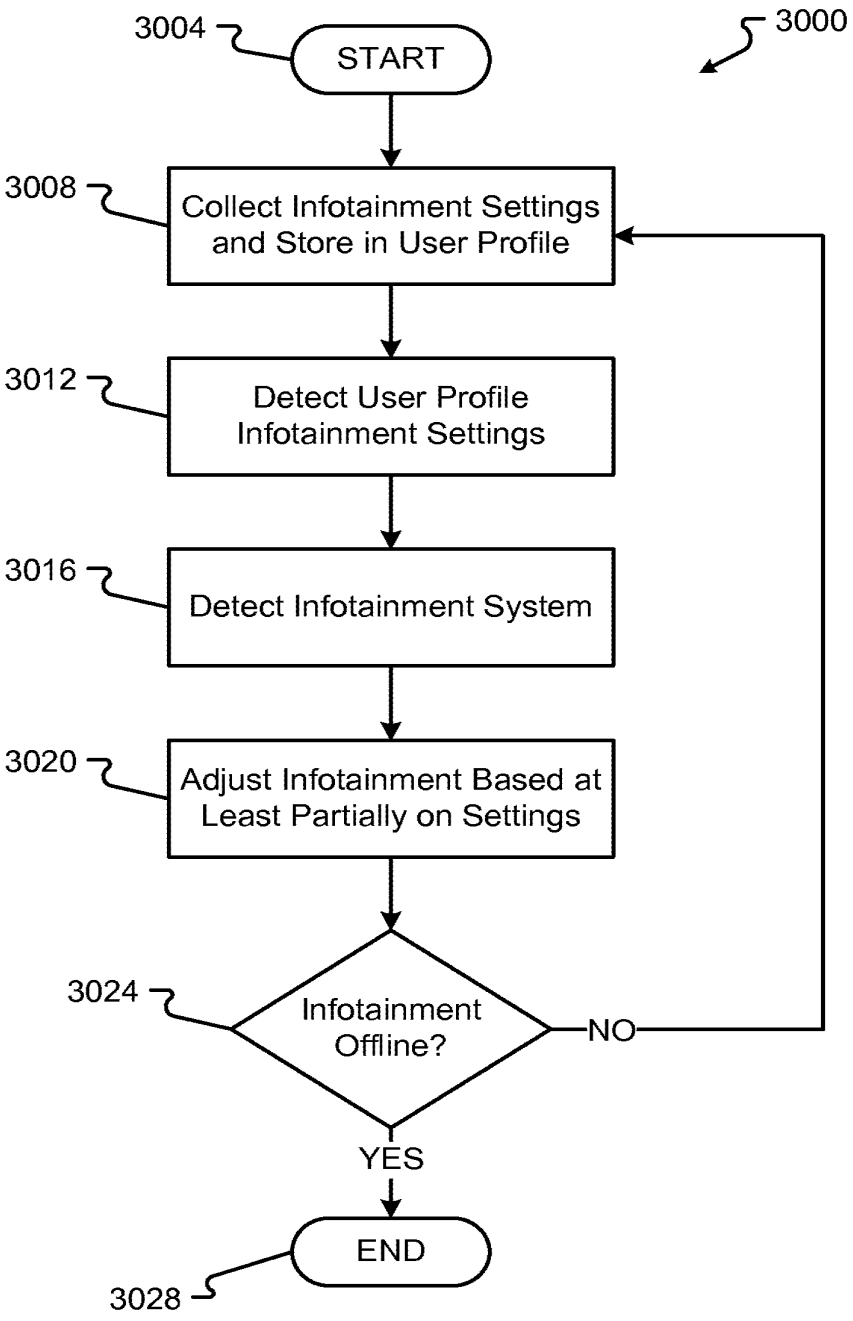

3004
START
3000
3008
Collect Infotainment Settings and Store in User Profile
3012
Detect User Profile Infotainment Settings
3016
Detect Infotainment System
3020
Adjust Infotainment Based at Least Partially on Settings
3024
Infotainment Offline?
NO
YES
END
3028

Fig. 30

CUSTOMIZATION OF VEHICLE CONTROLS AND SETTINGS BASED ON USER PROFILE DATA

CROSS REFERENCE TO RELATED APPLICATIONS

[0001] The present application claims the benefits of and priority, under 35 U.S.C. § 119(e), to U.S. Provisional Application Serial Nos. 61/811,981, filed on April 15, 2013, entitled "Functional Specification for a Next Generation Automobile"; 61/865,954, filed on August 14, 2013, entitled "Gesture Control of Vehicle Features"; 61/870,698, filed on August 27, 2013, entitled "Gesture Control and User Profiles Associated with Vehicle Features"; 61/891,217, filed on October 15, 2013, entitled "Gesture Control and User Profiles Associated with Vehicle Features"; 61/904,205, filed on November 14, 2013, entitled "Gesture Control and User Profiles Associated with Vehicle Features"; 61/924,572, filed on January 7, 2014, entitled "Gesture Control and User Profiles Associated with Vehicle Features"; and 61/926,749, filed on January 13, 2014, entitled "Method and System for Providing Infotainment in a Vehicle." The entire disclosures of the applications listed above are hereby incorporated by reference, in their entirety, for all that they teach and for all purposes.

[0002] This application is also related to U.S. Patent Application Nos. 13/420,236, filed on March 14, 2012, entitled, "Configurable Vehicle Console"; 13/420,240, filed on March 14, 2012, entitled "Removable, Configurable Vehicle Console"; 13/462,593, filed on May 2, 2012, entitled "Configurable Dash Display"; 13/462,596, filed on May 2, 2012, entitled "Configurable Heads-Up Dash Display"; 13/679,459, filed on November 16, 2012, entitled "Vehicle Comprising Multi-Operating System" (Attorney Docket No. 6583-228); 13/679,234, filed on November 16, 2012, entitled "Gesture Recognition for On-Board Display" (Attorney Docket No. 6583-229); 13/679,412, filed on November 16, 2012, entitled "Vehicle Application Store for Console" (Attorney Docket No. 6583-230); 13/679,857, filed on November 16, 2012, entitled "Sharing Applications/Media Between Car and Phone (Hydroid)" (Attorney Docket No. 6583-231); 13/679,878, filed on November 16, 2012, entitled "In-Cloud Connection for Car Multimedia" (Attorney Docket No. 6583-232); 13/679,875, filed on November 16, 2012, entitled "Music Streaming" (Attorney Docket No. 6583-233); 13/679,676, filed on November 16, 2012, entitled "Control of Device Features Based on Vehicle State" (Attorney Docket No. 6583-234);

13/678,673, filed on November 16, 2012, entitled "Insurance Tracking" (Attorney Docket No. 6583-235); 13/678,691, filed on November 16, 2012, entitled "Law Breaking/Behavior Sensor" (Attorney Docket No. 6583-236); 13/678,699, filed on November 16, 2012, entitled "Etiquette Suggestion" (Attorney Docket No. 6583-237); 13/678,710, filed on November 16, 2012, entitled "Parking Space Finder Based on Parking Meter Data" (Attorney Docket No. 6583-238); 13/678,722, filed on November 16, 2012, entitled "Parking Meter Expired Alert" (Attorney Docket No. 6583-239); 13/678,726, filed on November 16, 2012, entitled "Object Sensing (Pedestrian Avoidance/Accident Avoidance)" (Attorney Docket No. 6583-240); 13/678,735, filed on November 16, 2012, entitled "Proximity Warning Relative to Other Cars" (Attorney Docket No. 6583-241); 13/678,745, filed on November 16, 2012, entitled "Street Side Sensors" (Attorney Docket No. 6583-242); 13/678,753, filed on November 16, 2012, entitled "Car Location" (Attorney Docket No. 6583-243); 13/679,441, filed on November 16, 2012, entitled "Universal Bus in the Car" (Attorney Docket No. 6583-244); 13/679,864, filed on November 16, 2012, entitled "Mobile Hot Spot/Router/Application Share Site or Network" (Attorney Docket No. 6583-245); 13/679,815, filed on November 16, 2012, entitled "Universal Console Chassis for the Car" (Attorney Docket No. 6583-246); 13/679,476, filed on November 16, 2012, entitled "Vehicle Middleware" (Attorney Docket No. 6583-247); 13/679,306, filed on November 16, 2012, entitled "Method and System for Vehicle Data Collection Regarding Traffic" (Attorney Docket No. 6583-248); 13/679,369, filed on November 16, 2012, entitled "Method and System for Vehicle Data Collection" (Attorney Docket No. 6583-249); 13/679,680, filed on November 16, 2012, entitled "Communications Based on Vehicle Diagnostics and Indications" (Attorney Docket No. 6583-250); 13/679,443, filed on November 16, 2012, entitled "Method and System for Maintaining and Reporting Vehicle Occupant Information" (Attorney Docket No. 6583-251); 13/678,762, filed on November 16, 2012, entitled "Behavioral Tracking and Vehicle Applications" (Attorney Docket No. 6583-252); 13/679,292, filed November 16, 2012, entitled "Branding of Electrically Propelled Vehicles Via the Generation of Specific Operating Output" (Attorney Docket No. 6583-258); 13/679,400, filed November 16, 2012, entitled "Vehicle Climate Control" (Attorney Docket No. 6583-313); 13/840,240, filed on March 15, 2013, entitled "Improvements to Controller Area Network Bus" (Attorney Docket No. 6583-314); 13/678,773, filed on November 16, 2012, entitled "Location Information Exchange Between Vehicle and Device" (Attorney Docket No. 6583-315); 13/679,887, filed on November 16, 2012, entitled "In Car Communication

Between Devices" (Attorney Docket No. 6583-316); 13/679,842, filed on November 16, 2012, entitled "Configurable Hardware Unit for Car Systems" (Attorney Docket No. 6583-317); 13/679,204, filed on November 16, 2012, entitled "Feature Recognition for Configuring a Vehicle Console and Associated Devices" (Attorney Docket No. 6583-318); 13/679,350, filed on November 16, 2012, entitled "Configurable Vehicle Console" (Attorney Docket No. 6583-412); 13/679,358, filed on November 16, 2012, entitled "Configurable Dash Display" (Attorney Docket No. 6583-413); 13/679,363, filed on November 16, 2012, entitled "Configurable Heads-Up Dash Display" (Attorney Docket No. 6583-414); and 13/679,368, filed on November 16, 2012, entitled "Removable, Configurable Vehicle Console" (Attorney Docket No. 6583-415). The entire disclosures of the applications listed above are hereby incorporated by reference, in their entirety, for all that they teach and for all purposes.

BACKGROUND

[0003] Whether using private, commercial, or public transport, the movement of people and/or cargo has become a major industry. In today's interconnected world, daily travel is essential to engaging in commerce. Commuting to and from work can account for a significant portion of a traveler's day. As a result, vehicle manufacturers have begun to focus on making this commute, and other journeys, more enjoyable.

[0004] Currently, vehicle manufacturers attempt to entice travelers to use a specific conveyance based on any number of features. Most of these features focus on vehicle safety or efficiency. From the addition of safety-restraints, air-bags, and warning systems to more efficient engines, motors, and designs, the vehicle industry has worked to appease the supposed needs of the traveler. Recently, however, vehicle manufactures have shifted their focus to user and passenger comfort as a primary concern. Making an individual more comfortable while traveling instills confidence and pleasure in using a given vehicle, increasing an individual's preference for a given manufacturer and/or vehicle type.

[0005] One way to instill comfort in a vehicle is to create an environment within the vehicle similar to that of an individual's home. Integrating features in a vehicle that are associated with comfort found in an individual's home can ease a traveler's transition from home to vehicle. Several manufacturers have added comfort features in vehicles such as the following: leather seats, adaptive and/or personal climate control systems, music and media players, ergonomic controls, and, in some cases, Internet connectivity. However,

because these manufacturers have added features to a conveyance, they have built comfort around a vehicle and failed to build a vehicle around comfort.

SUMMARY

[0006] There is a need for a vehicle ecosystem, which can integrate both physical and mental comforts, while seamlessly communicating with current electronic devices to result in a totally intuitive and immersive user experience. These and other needs are addressed by the various aspects, embodiments, and/or configurations of the present disclosure. Also, while the disclosure is presented in terms of exemplary and optional embodiments, it should be appreciated that individual aspects of the disclosure can be separately claimed.

[0007] Embodiments include a method, comprising: determining a presence of a user inside a vehicle; determining an identity of the user; receiving input provided by the user, the input having a context associated therewith; and retrieving, based at least partially on the input provided by the user, a virtual personality for presentation to at least one device associated with the vehicle. Aspects of the above method include wherein determining the presence of the user inside the vehicle further comprises: detecting a person via at least one image sensor associated with the vehicle. Aspects of the above method include wherein determining the identity of the user further comprises: identifying facial features associated with the person detected via the at least one image sensor; and determining whether the identified facial features associated with the person match user characteristics stored in a memory. Aspects of the above method include wherein the identified facial features associated with the person do not match the user characteristics stored in the memory, and wherein determining the identity of the user further comprises: prompting the user for identification information; receiving identification information from the user; and storing the identification information received from the user in the memory. Aspects of the above method include wherein the identified facial features associated with the person match the user characteristics stored in the memory, and wherein the virtual personality is retrieved from a user profile associated with the user identified. Aspects of the above method include wherein receiving the input provided by the user further comprises: determining the context of the input, wherein the context corresponds to an emotional state of the user. Aspects of the above method include wherein retrieving the virtual personality for presentation to at least one device further comprises: determining, based at least partially on the context of the input, a content of the virtual personality to suit the emotional state of the user. Aspects of the above method further comprise

comparing the determined content of the virtual personality with emotional information in a user profile virtual personality; and generating, when the determined content of the virtual personality differs from the emotional information in the user profile virtual personality, an adjusted user profile virtual personality for presentation, wherein the adjusted user profile includes the content to suit the emotional state of the user. Aspects of the above method further comprise presenting the virtual personality having the content to suit the emotional state of the user, wherein the content of the virtual personality includes an opposite emotional state to the emotional state of the user. Aspects of the above method include wherein the virtual personality includes at least one of an avatar, a voice output, a visual output, a tone, and a volume intensity.

[0008] Embodiments include a non-transitory computer readable medium having instructions stored thereon that, when executed by a processor, perform operations comprising the above methods. Embodiments include a device, means, and/or system configured to perform the above methods.

[0009] Embodiments include a vehicle control system, comprising a personality module contained in a memory and executed by a processor of the vehicle control system, the personality module configured to determine a presence of a user inside a vehicle; determine an identity of the user, receive input provided by the user, the input having a context associated therewith, and retrieve, based at least partially on the input provided by the user, a virtual personality for presentation to at least one device associated with the vehicle. Aspects of the above system include wherein receiving the input provided by the user further comprises determining the context of the input, wherein the context corresponds to an emotional state of the user, and wherein retrieving the virtual personality for presentation to at least one device further comprises determining, based at least partially on the context of the input, a content of the virtual personality to suit the emotional state of the user.

[0010] Embodiments include a method, comprising: referring to a user profile memory associated with a user for vehicle setting information; detecting an identification of at least one area of a building associated with the user; determining that the at least one area of the building includes a configurable comfort setting; and determining, based at least partially on the identification of the at least one area of the building and the vehicle setting information, to adjust the configurable comfort setting of the at least one area of the building. Aspects of the above method further comprise providing an adjustment output to a building comfort control system, wherein the building comfort control system is adapted

to control the configurable comfort setting of the at least one area of the building. Aspects of the above method include wherein prior to providing the adjustment output, the method further comprises: determining a presence of the user inside the at least one area of the building, wherein the adjustment output is provided based at least partially on determining the user is present is inside the at least one are of the building. Aspects of the above method include wherein prior to providing the adjustment output, the method further comprises: determining an expected time of arrival corresponding to an expected time the user is to be inside the at least one area of the building, wherein the expected time of arrival is based on one or more of user location data, historical data, and stored preferences, and wherein the adjustment output is provided based at least partially on the expected time of arrival such that the adjustment output is provided prior to or at the expected time of arrival. Aspects of the above method further comprise determining that the user made a change to the adjusted configurable comfort setting; and storing the change made to the adjusted configurable comfort setting in the user profile memory. Aspects of the above method further comprise determining a presence of the user inside a vehicle, and wherein the adjustment output is provided based at least partially on determining the user is present inside the vehicle. Aspects of the above method include wherein prior to referring to the user profile memory the method further comprises: storing, in the user profile memory, information corresponding to areas of a building occupied by the user; collecting vehicle setting data associated with the user, wherein the vehicle setting data includes at least one of vehicle comfort settings and infotainment settings made by the user; and storing the vehicle setting data in the user profile memory. Aspects of the above method include wherein the vehicle setting information includes an interior temperature of a vehicle, and wherein the configurable comfort setting of the at least one area of the building is a temperature associated with the at least one area. Aspects of the above method include wherein the configurable comfort setting of the at least one area of the building is adjusted to match the vehicle setting information in the user profile memory.

[0011] Embodiments include a non-transitory computer readable medium having instructions stored thereon that, when executed by a processor, perform operations comprising the above methods. Embodiments include a device, means, and/or system configured to perform the above methods.

[0012] Embodiments include a settings control system, comprising a building automation system configured to refer to a user profile memory associated with a user for

vehicle setting information, detect an identification of at least one area of a building associated with the user, determine that the at least one area of the building includes a configurable comfort setting, and determine, based at least partially on the identification of the at least one area of the building and the vehicle setting information, to adjust the configurable comfort setting of the at least one area of the building. Aspects of the above system include wherein the building automation system is contained in a memory and executed by a processor of the settings control system, wherein the building automation system is further configured to provide an adjustment output to a building comfort control system, and wherein the building comfort control system is adapted to control the configurable comfort setting of the at least one area of the building.

[0013] Embodiments include a method, comprising: determining a location inside a vehicle associated with a user; determining at least one vehicle control associated with the location inside the vehicle; referring to a user profile memory associated with the user for vehicle control settings; and determining, based at least partially on the vehicle control settings, to adjust the at least one vehicle control associated with the location inside the vehicle. Aspects of the above method further comprise providing an adjustment output to a vehicle control system, wherein the vehicle control system is adapted to control the at least one vehicle control associated with the location inside the vehicle. Aspects of the above method include wherein prior to providing the adjustment output, the method further comprises: determining a presence of the user inside the vehicle, wherein the adjustment output is provided based at least partially on determining the user is present in the location of the vehicle. Aspects of the above method include wherein prior to determining the location inside the vehicle associated with the user the method further comprises: storing, in the user profile memory, information corresponding to locations inside the vehicle occupied by the user; collecting vehicle control setting data associated with the user, wherein the vehicle control setting data includes at least one vehicle control setting made by the user in at least one of the locations inside the vehicle; and storing the vehicle control setting data in the user profile memory. Aspects of the above method include wherein the at least one vehicle control includes one or more vehicle features such as a seat system, a steering control, a foot pedal control, a mirror position, and a display device. Aspects of the above method include wherein the vehicle control settings include at least one of a position, a sensitivity, an angle, and a movement, associated with the one or more vehicle features. Aspects of the above method include wherein determining the presence of the user inside the vehicle further comprises: detecting a person via at least

one image sensor associated with the vehicle; identifying facial features associated with the person detected via the at least one image sensor; and determining whether the identified facial features associated with the person match user characteristics stored in a memory. Aspects of the above method include wherein determining the presence of the user inside the vehicle further comprises: detecting a device associated with the user in an area of the vehicle. Aspects of the above method further comprise determining that the user made a change to the adjusted at least one vehicle control; and storing the change made to the adjusted at least one vehicle control in the user profile memory. Aspects of the above method include wherein the at least one vehicle control is adjusted via the adjustment output to match the vehicle control settings in the user profile memory.

[0014] Embodiments include a non-transitory computer readable medium having instructions stored thereon that, when executed by a processor, perform operations comprising the above methods. Embodiments include a device, means, and/or system configured to perform the above methods.

[0015] Embodiments include a vehicle control system, comprising a profile identification module contained in a memory and executed by a processor of the vehicle control system, the profile identification module configured to determine a location inside a vehicle associated with a user, determine at least one vehicle control associated with the location inside the vehicle, refer to a user profile memory associated with the user for vehicle control settings, and determine, based at least partially on the vehicle control settings, to adjust the at least one vehicle control associated with the location inside the vehicle. Aspects of the above system include wherein the profile identification module is further configured to provide an adjustment output to the vehicle control system, wherein the vehicle control system is adapted to control the at least one vehicle control associated with the location inside the vehicle.

[0016] Embodiments include a method, comprising: detecting a presence of at least one user in a vehicle; determining an identity of the at least one user; receiving data associated with the at least one user, wherein the data includes biometric information; detecting a deviation between the received data and an established baseline biometric profile associated with the at least one user; and determining, based at least partially on the detected deviation, to provide an output configured to address the deviation. Aspects of the above method include wherein prior to receiving data associated with the at least one user the method further comprises: determining the baseline biometric profile associated with the at least one user; and storing the determined baseline biometric profile in a user

profile memory associated with the at least one user. Aspects of the above method include wherein determining the presence of the at least one user inside the vehicle further comprises: detecting a person via at least one image sensor associated with the vehicle. Aspects of the above method include wherein determining the identity of the at least one user further comprises: identifying facial features associated with the person detected via the at least one image sensor; and determining whether the identified facial features associated with the person match user characteristics stored in a memory. Aspects of the above method include wherein the data associated with the at least one user is provided by a sensor worn by the at least one user. Aspects of the above method include wherein the output configured to address the deviation is provided by the vehicle, and wherein addressing the deviation includes adjusting one or more settings associated with the vehicle. Aspects of the above method include wherein the one or more settings include at least one of a vehicle interior environment, temperature, air composition, oxygen level, sound level, window position, seat position, and lighting level. Aspects of the above method further comprise detecting a vehicle incident via one or more sensors associated with the vehicle; collecting, based at least partially on the detected vehicle incident, the data associated with the at least one user; and sending the established baseline biometric profile and collected data associated with the at least one user to a third party. Aspects of the above method include wherein the data associated with the at least one user is received at a first data rate in the absence of a detected vehicle incident and collected at a higher second data rate upon detecting the vehicle incident. Aspects of the above method include wherein the collected data associated with the at least one user is sent to the third party in real-time.

[0017] Embodiments include a non-transitory computer readable medium having instructions stored thereon that, when executed by a processor, perform operations comprising the above methods. Embodiments include a device, means, and/or system configured to perform the above methods.

[0018] Embodiments include a vehicle control system, comprising a profile identification module contained in a memory and executed by a processor of the vehicle control system, the profile identification module configured to detect a presence of at least one user in a vehicle, determine an identity of the at least one user, receive data associated with the at least one user, wherein the data includes biometric information, detect a deviation between the received data and an established baseline biometric profile associated with the at least one user, and determine, based at least partially on the detected

deviation, to provide an output configured to address the deviation. Aspects of the above system include wherein prior to receiving data associated with the at least one user the profile identification module is further configured to determine the baseline biometric profile associated with the at least one user, and store the determined baseline biometric profile in a user profile memory associated with the at least one user.

[0019] Embodiments include a method, comprising: detecting a user profile associated with a user, the user profile having infotainment information stored therein; detecting at least one infotainment system associated with the user; and determining to adjust a configuration of the at least one infotainment system based at least partially on the infotainment information in the user profile. Aspects of the above method include wherein the at least one infotainment system is a vehicle infotainment system, and wherein prior to detecting the user profile the method further comprises: identifying the user inside a vehicle via one or more sensors associated with the vehicle; and referring, in response to identifying the user, to a memory associated with the identified user, wherein the memory includes the user profile. Aspects of the above method include wherein identifying the user further comprises: receiving identifying characteristics associated with the user via an image sensor or via a signal provided by a device associated with the user; and determining whether the identifying characteristics associated with the user match unique user characteristics stored in a memory, wherein the unique user characteristics are configured to verify an identity of the user. Aspects of the above method include wherein detecting the at least one infotainment system associated with the user is based at least partially on one or more of a proximity of a user and a user device to the at least one infotainment system. Aspects of the above method include wherein determining to adjust the configuration of the at least one infotainment system further comprises: determining the configuration of the at least one infotainment system; and determining whether the infotainment information matches the determined configuration of the at least one infotainment system, wherein the infotainment information includes at least one infotainment setting, preference, content, and power state. Aspects of the above method further comprise providing, when the infotainment information does not match the determined configuration of the at least one infotainment system, an adjustment output configured to adjust the configuration of the at least one infotainment system. Aspects of the above method include wherein determining to adjust the configuration of the at least one infotainment system further comprises: determining an access priority of the user; and determining whether the access priority of the user allows for the adjustment to the

configuration of the at least one infotainment system. Aspects of the above method include wherein determining whether the access priority of the user allows for the adjustment to the configuration of the at least one infotainment system further comprises: determining a second access priority of a second user associated with the infotainment system; and comparing the access priority of the user to the second access priority of the second user, wherein the adjustment is allowed when the access priority of the user is greater than the second access priority of the second user, and wherein the adjustment is prevented when the access priority of the user is less than the second access priority of the second user. Aspects of the above method further comprise receiving additional infotainment information via at least one device associated with the user; determining whether the additional infotainment information qualifies as user profile data; and storing, based at least partially on determining that the additional infotainment information qualifies as user profile data, the additional infotainment information in the user profile associated with the user. Aspects of the above method further comprise adjusting the configuration of the at least one infotainment system, wherein adjusting the configuration includes at least one of tuning to a station, setting an infotainment input, selecting a content genre, and recording content for playback to the user.

[0020] Embodiments include a non-transitory computer readable medium having instructions stored thereon that, when executed by a processor, perform operations comprising the above methods. Embodiments include a device, means, and/or system configured to perform the above methods.

[0021] Embodiments include an infotainment control system, comprising a profile identification module contained in a memory and executed by a processor of the infotainment control system, the profile identification module configured to detect a user profile associated with a user, the user profile having infotainment information stored therein, detect at least one infotainment system associated with the user, and determine to adjust a configuration of the at least one infotainment system based at least partially on the infotainment information in the user profile. Aspects of the above system include wherein the at least one infotainment system is a vehicle infotainment system, and wherein prior to detecting the user profile the profile identification module is further configured to identify the user inside a vehicle via one or more sensors associated with the vehicle, and refer, in response to identifying the user, to a memory associated with the identified user, wherein the memory includes the user profile.

[0022] The present disclosure can provide a number of advantages depending on the particular aspect, embodiment, and/or configuration. One advantage includes providing user profiles that include one or more settings, configurations, and information, associated with a user. Among other things, the user profiles described herein may follow a user from vehicle-to-vehicle, from communication device-to-communication device, from building-to-vehicle, vehicle-to-building, and/or combinations thereof. The user profiles can act as a repository for user information. This user information can be used by any number of entities and/or devices in tracking a user, providing an output, manipulating controls of a vehicle, controlling features of a building, and/or adjusting infotainment systems. The user profiles can provide adjustment information for a vehicle features position, sensitivity, and/or operational range. These and other advantages will be apparent from the disclosure.

[0023] The phrases "at least one," "one or more," and "and/or" are open-ended expressions that are both conjunctive and disjunctive in operation. For example, each of the expressions "at least one of A, B and C," "at least one of A, B, or C," "one or more of A, B, and C," "one or more of A, B, or C" and "A, B, and/or C" means A alone, B alone, C alone, A and B together, A and C together, B and C together, or A, B and C together.

[0024] The term "a" or "an" entity refers to one or more of that entity. As such, the terms "a" (or "an"), "one or more," and "at least one" can be used interchangeably herein. It is also to be noted that the terms "comprising," "including," and "having" can be used interchangeably.

[0025] The term "automatic" and variations thereof, as used herein, refer to any process or operation done without material human input when the process or operation is performed. However, a process or operation can be automatic, even though performance of the process or operation uses material or immaterial human input, if the input is received before the performance of the process or operation. Human input is deemed to be material if such input influences how the process or operation will be performed. Human input that consents to the performance of the process or operation is not deemed to be "material."

[0026] The term "automotive navigation system" can refer to a satellite navigation system designed for use in vehicles. It typically uses a GPS navigation device to acquire position data to locate the user on a road in the unit's map database. Using the road database, the unit can give directions to other locations along roads also in its database. Dead reckoning using distance data from sensors attached to the drivetrain, a gyroscope

and an accelerometer can be used for greater reliability, as GPS signal loss and/or multipath can occur due to urban canyons or tunnels.

[0027] The term "bus" and variations thereof, as used herein, can refer to a subsystem that transfers information and/or data between various components. A bus generally refers to the collection communication hardware interface, interconnects, bus architecture, standard, and/or protocol defining the communication scheme for a communication system and/or communication network. A bus may also refer to a part of a communication hardware that interfaces the communication hardware with the interconnects that connect to other components of the corresponding communication network. The bus may be for a wired network, such as a physical bus, or wireless network, such as part of an antenna or hardware that couples the communication hardware with the antenna. A bus architecture supports a defined format in which information and/or data is arranged when sent and received through a communication network. A protocol may define the format and rules of communication of a bus architecture.

[0028] The terms "communication device," "smartphone," and "mobile device," and variations thereof, as used herein, can be used interchangeably and may include any type of device capable of communicating with one or more of another device and/or across a communications network, via a communications protocol, and the like. Exemplary communication devices may include but are not limited to smartphones, handheld computers, laptops, netbooks, notebook computers, subnotebooks, tablet computers, scanners, portable gaming devices, phones, pagers, GPS modules, portable music players, and other Internet-enabled and/or network-connected devices.

[0029] A "communication modality" can refer to any protocol- or standard defined or specific communication session or interaction, such as Voice-Over-Internet-Protocol ("VoIP), cellular communications (e.g., IS-95, 1G, 2G, 3G, 3.5G, 4G, 4G/IMT-Advanced standards, 3GPP, WIMAX™, GSM, CDMA, CDMA2000, EDGE, 1xEVDO, iDEN, GPRS, HSPDA, TDMA, UMA, UMTS, ITU-R, and 5G), Bluetooth™, text or instant messaging (e.g., AIM, Blauk, eBuddy, Gadu-Gadu, IBM Lotus Sametime, ICQ, iMessage, IMVU, Lync, MXit, Paltalk, Skype, Tencent QQ, Windows Live Messenger™ or MSN Messenger™, Wireclub, Xfire, and Yahoo! Messenger™), email, Twitter (e.g., tweeting), Digital Service Protocol (DSP), and the like.

[0030] The term "communication system" or "communication network" and variations thereof, as used herein, can refer to a collection of communication components capable of one or more of transmission, relay, interconnect, control, or otherwise manipulate

information or data from at least one transmitter to at least one receiver. As such, the communication may include a range of systems supporting point-to-point or broadcasting of the information or data. A communication system may refer to the collection individual communication hardware as well as the interconnects associated with and connecting the individual communication hardware. Communication hardware may refer to dedicated communication hardware or may refer a processor coupled with a communication means (i.e., an antenna) and running software capable of using the communication means to send and/or receive a signal within the communication system. Interconnect refers some type of wired or wireless communication link that connects various components, such as communication hardware, within a communication system. A communication network may refer to a specific setup of a communication system with the collection of individual communication hardware and interconnects having some definable network topography. A communication network may include wired and/or wireless network having a pre-set to an ad hoc network structure.

[0031] The term "computer-readable medium," as used herein refers to any tangible storage and/or transmission medium that participates in providing instructions to a processor for execution. Such a medium may take many forms, including but not limited to, non-volatile media, volatile media, and transmission media. Non-volatile media includes, for example, non-volatile random access memory (NVRAM), or magnetic or optical disks. Volatile media includes dynamic memory, such as main memory. Common forms of computer-readable media include, for example, a floppy disk, a flexible disk, hard disk, magnetic tape, or any other magnetic medium, magneto-optical medium, a compact disc read only memory (CD-ROM), any other optical medium, punch cards, paper tape, any other physical medium with patterns of holes, a random access memory (RAM), a programmable read only memory (PROM), and erasable programmable read only memory EPROM, a FLASH-EPROM, a solid state medium like a memory card, any other memory chip or cartridge, a carrier wave as described hereinafter, or any other medium from which a computer can read. A digital file attachment to an e-mail or other self-contained information archive or set of archives is considered a distribution medium equivalent to a tangible storage medium. When the computer-readable media is configured as a database, it is to be understood that the database may be any type of database, such as relational, hierarchical, object-oriented, and/or the like. Accordingly, the disclosure is considered to include a tangible storage medium or distribution medium and prior art-recognized equivalents and successor media, in which the software

implementations of the present disclosure are stored. It should be noted that any computer readable medium that is not a signal transmission may be considered non-transitory.

[0032] The terms dash and dashboard and variations thereof, as used herein, may be used interchangeably and can be any panel and/or area of a vehicle disposed adjacent to an operator, user, and/or passenger. Dashboards may include, but are not limited to, one or more control panel(s), instrument housing(s), head unit(s), indicator(s), gauge(s), meter(s), light(s), audio equipment, computer(s), screen(s), display(s), HUD unit(s), and graphical user interface(s).

[0033] The term "module" as used herein refers to any known or later developed hardware, software, firmware, artificial intelligence, fuzzy logic, or combination of hardware and software that is capable of performing the functionality associated with that element.

[0034] The term "desktop" refers to a metaphor used to portray systems. A desktop is generally considered a "surface" that may include pictures, called icons, widgets, folders, etc. that can activate and/or show applications, windows, cabinets, files, folders, documents, and other graphical items. The icons are generally selectable to initiate a task through user interface interaction to allow a user to execute applications and/or conduct other operations.

[0035] The term "display" refers to a portion of a physical screen used to display the output of a computer to a user.

[0036] The term "displayed image" refers to an image produced on the display. A typical displayed image is a window or desktop. The displayed image may occupy all or a portion of the display.

[0037] The term "display orientation" refers to the way in which a rectangular display is oriented for viewing. The two most common types of display orientations are portrait and landscape. In landscape mode, the display is oriented such that the width of the display is greater than the height of the display (such as a 4:3 ratio, which is 4 units wide and 3 units tall, or a 16:9 ratio, which is 16 units wide and 9 units tall). Stated differently, the longer dimension of the display is oriented substantially horizontal in landscape mode while the shorter dimension of the display is oriented substantially vertical. In the portrait mode, by contrast, the display is oriented such that the width of the display is less than the height of the display. Stated differently, the shorter dimension of the display is oriented substantially horizontal in the portrait mode while the longer dimension of the display is oriented substantially vertical. A multi-screen display can have one composite display that

encompasses all the screens. The composite display can have different display characteristics based on the various orientations of the device.

[0038] The term "electronic address" can refer to any contactable address, including a telephone number, instant message handle, e-mail address, Uniform Resource Locator ("URL"), Global Universal Identifier ("GUID"), Universal Resource Identifier ("URI"), Address of Record ("AOR"), electronic alias in a database, etc., combinations thereof.

[0039] The term "gesture" refers to a user action that expresses an intended idea, action, meaning, result, and/or outcome. The user action can include manipulating a device (e.g., opening or closing a device, changing a device orientation, moving a trackball or wheel, etc.), movement of a body part in relation to the device, movement of an implement or tool in relation to the device, audio inputs, etc. A gesture may be made on a device (such as on the screen) or with the device to interact with the device.

[0040] The term "gesture capture" refers to a sense or otherwise a detection of an instance and/or type of user gesture. The gesture capture can be received by sensors in three-dimensional space. Further, the gesture capture can occur in one or more areas of a screen, for example, on a touch-sensitive display or a gesture capture region. A gesture region can be on the display, where it may be referred to as a touch sensitive display, or off the display, where it may be referred to as a gesture capture area.

[0041] The terms "infotainment" and "infotainment system" may be used interchangeably and can refer to the hardware/software products, data, content, information, and/or systems, which can be built into or added to vehicles to enhance driver and/or passenger experience. Infotainment may provide media and/or multimedia content. An example is information-based media content or programming that also includes entertainment content.

[0042] A "multi-screen application" refers to an application that is capable of producing one or more windows that may simultaneously occupy one or more screens. A multi-screen application commonly can operate in single-screen mode in which one or more windows of the application are displayed only on one screen or in multi-screen mode in which one or more windows are displayed simultaneously on multiple screens.

[0043] A "single-screen application" refers to an application that is capable of producing one or more windows that may occupy only a single screen at a time.

[0044] The terms "online community," "e-community," or "virtual community" can mean a group of people that interact via a computer network, for social, professional, educational, and/or other purposes. The interaction can use a variety of media formats,

including wikis, blogs, chat rooms, Internet forums, instant messaging, email, and other forms of electronic media. Many media formats may be used in social software separately and/or in combination, including text-based chat rooms and forums that use voice, video text or avatars.

[0045] The term "satellite positioning system receiver" can refer to a wireless receiver or transceiver to receive and/or send location signals from and/or to a satellite positioning system (SPS), such as the Global Positioning System ("GPS") (US), GLONASS (Russia), Galileo positioning system (EU), Compass navigation system (China), and Regional Navigational Satellite System (India).

[0046] The term "social network service" may include a service provider that builds online communities of people, who share interests and/or activities, or who are interested in exploring the interests and/or activities of others. Social network services can be network-based and may provide a variety of ways for users to interact, such as e-mail and instant messaging services.

[0047] The term "social network" can refer to a network-based social network.

[0048] The term "screen," "touch screen," "touchscreen," or "touch-sensitive display" refers to a physical structure that enables the user to interact with the computer by touching areas on the screen and provides information to a user through a display. The touch screen may sense user contact in a number of different ways, such as by a change in an electrical parameter (e.g., resistance or capacitance), acoustic wave variations, infrared radiation proximity detection, light variation detection, and the like. In a resistive touch screen, for example, normally separated conductive and resistive metallic layers in the screen pass an electrical current. When a user touches the screen, the two layers make contact in the contacted location, whereby a change in electrical field is noted and the coordinates of the contacted location calculated. In a capacitive touch screen, a capacitive layer stores electrical charge, which is discharged to the user upon contact with the touch screen, causing a decrease in the charge of the capacitive layer. The decrease is measured, and the contacted location coordinates determined. In a surface acoustic wave touch screen, an acoustic wave is transmitted through the screen, and the acoustic wave is disturbed by user contact. A receiving transducer detects the user contact instance and determines the contacted location coordinates.

[0049] The term "window" refers to a, typically rectangular, displayed image on at least part of a display that contains or provides content different from the rest of the screen. The window may obscure the desktop. The dimensions and orientation of the window

may be configurable either by another module or by a user. When the window is expanded, the window can occupy substantially all of the display space on a screen or screens.

[0050] The terms "determine," "calculate," and "compute," and variations thereof, as used herein, are used interchangeably and include any type of methodology, process, mathematical operation, or technique.

[0051] It shall be understood that the term "means," as used herein, shall be given its broadest possible interpretation in accordance with 35 U.S.C., Section 112, Paragraph 6 or other applicable law. Accordingly, a claim incorporating the term "means" shall cover all structures, materials, or acts set forth herein, and all of the equivalents thereof. Further, the structures, materials or acts and the equivalents thereof shall include all those described in the summary of the invention, brief description of the drawings, detailed description, abstract, and claims themselves.

[0052] The terms "vehicle," "car," "automobile," and variations thereof may be used interchangeably herein and can refer to a device or structure for transporting animate and/or inanimate or tangible objects (e.g., persons and/or things), such as a self-propelled conveyance. A vehicle as used herein can include any conveyance or model of a conveyance, where the conveyance was originally designed for the purpose of moving one or more tangible objects, such as people, animals, cargo, and the like. The term "vehicle" does not require that a conveyance moves or is capable of movement. Typical vehicles may include but are in no way limited to cars, trucks, motorcycles, busses, automobiles, trains, railed conveyances, boats, ships, marine conveyances, submarine conveyances, airplanes, space craft, flying machines, human-powered conveyances, and the like.

[0053] The term "profile," as used herein, can refer to any data structure, data store, and/or database that includes one or more items of information associated with a vehicle, a vehicle system, a device (e.g., a mobile device, laptop, mobile phone, etc.), or a person.

[0054] The term "in communication with," as used herein, refers to any coupling, connection, or interaction using electrical signals to exchange information or data, using any system, hardware, software, protocol, or format, regardless of whether the exchange occurs wirelessly or over a wired connection.

[0055] The preceding is a simplified summary of the disclosure to provide an understanding of some aspects of the disclosure. This summary is neither an extensive nor exhaustive overview of the disclosure and its various aspects, embodiments, and/or configurations. It is intended neither to identify key or critical elements of the disclosure

nor to delineate the scope of the disclosure but to present selected concepts of the disclosure in a simplified form as an introduction to the more detailed description presented below. As will be appreciated, other aspects, embodiments, and/or configurations of the disclosure are possible utilizing, alone or in combination, one or more of the features set forth above or described in detail below.

BRIEF DESCRIPTION OF THE DRAWINGS

[0056] Fig. 1 depicts an embodiment of a vehicle operating environment;

[0057] Fig. 2 is a block diagram of an embodiment of a vehicle system;

[0058] Fig. 3 is a block diagram of an embodiment of a vehicle control system environment;

[0059] Fig. 4 is a block diagram of an embodiment of a vehicle communications subsystem;

[0060] Fig. 5A is a first block diagram of an embodiment of a vehicle interior environment separated into areas and/or zones;

[0061] Fig. 5B is a second block diagram of an embodiment of a vehicle interior environment separated into areas and/or zones;

[0062] Fig. 5C is a third block diagram of an embodiment of a vehicle interior environment separated into areas and/or zones;

[0063] Fig. 6A depicts an embodiment of a sensor configuration for a vehicle;

[0064] Fig. 6B depicts an embodiment of a sensor configuration for a zone of a vehicle;

[0065] Fig. 7A is a block diagram of an embodiment of interior sensors for a vehicle;

[0066] Fig. 7B is a block diagram of an embodiment of exterior sensors for a vehicle;

[0067] Fig. 8A is a block diagram of an embodiment of a media subsystem for a vehicle;

[0068] Fig. 8B is a block diagram of an embodiment of a user and device interaction subsystem for a vehicle;

[0069] Fig. 8C is a block diagram of an embodiment of a Navigation subsystem for a vehicle;

[0070] Fig. 9 is a block diagram of an embodiment of a communications subsystem for a vehicle;

[0071] Fig. 10 is a block diagram of an embodiment of a software architecture for the vehicle control system;

[0072] Fig. 11A is a graphical representation of an embodiment of a gesture that a user may perform to provide input to a vehicle control system;

[0073] Fig. 11B is a graphical representation of an embodiment of a gesture that a user may perform to provide input to a vehicle control system;

[0074] Fig. 11C is a graphical representation of an embodiment of a gesture that a user may perform to provide input to a vehicle control system;

[0075] Fig. 11D is a graphical representation of an embodiment of a gesture that a user may perform to provide input to a vehicle control system;

[0076] Fig. 11E is a graphical representation of an embodiment of a gesture that a user may perform to provide input to a vehicle control system;

[0077] Fig. 11F is a graphical representation of an embodiment of a gesture that a user may perform to provide input to a vehicle control system;

[0078] Fig. 11G is a graphical representation of an embodiment of a gesture that a user may perform to provide input to a vehicle control system;

[0079] Fig. 11H is a graphical representation of an embodiment of a gesture that a user may perform to provide input to a vehicle control system;

[0080] Fig. 11I is a graphical representation of an embodiment of a gesture that a user may perform to provide input to a vehicle control system;

[0081] Fig. 11J is a graphical representation of an embodiment of a gesture that a user may perform to provide input to a vehicle control system;

[0082] Fig. 11K is a graphical representation of an embodiment of a gesture that a user may perform to provide input to a vehicle control system;

[0083] Fig. 12A is a diagram of an embodiment of a data structure for storing information about a user of a vehicle;

[0084] Fig. 12B is a diagram of an embodiment of a data structure for storing information about a device associated with or in a vehicle;

[0085] Fig. 12C is a diagram of an embodiment of a data structure for storing information about a system of a vehicle;

[0086] Fig. 12D is a diagram of an embodiment of a data structure for storing information about a vehicle;

[0087] Fig. 13 is a flow or process diagram of a method for storing one or more settings associated with a user;

[0088] Fig. 14 is a flow or process diagram of a method for establishing one or more settings associated with a user;

[0089] Fig. 15 is a flow or process diagram of a method for storing one or more settings associated with a user;

[0090] Fig. 16 is a flow or process diagram of a method for storing one or more gestures associated with a user;

[0091] Fig. 17 is a flow or process diagram of a method for reacting to a gesture performed by a user;

[0092] Fig. 18 is a flow or process diagram of a method for storing health data associated with a user;

[0093] Fig. 19 is a flow or process diagram of a method for reacting to a gesture performed by a user;

[0094] Fig. 20 is a block diagram of an embodiment of a personality subsystem for a vehicle;

[0095] Fig. 21 is a flow or process diagram of a method for presenting a virtual personality to a user of a vehicle;

[0096] Fig. 22 is a flow or process diagram of a method for matching a virtual personality to a context of a user;

[0097] Fig. 23 is a block diagram of an embodiment of an automation control system;

[0098] Fig. 24 is a flow or process diagram of a method for determining and adjusting settings of a building based on user profile information;

[0099] Fig. 25 is a flow or process diagram of a method for determining and adjusting settings of a system based on user profile information;

[0100] Fig. 26 is a block diagram of an embodiment of a vehicle control setup for a zone of a vehicle;

[0101] Fig. 27 is a flow or process diagram of a method for determining and adjusting a vehicle control based on user profile information;

[0102] Fig. 28 is a flow or process diagram of a method for providing an output based on health information associated with a user;

[0103] Fig. 29 is a flow or process diagram of a method for providing health information associated with a user to a third party; and

[0104] Fig. 30 is a flow or process diagram of a method for determining and adjusting infotainment settings associated with an infotainment system.

[0105] In the appended figures, similar components and/or features may have the same reference label. Further, various components of the same type may be distinguished by following the reference label by a letter that distinguishes among the similar components. If only the first reference label is used in the specification, the description is applicable to

any one of the similar components having the same first reference label irrespective of the second reference letter or label.

DETAILED DESCRIPTION

[0106] Presented herein are embodiments of systems, devices, processes, data structures, user interfaces, etc. The embodiments may relate to an automobile and/or an automobile environment. The automobile environment can include systems associated with the automobile and devices or other systems in communication with the automobile and/or automobile systems. Furthermore, the systems can relate to communications systems and/or devices and may be capable of communicating with other devices and/or to an individual or group of individuals. Further, the systems can receive user input in unique ways. The overall design and functionality of the systems provide for an enhanced user experience making the automobile more useful and more efficient. As described herein, the automobile systems may be electrical, mechanical, electro-mechanical, software-based, and/or combinations thereof.

[0107] A vehicle environment 100 that may contain a vehicle ecosystem is shown in Fig. 1. The vehicle environment 100 can contain areas associated with a vehicle or conveyance 104. The vehicle 104 is shown as a car but can be any type of conveyance. The environment 100 can include at least three zones. A first zone 108 may be inside a vehicle 104. The zone 108 includes any interior space, trunk space, engine compartment, or other associated space within or associated with the vehicle 104. The interior zone 108 can be defined by one or more techniques, for example, geo-fencing.

[0108] A second zone 112 may be delineated by line 120. The zone 112 is created by a range of one or more sensors associated with the vehicle 104. Thus, the area 112 is exemplary of the range of those sensors and what can be detected by those sensors associated with the vehicle 104. Although sensor range is shown as a fixed and continuous oval, the sensor range may be dynamic and/or discontinuous. For example, a ranging sensor (e.g., radar, lidar, ladar, etc.) may provide a variable range depending on output power, signal characteristics, or environmental conditions (e.g., rain, fog, clear, etc.). The rest of the environment includes all space beyond the range of the sensors and is represented by space 116. Thus, the environment 100 may have an area 116 that includes all areas beyond the sensor range 112. The area 116 may include locations of travel that the vehicle 104 may proceed to in the future.

[0109] An embodiment of a vehicle system 200 is shown in Fig. 2. The vehicle system 200 may comprise hardware and/or software that conduct various operations for or with the vehicle 104. The operations can include, but are not limited to, providing information to the user 216, receiving input from the user 216, and controlling the functions or operation of the vehicle 104, etc. The vehicle system 200 can include a vehicle control system 204. The vehicle control system 204 can be any type of computing system operable to conduct the operations as described herein. An example of a vehicle control system may be as described in conjunction with Fig. 3.

[0110] The vehicle control system 204 may interact with a memory or storage system 208 that stores system data. System data 208 may be any type of data needed for the vehicle control system 204 to control effectively the vehicle 104. The system data 208 can represent any type of database or other storage system. Thus, the system data 208 can be a flat file data system, an object-oriented data system, or some other data system that may interface with the vehicle control system 204.

[0111] The vehicle control system 204 may communicate with a device or user interface 212, 248. The user interface 212, 248 may be operable to receive user input either through touch input, on one or more user interface buttons, via voice command, via one or more image sensors, or through a graphical user interface that may include a gesture capture region, as described in conjunction with the other figures provided herein. Further, the symbol 212, 248 can represent a device that is located or associated with the vehicle 104. The device 212, 248 can be a mobile device, including, but not limited to, a mobile telephone, a mobile computer, or other type of computing system or device that is either permanently located in or temporarily associated with, but not necessarily connected to, the vehicle 104. Thus, the vehicle control system 204 can interface with the device 212, 248 and leverage the device's computing capability to provide one or more of the features or functions as described herein.

[0112] The device or user interface 212, 248 can receive input or provide information to a user 216. The user 216 may thus interact with the vehicle control system 204 through the interface or device 212, 248. Further, the device 212, 248 may include or have access to device data 220 and/or profile data 252. The device data 220 can be any type of data that is used in conjunction with the device 212, 248 including, but not limited to, multimedia data, preferences data, device identification information, or other types of data. The profile data 252 can be any type of data associated with at least one user 216 including, but in no way limited to, bioinformatics, medical information, driving history,

personal information (e.g., home physical address, business physical address, contact addresses, likes, dislikes, hobbies, size, weight, occupation, business contacts – including physical and/or electronic addresses, personal contacts – including physical and/or electronic addresses, family members, and personal information related thereto, etc.), other user characteristics, advertising information, user settings and feature preferences, travel information, associated vehicle preferences, communication preferences, historical information (e.g., including historical, current, and/or future travel destinations), Internet browsing history, or other types of data. In any event, the data may be stored as device data 220 and/or profile data 252 in a storage system similar to that described in conjunction with Figs. 12A through 12D.

[0113] As an example, the profile data 252 may include one or more user profiles. User profiles may be generated based on data gathered from one or more of vehicle preferences (e.g., seat settings, HVAC settings, dash configurations, and the like), recorded settings, geographic location information (e.g., provided by a satellite positioning system (e.g., GPS), Wi-Fi hotspot, cell tower data, etc.), mobile device information (such as mobile device electronic addresses, Internet browsing history and content, application store selections, user settings and enabled and disabled features, and the like), private information (such as user information from a social network, user presence information, user business account, and the like), secure data, biometric information, audio information from on board microphones, video information from on board cameras, Internet browsing history and browsed content using an on board computer and/or the local area network enabled by the vehicle 104, geographic location information (e.g., a vendor storefront, roadway name, city name, etc.), and the like.

[0114] The profile data 252 may include one or more user accounts. User accounts may include access and permissions to one or more settings and/or feature preferences associated with the vehicle 104, communications, infotainment, content, etc. In one example, a user account may allow access to certain settings for a particular user, while another user account may deny access to the settings for another user, and vice versa. The access controlled by the user account may be based on at least one of a user account priority, role, permission, age, family status, a group priority (e.g., the user account priority of one or more users, etc.), a group age (e.g., the average age of users in the group, a minimum age of the users in the group, a maximum age of the users in the group, and/or combinations thereof, etc.).

[0115] For example, a user 216 may be allowed to purchase applications (e.g., software, etc.) for the vehicle 104 and/or a device associated with the vehicle 104 based on information associated with the user account. This user account information may include a preferred payment method, permissions, and/or other account information. As provided herein, the user account information may be part of the user profile and/or other data stored in the profile data 252.

[0116] As another example, an adult user (e.g., a user with an age of 18 years old and/or over, etc.) may be located in an area of a vehicle 104, such as a rear passenger area. Continuing this example a child user (e.g., a user with an age of 17 years old and/or less, etc.) may be located in the same, or close, area. In this example, the user account information in the profile data 252 associated with both the adult user and the child user may be used by the vehicle 104 in determining whether content is appropriate for the area given the age of the child user. For instance, a graphic movie containing violence (e.g., a movie associated with a mature rating, such as a Motion Picture Association of America (MPAA) rating of "R," "NC-17," etc.) may be suitable to present to a display device associated with the adult user but may not be acceptable to present to the display device if a 12-year old child user may see and/or hear the content of the movie.

[0117] The vehicle control system 204 may also communicate with or through a communication network 224. The communication network 224 can represent any type of wireless and/or wired communication system that may be included within the vehicle 104 or operable to communicate outside the vehicle 104. Thus, the communication network 224 can include a local area communication capability and a wide area communication capability. For example, the communication network 224 can include a Bluetooth® wireless system, an 802.11x (e.g., 802.11G/ 802.11N /802.11AC, or the like, wireless system), a CAN bus, an Ethernet network within the vehicle 104, or other types of communication networks that may function with or be associated with the vehicle 104. Further, the communication network 224 can also include wide area communication capabilities, including one or more of, but not limited to, a cellular communication capability, satellite telephone communication capability, a wireless wide area network communication capability, or other types of communication capabilities that allow for the vehicle control system 204 to communicate outside the vehicle 104.

[0118] The vehicle control system 204 may communicate through the communication network 224 to a server 228 that may be located in a facility that is not within physical proximity to the vehicle 104. Thus, the server 228 may represent a cloud computing

system or cloud storage that allows the vehicle control system 204 to either gain access to further computing capabilities or to storage at a location outside of the vehicle 104. The server 228 can include a computer processor and memory and be similar to any computing system as understood to one skilled in the art.

[0119] Further, the server 228 may be associated with stored data 232. The stored data 232 may be stored in any system or by any method, as described in conjunction with system data 208, device data 220, and/or profile data 252. The stored data 232 can include information that may be associated with one or more users 216 or associated with one or more vehicles 104. The stored data 232, being stored in a cloud or in a distant facility, may be exchanged among vehicles 104 or may be used by a user 216 in different locations or with different vehicles 104. Additionally or alternatively, the server may be associated with profile data 252 as provided herein. It is anticipated that the profile data 252 may be accessed across the communication network 224 by one or more components of the system 200. Similar to the stored data 232, the profile data 252, being stored in a cloud or in a distant facility, may be exchanged among vehicles 104 or may be used by a user 216 in different locations or with different vehicles 104.

[0120] The vehicle control system 204 may also communicate with one or more sensors 236, 242, which are either associated with the vehicle 104 or communicate with the vehicle 104. Vehicle sensors 242 may include one or more sensors for providing information to the vehicle control system 204 that determine or provide information about the environment 100 in which the vehicle 104 is operating. Embodiments of these sensors may be as described in conjunction with Figs. 6A-7B. Non-vehicle sensor 236 can be any type of sensor that is not currently associated with the vehicle 104. For example, non-vehicle sensor 236 can be sensors in a traffic system operated by a third party that provides data to the vehicle control system 204. Further, the non-vehicle sensor(s) 236 can be other types of sensors which provide information about the distant environment 116 or other information about the vehicle 104 or the environment 100. These non-vehicle sensors 236 may be operated by third parties but provide information to the vehicle control system 204. Examples of information provided by the sensors 236 and that may be used by the vehicle control system 204 may include weather tracking data, traffic data, user health tracking data, vehicle maintenance data, or other types of data, which may provide environmental or other data to the vehicle control system 204. The vehicle control system 204 may also perform signal processing of signals received from one or more sensors 236, 242. Such signal processing may include estimation of a measured parameter from a

single sensor, such as multiple measurements of a range state parameter from the vehicle 104 to an obstacle, and/or the estimation, blending, or fusion of a measured state parameter from multiple sensors such as multiple radar sensors or a combination of a ladar/lidar range sensor and a radar sensor. Signal processing of such sensor signal measurements may comprise stochastic signal processing, adaptive signal processing, and/or other signal processing techniques known to those skilled in the art.

[0121] The various sensors 236, 242 may include one or more sensor memory 244. Embodiments of the sensor memory 244 may be configured to store data collected by the sensors 236, 242. For example, a temperature sensor may collect temperature data associated with a vehicle 104, user 216, and/or environment, over time. The temperature data may be collected incrementally, in response to a condition, or at specific time periods. In this example, as the temperature data is collected, it may be stored in the sensor memory 244. In some cases, the data may be stored along with an identification of the sensor and a collection time associated with the data. Among other things, this stored data may include multiple data points and may be used to track changes in sensor measurements over time. As can be appreciated, the sensor memory 244 can represent any type of database or other storage system.

[0122] The diagnostic communications module 256 may be configured to receive and transmit diagnostic signals and information associated with the vehicle 104. Examples of diagnostics signals and information may include, but is in no way limited to, vehicle system warnings, sensor data, vehicle component status, service information, component health, maintenance alerts, recall notifications, predictive analysis, and the like. Embodiments of the diagnostic communications module 256 may handle warning/error signals in a predetermined manner. The signals, for instance, can be presented to one or more of a third party, occupant, vehicle control system 204, and a service provider (e.g., manufacturer, repair facility, etc.).

[0123] Optionally, the diagnostic communications module 256 may be utilized by a third party (i.e., a party other than the user 216, etc.) in communicating vehicle diagnostic information. For instance, a manufacturer may send a signal to a vehicle 104 to determine a status associated with one or more components associated with the vehicle 104. In response to receiving the signal, the diagnostic communications module 256 may communicate with the vehicle control system 204 to initiate a diagnostic status check. Once the diagnostic status check is performed, the information may be sent via the diagnostic communications module 256 to the manufacturer. This example may be

especially useful in determining whether a component recall should be issued based on the status check responses returned from a certain number of vehicles.

[0124] Wired/wireless transceiver/communications ports 260 may be included. The wired/wireless transceiver/communications ports 260 may be included to support communications over wired networks or links, for example with other communication devices, server devices, and/or peripheral devices. Examples of wired/wireless transceiver/communications ports 260 include Ethernet ports, Universal Serial Bus (USB) ports, Institute of Electrical and Electronics Engineers (IEEE) 1594, or other interface ports.

[0125] An embodiment of a vehicle control environment 300 including a vehicle control system 204 may be as shown in Fig. 3. Beyond the vehicle control system 204, the vehicle control environment 300 can include one or more of, but is not limited to, a power source and/or power control module 316, a data storage module 320, user interface(s)/input interface(s) 324, vehicle subsystems 328, user interaction subsystems 332, Global Positioning System (GPS)/Navigation subsystems 336, sensor(s) and/or sensor subsystems 340, communication subsystems 344, media subsystems 348, and/or device interaction subsystems 352. The subsystems, modules, components, etc. 316-352 may include hardware, software, firmware, computer readable media, displays, input devices, output devices, etc. or combinations thereof. The system, subsystems, modules, components, etc. 204, 316-352 may communicate over a network or bus 356. This communication bus 356 may be bidirectional and perform data communications using any known or future-developed standard or protocol. An example of the communication bus 356 may be as described in conjunction with Fig. 4.

[0126] The vehicle control system 204 can include a processor 304, memory 308, and/or an input/output (I/O) module 312. Thus, the vehicle control system 204 may be a computer system, which can comprise hardware elements that may be electrically coupled. The hardware elements may include one or more central processing units (CPUs) 304; one or more components of the I/O module 312 including input devices (e.g., a mouse, a keyboard, etc.) and/or one or more output devices (e.g., a display device, a printer, etc.).

[0127] The processor 304 may comprise a general purpose programmable processor or controller for executing application programming or instructions. The processor 304 may, optionally, include multiple processor cores, and/or implement multiple virtual processors. Additionally or alternatively, the processor 304 may include multiple physical processors. As a particular example, the processor 304 may comprise a specially configured

application specific integrated circuit (ASIC) or other integrated circuit, a digital signal processor, a controller, a hardwired electronic or logic circuit, a programmable logic device or gate array, a special purpose computer, or the like. The processor 304 generally functions to run programming code or instructions implementing various functions of the vehicle control system 204.

[0128] The input/output module 312 and associated ports may be included to support communications over wired or wireless networks or links, for example with other communication devices, server devices, and/or peripheral devices. Examples of an input/output module 312 include an Ethernet port, a Universal Serial Bus (USB) port, Institute of Electrical and Electronics Engineers (IEEE) 1594, or other interface.

[0129] The vehicle control system 204 may also include one or more storage devices 308. By way of example, storage devices 308 may be disk drives, optical storage devices, solid-state storage devices such as a random access memory ("RAM") and/or a read-only memory ("ROM"), which can be programmable, flash-updateable and/or the like. The vehicle control system 204 may additionally include a computer-readable storage media reader; a communications system (e.g., a modem, a network card (wireless or wired), an infra-red communication device, etc.); and working memory 308, which may include RAM and ROM devices as described above. The vehicle control system 204 may also include a processing acceleration unit, which can include a digital signal processor (DSP), a special-purpose processor, and/or the like.

[0130] The computer-readable storage media reader can further be connected to a computer-readable storage medium, together (and, optionally, in combination with storage device(s)) comprehensively representing remote, local, fixed, and/or removable storage devices plus storage media for temporarily and/or more permanently containing computer-readable information. The communications system may permit data to be exchanged with an external or internal network and/or any other computer or device described herein. Moreover, as disclosed herein, the term "storage medium" may represent one or more devices for storing data, including read only memory (ROM), random access memory (RAM), magnetic RAM, core memory, magnetic disk storage mediums, optical storage mediums, flash memory devices, and/or other machine readable mediums for storing information.

[0131] The vehicle control system 204 may also comprise software elements including an operating system and/or other code, as described in conjunction with Fig. 10. It should be appreciated that alternates to the vehicle control system 204 may have numerous

variations from that described herein. For example, customized hardware might also be used and/or particular elements might be implemented in hardware, software (including portable software, such as applets), or both. Further, connection to other computing devices such as network input/output devices may be employed.

[0132] The power source and/or power control module 316 can include any type of power source, including, but not limited to, batteries, alternating current sources (from connections to a building power system or power line), solar cell arrays, etc. One or more components or modules may also be included to control the power source or change the characteristics of the provided power signal. Such modules can include one or more of, but is not limited to, power regulators, power filters, alternating current (AC) to direct current (DC) converters, DC to AC converters, receptacles, wiring, other converters, etc. The power source and/or power control module 316 functions to provide the vehicle control system 204 and any other system with power.

[0133] The data storage 320 can include any module for storing, retrieving, and/or managing data in one or more data stores and/or databases. The database or data stores may reside on a storage medium local to (and/or resident in) the vehicle control system 204 or in the vehicle 104. Alternatively, some of the data storage capability may be remote from the vehicle control system 204 or automobile, and in communication (e.g., via a network) to the vehicle control system 204. The database or data stores may reside in a storage-area network ("SAN") familiar to those skilled in the art. Similarly, any necessary files for performing the functions attributed to the vehicle control system 204 may be stored locally on the respective vehicle control system 204 and/or remotely, as appropriate. The databases or data stores may be a relational database, and the data storage module 320 may be adapted to store, update, and retrieve data in response to specifically-formatted commands. The data storage module 320 may also perform data management functions for any flat file, object oriented, or other type of database or data store.

[0134] A first data store that may be part of the vehicle control environment 300 is a profile data store 252 for storing data about user profiles and data associated with the users. A system data store 208 can include data used by the vehicle control system 204 and/or one or more of the components 324-352 to facilitate the functionality described herein. The data stores 208 and/or 252 may be as described in conjunction with Figs. 1 and/or 12A-12D.

[0135] The user interface/input interfaces 324 may be as described herein for providing information or data and/or for receiving input or data from a user. Vehicle systems 328 can include any of the mechanical, electrical, electromechanical, computer, or other systems associated with the function of the vehicle 100. For example, vehicle systems 328 can include one or more of, but is not limited to, the steering system, the braking system, the engine and engine control systems, the electrical system, the suspension, the drive train, the cruise control system, the radio, the heating, ventilation, air conditioning (HVAC) system, the windows and/or doors, etc. These systems are well known in the art and will not be described further.

[0136] Examples of the other systems and subsystems 324-352 may be as described further herein. For example, the user interface(s)/input interface(s) 324 may be as described in Figs. 2 and 8B; the vehicle subsystems 328 may be as described in Figs. 6a *et. seq.*; the user interaction subsystem 332 may be as described in conjunction with the user/device interaction subsystem 817 of Fig. 8B; the Navigation subsystem 336 may be as described in Figs. 6A and 8C; the sensor(s)/sensor subsystem 340 may be as described in Figs. 7A and 7B; the communication subsystem 344 may be as described in Figs. 2, 4, 5B, 5C, and 9; the media subsystem 348 may be as described in Fig. 8A; and, the device interaction subsystem 352 may be as described in Fig. 2 and in conjunction with the user/device interaction subsystem 817 of Fig. 8B.

[0137] Fig. 4 illustrates an optional communications channel architecture 400 and associated communications components. Fig. 4 illustrates some of the optional components that can be interconnected via the communication channels/zones 404. Communication channels/zones 404 can carry information on one or more of a wired and/or wireless communications link with, in the illustrated example, there being three communications channels/zones, 408, 412, and 416.

[0138] This optional environment 400 can also include an IP router 420, an operator cluster 424, one or more storage devices 428, one or more blades, such as master blade 432, and computational blades 436 and 440. Additionally, the communications channels/zones 404 can interconnect one or more displays, such as, remote display 1 444, remote display N 448, and console display 452. The communications channels/zones 404 also interconnect an access point 456, a Bluetooth® access point/USB hub 460, a Femtocell 464, a storage controller 468, that is connected to one or more of USB devices 472, DVDs 476, or other storage devices 480. To assist with managing communications within the communication channel, the environment 400 optionally includes a firewall 484

which will be discussed hereinafter in greater detail. Other components that could also share the communications channel/zones 404 include GPS 488, media controller 492, which is connected to one or more media sources 496, and one or more subsystems, such as subsystem switches 498.

[0139] Optionally, the communications channels/zones 404 can be viewed as an I/O network or bus where the communications channels are carried on the same physical media. Optionally, the communication channels 404 can be split amongst one or more physical media and/or combined with one or more wireless communications protocols. Optionally, the communications channels 404 can be based on wireless protocols with no physical media interconnecting the various elements described herein.

[0140] The environment 400 shown in Fig. 4 can include a collection of blade processors that are housed in a "crate." The crate can have a PC-style backplane connector 408 and a backplane Ethernet 408 that allows the various blades to communicate with one another using, for example, an Ethernet.

[0141] Various other functional elements illustrated in Fig. 4 can be integrated into this crate architecture with, as discussed hereinafter, various zones utilized for security. Optionally, as illustrated in Fig. 4, the backplane 404/408 can have two separate Ethernet zones that may or may not be on the same communications channel. Optionally, the zones exist on a single communications channel on the I/O network/bus 408. Optionally, the zones are actually on different communications channels, e.g., 412, 416; however, the implementation is not restricted to any particular type of configuration. Rather, as illustrated in Fig. 4, there can be a red zone 417 and a green zone 413, and the I/O backplane on the network/bus 408 that enables standard I/O operations. This backplane or I/O network/bus 408 also optionally can provide power distribution to the various modules and blades illustrated in Fig. 4. The red and green Ethernet zones, 417 and 413 respectively, can be implemented as Ethernet switches, with one on each side of the firewall 484. Two Ethernets (untrusted and trusted) are not connected in accordance with an optional embodiment. Optionally, the connector geometry for the firewall can be different for the Ethernet zones than for the blades that are a part of the system.

[0142] The red zone 417 only needs to go from the modular connector to the input side of the backplane connector of the firewall 484. While Fig. 4 indicates that there are five external red zone connectors to the firewall 484, provisions can be made for any number of ports with the connections being made at the access point 456, the Bluetooth® access point (combo controller) 460, Femtocell 464, storage controller 468, and/or firewall 484.

Optionally, the external port connections can be made through a manufacturer configurable modular connector panel, and one or more of the red zone Ethernet ports could be available through a customer supplied crate which allows, for example, wired Ethernet connections from a bring-your-own-device (BYOD) to the firewall 484.

[0143] The green zone 413 goes from the output side of the firewall 484 and generally defines the trusted Ethernet. The Ethernet on the backplane 408 essentially implements an Ethernet switch for the entire system, defining the Ethernet backbone of the vehicle 104. All other modules, e.g., blades, etc., can connect to a standard backplane bus and the trusted Ethernet. Some number of switch ports can be reserved to connect to an output modular connector panel to distribute the Ethernet throughout the vehicle 104, e.g., connecting such elements as the console display 452, remote displays 444, 448, GPS 488, etc. Optionally, only trusted components, either provided or approved by the manufacturer after testing, can be attached to the green zone 413, which is by definition in the trusted Ethernet environment.

[0144] Optionally, the environment 400, shown in Fig. 4, utilizes IPv6 over Ethernet connections wherever possible. Using, for example, the Broadcom single-twisted pair Ethernet technology, wiring harnesses are simplified and data transmission speeds are maximized. However, while the Broadcom single-twisted pair Ethernet technology can be used, in general, systems and methods can work comparably well with any type of well-known Ethernet technology or other comparable communications technology.

[0145] As illustrated in Fig. 4 the I/O network/bus 408 is a split-bus concept that contains three independent bus structures:

The red zone 417 - the untrusted Ethernet environment. This zone 417 may be used to connect network devices and customer provided devices to the vehicle information system with these devices being on the untrusted side of the firewall 484.

The green zone 413 - the trusted Ethernet environment, this zone 413 can be used to connect manufacturer certified devices such as GPS units, remote displays, subsystem switches, and the like, to the vehicle network 404. Manufacturer certified devices can be implemented by vendors that allow the vehicle software system to validate whether or not a device is certified to operate with the vehicle 100. Optionally, only certified devices are allowed to connect to the trusted side of the network.

The I/O bus 409 - the I/O bus may be used to provide power and data transmission to bus-based devices such as the vehicle solid state drive, the media controller blade 492, the computational blades 436, 440, and the like.

[0146] As an example, the split-bus structure can have the following minimum configuration:

Two slots for the red zone Ethernet;

One slot for built-in LTE/WiMax access 420 from the car to other network resources such as the cloud/Internet;

One slot for user devices or bring-your-own device access, this slot can implement, for example, WiFi, Bluetooth®, and/or USB connectivity 456, which can be provided in, for example, the customer crate;

One slot for combined red zone and green zone Ethernet, this slot can be reserved for the firewall controller;

Two slots for computational blades. Here the two computation blades are illustratively as shown the optional master blade and the multimedia blade or controller 492 which can be provided as standard equipment; and

The expansion controller that allows the I/O bus to be extended and provides additional Ethernet switch ports for one or more of the red or green zones, which may require that the basic green zone Ethernet switch implementation will support additional ports beyond the initial three that are needed for the basic exemplary system.

It should be possible to build 8 or 16 or more Ethernet switches that allow for the expansion with existing component(s) in a straight-forward manner.

[0147] The red zone 417 can be implemented as an 8-port Ethernet switch that has three actual bus ports within the crate with the remaining five ports being available on the customer crate. The crate implements red zone slots for the firewall controller 484, the combo controller which includes WiFi, Bluetooth®, USB hub (456, 460) and the IP router 420.

[0148] The firewall controller 484 can have a dedicated slot that bridges the red zone 417, green zone 413, and uses the I/O bus for power connections. In accordance with an optional low cost implementation, the firewall 484 can be implemented by a dummy module that simply bridges the red zone 417 and the green zone 413 without necessarily providing any firewall functionality. The combo controller 460 that includes the WiFi, Bluetooth®, and USB hub can be provided for consumer device connections. This controller can also implement the IPv6 (un-routable) protocol to insure that all information is packetized for transmission via IP over the Ethernet in the I/O network/bus 408.

[0149] The combo controller 460 with the USB hub can have ports in the customer crate. The combo controller 460 can implement USB discovery functions and packetizes

the information for transmission via IP over Ethernet. The combo controller 460 can also facilitate installation of the correct USB driver for the discovered device, such as a BYOD from the user. The combo controller 460 and USB hub can then map the USB address to a "local" IPv6 address for interaction with one or more of the computational blades which is generally going to be the media controller 492.

[0150] The IP router 420 can implement Internet access through a manufacturer provided service. This service can allow, for example, a manufacturer to offer value-added services to be integrated into the vehicle information systems. The existence of the manufacturer provided Internet access can also allow the "e-Call" function and other vehicle data recorder functions to be implemented. IP router 420 also allows, for example, WiMax, 4G LTE, and other connections to the Internet through a service provider that can be, for example, contracted by the manufacturer. Internally, the IP router 420 can allow cellular handset connections to the Internet through a Femtocell 464 that is part of the IP router implementation. The IP router 420, with the Femtocell 464, can also allow a cone of silence functionality to be implemented. The IP router 420 can be an optional component for a vehicle provided by, for example, the manufacturer, a dealer, or installed by a user. In the absence of the IP router 420, it is possible to connect a consumer handheld device to the I/O network/bus 408 using, for example, either WiFi or Bluetooth® 456, 460. While functionality may be somewhat reduced when using a handheld device instead of a built-in Ethernet connection, systems and methods of this invention can also work utilizing this consumer handheld device which then connects to the Internet via, for example, WiMax, 4G, 4G LTE, or the like.

[0151] Figs. 5A-5C show configurations of a vehicle 104. In general, a vehicle 104 may provide functionality based at least partially on one or more areas, zones, and distances, associated with the vehicle 104. Non-limiting examples of this functionality are provided herein below.

[0152] An arrangement or configuration for sensors within a vehicle 104 is as shown in Fig. 5A. The sensor arrangement 500 can include one or more areas 508 within the vehicle. An area can be a larger part of the environment inside or outside of the vehicle 104. Thus, area one 508A may include the area within the trunk space or engine space of the vehicle 104 and/or the front passenger compartment. Area two 508B may include a portion of the interior space 108 (e.g., a passenger compartment, etc.) of the vehicle 104. The area N, 508N, may include the trunk space or rear compartment area, when included within the vehicle 104. The interior space 108 may also be divided into other areas. Thus,

one area may be associated with the front passenger's and driver's seats, a second area may be associated with the middle passengers' seats, and a third area may be associated with a rear passenger's seat. Each area 508 may include one or more sensors that are positioned or operate to provide environmental information about that area 508.

[0153] Each area 508 may be further separated into one or more zones 512 within the area 508. For example, area 1 508A may be separated into zone A 512A, and zone B 512B. Each zone 512 may be associated with a particular portion of the interior occupied by a passenger. For example, zone A 512A may be associated with a driver. Zone B 512B, may be associated with a front passenger. Each zone 512 may include one or more sensors that are positioned or configured to collect information about the environment or ecosystem associated with that zone or person.

[0154] A passenger area 508B may include more than two zones as described in conjunction with area 508A. For example, area 508B may include three zones, 512C, 512D, and 512E. These three separate zones 512C, 512D, and 512E may be associated with three passenger seats typically found in the rear passenger area of a vehicle 104. An area 508N and may include a single zone 512N as there may be no separate passenger areas but may include a single trunk area within the vehicle 104. The number of zones 512 is unlimited within the areas as the areas are also unlimited inside the vehicle 104. Further, it should be noted that there may be one or areas 508 or zones 512 that may be located outside the vehicle 104 that may have a specific set of sensors associated therewith.

[0155] Optionally, each area/access point 508, 456, 516, 520, and/or zone 512, associated with a vehicle 104, may comprise one or more sensors to determine a presence of a user 216 and/or device 212, 248 in and/or adjacent to each area 508, 456, 516, 520, and/or zone 512. The sensors may include vehicle sensors 242 and/or non-vehicle sensors 236 as described herein. It is anticipated that the sensors may be configured to communicate with a vehicle control system 204 and/or the diagnostic communications module 256. Additionally or alternatively, the sensors may communicate with a device 212, 248. The communication of sensors with the vehicle 104 may initiate and/or terminate the control of device 212, 248 features. For example, a vehicle operator may be located in a second outside area 520 associated with a vehicle 104. As the operator approaches the first outside area 516, associated with the vehicle 104, the vehicle control system 204 may determine to control features associated with one or more device 212, 248 and diagnostic communications module 256.

[0156] Optionally, the location of the device 212, 248 relative to the vehicle 104 may determine vehicle functionality and/or features to be provided and/or restricted to a user 216. By way of example, a device 212, 248 associated with a user 216 may be located at a second outside area 520 from the vehicle 104. In this case, and based at least partially on the distance of the device 212, 248 from the vehicle 104 (e.g., provided by detecting the device 212, 248 at or beyond the second outside area 520) the vehicle 104 may lock one or more features (e.g., ignition access, vehicle access, communications ability, etc.) associated with the vehicle 104. Optionally, the vehicle 104 may provide an alert based on the distance of the device 212, 248 from the vehicle 104. Continuing the example above, once the device 212, 248 reaches the first outside area 516 of the vehicle 104 at least one of the vehicle features may be unlocked. For instance, by reaching the first outside area 516, the vehicle 104 may unlock a door of the vehicle 104. In some cases, when the device is detected to be inside the vehicle 104, the various sensors 236, 242 may determine that the user 216 is in an area 508 and/or zone 512. As is further described herein, features of the vehicle 104, device 212, 248, and/or other components may be controlled based on rules stored in a memory.

[0157] Fig. 5B illustrates optional internal vehicle communications between one or more of the vehicle and one or more devices or between devices. Various communications can occur utilizing one or more Bluetooth®, NFC, WiFi, mobile hot spot, point-to-point communications, point-to-multipoint other point communications, an ad hoc network, or in general any known communications protocol over any known communications media or media-types.

[0158] Optionally, various types of internal vehicle communications can be facilitated using an access point 456 that utilizes one or more of Bluetooth®, NFC, WiFi, wireless Ethernet, mobile hot spot technology, or the like. Upon being connected with, and optionally authenticated to the access point 456, the connected device is able to communicate with one or more of the vehicle and one or more other devices that are connected to the access point 456. The type of connection to the access point 456 can be based on, for example, the zone 512, in which the device is located.

[0159] The user may identify their zone 512 in conjunction with an authentication procedure to the access point 456. For example, a driver in zone A 512A, upon authenticating to the access point 456, can cause the access point 456 to send a query to the device asking the device user in which zone 512 they are located. As discussed hereinafter, the zone 512 the user device is located in may have an impact on the type of

communications, available bandwidth, the types of other devices or vehicle systems or subsystems the device could communicate with, and the like. As a brief introduction, internal communications with zone A 512A may be given preferential treatment over those communications originating from area 2 508B, which could have in itself, preferential treatment over communications originating within area N 508N.

[0160] Moreover, the device in zone A 512A can include profile information that governs the other devices that are allowed to connect to the access point 456 and what those devices have access to, how they can communicate, how much bandwidth they are allocated, and the like. While, optionally, the device associated with zone A 512A will be considered the "master" controller of the profile that governs the internal vehicle communications, it should be appreciated that this was arbitrarily chosen since it is assumed that there will always be a driver in a car that is present in zone A 512A. However, it should be appreciated the driver in zone A 512A, for example, may not have a communications device in which case a device associated with one of the other areas or zones, such as zone B 512B, area 2 508B, or area N 508N could also be associated with or control this master profile.

[0161] Optionally, various devices located within the various zones 512 can connect using, for example, ports provided by access point 456 or Bluetooth® access point/USB hub 460 as illustrated in Fig 4. Similarly, the device(s) could connect utilizing the Femtocell 464 and optionally be directly connected via, for example, a standard Ethernet port.

[0162] As discussed, each one of the areas, area 1 508A, area 2 508B, and area N 508N, can each have associated therewith a profile that governs, for example, how many and what types of devices can connect from that area 508, bandwidth allocated to that area 508, the types of media or content available to device(s) within that area 508, the interconnection of devices within that area 508 or between areas 508, or, in general, can control any aspect of communication of an associated device with any one or more other associated devices/vehicle systems within the vehicle 104.

[0163] Optionally, area 2 508B devices can be provided with full access to multimedia and infotainment available within the vehicle 104, however, devices in area 2 508B may be restricted from any access to vehicle functions. Only devices in area 1 508A may be able to access vehicle control functions such as when "parents" are located in area 1 508A and the children are located in area 2 508B. Optionally, devices found in zone E 512E of area 2 508B may be able to access limited vehicle control functionality such as climate

control within area 2. Similarly, devices in area N 508N may be able to control climate features within zone N 512N.

[0164] As will be appreciated, profiles can be established that allow management of communications within each of the areas 508, and further optionally within each of the zones 512. The profile can be granular in nature controlling not only what type of devices can connect within each zone 512, but how those devices can communicate with other devices and/or the vehicle and types of information that can be communicated.

[0165] To assist with identifying a location of a device within a zone 512, a number of different techniques can be utilized. One optional technique involves one or more of the vehicle sensors detecting the presence of an individual within one of the zones 512. Upon detection of an individual in a zone 512, communications subsystems 344 and the access point 456 can cooperate to not only associate the device within the zone 512 with the access point 456 but to also determine the location of the device within an area, and optionally within a zone 512. Once the device is established within a zone 512, a profile associated with the vehicle 104 can store information identifying that device and/or a person and optionally associating it with a particular zone 512 as a default. As discussed, there can be a master profile optionally associated with the device in zone A 512A, this master profile can govern communications with the communications subsystems 340 and where communications within vehicle 104 are to occur.

[0166] Some optional profiles are illustrated below where the Master Profile governs other device connectivity:

Master Profile:

Area 1 508A	Area 2 508B	Area N 508N	Other
All Communications	Allow Access to Infotainment	No Access	Master Profile acts as Firewall and Router
All Vehicle Controls	Allow Area 2 Climate Control		

Secondary Profile (e.g., device in Zone B 512B, Area 1 508A)

Area 1 508A	Area 2 508B	Area N 508N	Other
All Communications	Allow Access to Infotainment	Allow Access to Infotainment	Master Profile acts as Firewall and Router
All Vehicle Controls	Allow Area 2 Climate Control	Allow Area 2 Climate Control	

Secondary Profile, Option 2

Area 1 508A	Area 2 508B	Area N 508N	Other
All Communications	Allow Access to Infotainment, Internet	Allow Access to Infotainment	
All Vehicle Controls Except Driver-centric Controls	Allow Area 2 Climate Control	Allow Area 2 Climate Control	

[0167] Some optional profiles are illustrated below where the Area/Zone governs device connectivity:

Area 2 508B Profile:

Area 1 508A	Area 2 508B	Area N 508N	Other
No Communications with Area 1 Devices	Allow Access to Infotainment, Allow Access to Other Area 2 or Zone N Devices, Internet		
No Vehicle Controls	Allow Area 2 Climate Control		

Area N 508N Profile:

Area 1 508A	Area 2 508B	Area N 508N	Other
Communications with Area 1, Zone B Device		Allow Access to Infotainment, Allow Access to Other Area N or Zone N Devices	
No Vehicle Controls		Allow Area N Climate Control	

Area 2 508B Profile:

Area 1 508A	Area 2 508B	Area N 508N	Other
Media Sharing with Area 1, Zone B and Vehicle	Allow Access to Infotainment, Allow Access to Other Area 2 or Zone N Devices, Internet		

	and Femtocell		
No Vehicle Controls			

[0168] Optionally, a user's device, such as a SmartPhone, can store in, for example a profile, with which zone 512 the user's device is associated. Then, assuming the user sits in the same zone 512 and area 508 as previously, the user's device can re-establish the same communications protocols with the access point 456 as were previously established.

[0169] In addition or in the alternative, the areas 508 and zones 512 can have associated therewith restrictions as to which one or more other user's devices with which users' devices can connect. For example, a first user's device can connect with any other user device in area 2 508B or area N 508N, however is restricted from connecting with a user device in area 1 508A, zone A 512A. However, the first user device may be able to communicate with another user's device that is located in area 1 508A, zone B 512B. These communications can include any type of standard communications such as sharing content, exchanging messages, forwarding or sharing multimedia or infotainment, or in general can include any communications that would ordinarily be available between two devices and/or the vehicle and vehicle systems. As discussed, there may be restrictions on the type of communications that can be sent to the device in area 1 508A, zone A 512A. For example, the user's device in area 1 508A, zone A 512A may be restricted from receiving one or more of text messages, multimedia, infotainment, or in general anything that can be envisioned as a potential distraction to the driver. Moreover, it should be appreciated that the communications between the various devices and the various zones 512 need not necessarily occur with the assistance of access point 456, but the communications could also occur directly between the device(s).

[0170] Fig. 5C outlines optional internal vehicle communications between one or more of the vehicle and one or more devices. More specifically, Fig. 5C illustrates an example of vehicle communications where the vehicle 104 is equipped with the necessary transceivers to provide a mobile hot spot functionality to any user device(s) therein, such as user devices 248A and 248N.

[0171] Optionally, and as discussed above, one or more user devices can connect to the access point 456. This access point 456 is equipped to handle communications routing to not only the communication network/buses 224 for intra-vehicle communications, but optionally can also communicate with, for example, the Internet or the cloud, in cooperation with transceiver 260. Optionally included is a firewall 484 that has the

capability of not only blocking certain types of content, such as a malicious content, but can also operate to exclude certain type of communications from emanating from the vehicle 104 and transceiver 260. As will be appreciated, various profiles could be established in the firewall 484 that controls not only the type of communications that can be received at the vehicle 104, but the type of communications that can be sent from the vehicle 104.

[0172] The transceiver 260 can be any type of well-known wireless transceiver that communicates using a known communications protocol such as WiMax, 4G, 4G LTE, 3G, or the like. The user devices can communicate via, for example, WiFi link 248 with the access point 456, with the transceiver 260 providing Internet connectivity to the various user devices. As will be appreciated, there may need to be an account associated with transceiver 260 with a wireless carrier to provide data and/or voice connectivity to enable the user devices to communicate with the Internet. Typically, the account is established on a month-to-month basis with an associated fee but could also be performed based on the amount of data to be transmitted, received, or in any other manner.

[0173] Moreover, one or more of the user's devices and access point 456 can maintain profile information that governs how the user's devices are able to communicate with other devices, and optionally the Internet. Optionally, a profile can exist that only allows the user's devices to communicate with other user's devices and/or the vehicle, multimedia and/or the vehicle infotainment system, and may not be allowed access to the Internet via transceiver 260. The profile can stipulate that the user's device could connect to the Internet via transceiver 260 for a specified period of time and/or up to a certain amount of data usage. The user's device can have full access to the Internet via transceiver 260 with no limit on time or data usage which would reduce the data usage of the user's device since it is connected via WiFi to the access point 456, but however, would increase the data usage by transceiver 260, and therefore, shift the billing for that data usage to the transceiver 260 instead of the user's device. Still further, and as previously discussed, the various profiles may stipulate which user's device has priority for use of the bandwidth provided by the transceiver 260. For example, a user's device located area 1 508A, zone A 512A may be given preferential routing treatment of data above that of a user's device in zone N 512N. In this manner, for example, a driver would be given priority for Internet access above that of the passengers. This could become important, for example, when the driver is trying to obtain traffic or direction information

or, for example, when the vehicle is performing a download to update various software features.

[0174] As will be appreciated, the optional firewall 484 can cooperate with the access point 456 and the various profiles that area 508 associated with the various devices within the vehicle 104 and can fully implement communications restrictions, control bandwidth limits, Internet accessibility, malicious software blocking, and the like. Moreover, the optional firewall 484 can be accessed by an administrator with one or more of these configuration settings edited through an administrator's control panel. For example, in a scenario where parents are always in area 1 508A, it may be appropriate to give all of the user's devices in area 1 508A full access to the Internet utilizing transceiver 260, however, while restricting access and/or bandwidth to any other user devices within the vehicle 104. As the user's device and profile would be known by the firewall 484, upon the user's device being associated with the access point 456, the firewall 484 and transceiver 260 can be configured to allow communications in accordance with the stored profile.

[0175] A set of sensors or vehicle components 600 associated with the vehicle 104 may be as shown in Fig. 6A. The vehicle 104 can include, among many other components common to vehicles, wheels 607, a power source 609 (such as an engine, motor, or energy storage system (e.g., battery or capacitive energy storage system)), a manual or automatic transmission 612, a manual or automatic transmission gear controller 616, a power controller 620 (such as a throttle), a vehicle control system 204, the display device 212, a braking system 636, a steering wheel 640, a power source activation/deactivation switch 644 (e.g., an ignition), an occupant seating system 648, a wireless signal receiver 653 to receive wireless signals from signal sources such as roadside beacons and other electronic roadside devices, and a satellite positioning system receiver 657 (e.g., a Global Positioning System ("GPS") (US), GLONASS (Russia), Galileo positioning system (EU), Compass navigation system (China), and Regional Navigational Satellite System (India) receiver), driverless systems (e.g., cruise control systems, automatic steering systems, automatic braking systems, etc.).

[0176] The vehicle 104 can include a number of sensors in wireless or wired communication with the vehicle control system 204 and/or display device 212, 248 to collect sensed information regarding the vehicle state, configuration, and/or operation. Exemplary sensors may include one or more of, but are not limited to, wheel state sensor 660 to sense one or more of vehicle speed, acceleration, deceleration, wheel rotation, wheel speed (e.g., wheel revolutions-per-minute), wheel slip, and the like, a power source

energy output sensor 664 to sense a power output of the power source 609 by measuring one or more of current engine speed (e.g., revolutions-per-minute), energy input and/or output (e.g., voltage, current, fuel consumption, and torque) (e.g., turbine speed sensor, input speed sensor, crankshaft position sensor, manifold absolute pressure sensor, mass flow sensor, and the like), and the like, a switch state sensor 668 to determine a current activation or deactivation state of the power source activation/deactivation switch 644, a transmission setting sensor 670 to determine a current setting of the transmission (e.g., gear selection or setting), a gear controller sensor 672 to determine a current setting of the gear controller 616, a power controller sensor 674 to determine a current setting of the power controller 620, a brake sensor 676 to determine a current state (braking or non-braking) of the braking system 636, a seating system sensor 678 to determine a seat setting and current weight of seated occupant, if any) in a selected seat of the seating system 648, exterior and interior sound receivers 690 and 692 (e.g., a microphone, sonar, and other type of acoustic-to-electric transducer or sensor) to receive and convert sound waves into an equivalent analog or digital signal. Examples of other sensors (not shown) that may be employed include safety system state sensors to determine a current state of a vehicular safety system (e.g., air bag setting (deployed or undeployed) and/or seat belt setting (engaged or not engaged)), light setting sensor (e.g., current headlight, emergency light, brake light, parking light, fog light, interior or passenger compartment light, and/or tail light state (on or off)), brake control (e.g., pedal) setting sensor, accelerator pedal setting or angle sensor, clutch pedal setting sensor, emergency brake pedal setting sensor, door setting (e.g., open, closed, locked or unlocked) sensor, engine temperature sensor, passenger compartment or cabin temperature sensor, window setting (open or closed) sensor, one or more interior-facing or exterior-facing cameras or other imaging sensors (which commonly convert an optical image into an electronic signal but may include other devices for detection objects such as an electromagnetic radiation emitter/receiver that emits electromagnetic radiation and receives electromagnetic waves reflected by the object) to sense objects, such as other vehicles and pedestrians and optionally determine the distance, trajectory and speed of such objects, in the vicinity or path of the vehicle, odometer reading sensor, trip mileage reading sensor, wind speed sensor, radar transmitter/receiver output, brake wear sensor, steering/torque sensor, oxygen sensor, ambient lighting sensor, vision system sensor, ranging sensor, parking sensor, heating, venting, and air conditioning (HVAC) sensor, water sensor, air-fuel ratio meter, blind spot monitor, hall effect sensor, microphone, radio frequency (RF) sensor, infrared (IR) sensor,

vehicle control system sensors, wireless network sensor (e.g., Wi-Fi and/or Bluetooth® sensor), cellular data sensor, and other sensors either future-developed or known to those of skill in the vehicle art.

[0177] In the depicted vehicle embodiment, the various sensors can be in communication with the display device 212, 248 and vehicle control system 204 via signal carrier network 224. As noted, the signal carrier network 224 can be a network of signal conductors, a wireless network (e.g., a radio frequency, microwave, or infrared communication system using a communications protocol, such as Wi-Fi), or a combination thereof. The vehicle control system 204 may also provide signal processing of one or more sensors, sensor fusion of similar and/or dissimilar sensors, signal smoothing in the case of erroneous "wild point" signals, and/or sensor fault detection. For example, ranging measurements provided by one or more RF sensors may be combined with ranging measurements from one or more IR sensors to determine one fused estimate of vehicle range to an obstacle target.

[0178] The control system 204 may receive and read sensor signals, such as wheel and engine speed signals, as a digital input comprising, for example, a pulse width modulated (PWM) signal. The processor 304 can be configured, for example, to read each of the signals into a port configured as a counter or configured to generate an interrupt on receipt of a pulse, such that the processor 304 can determine, for example, the engine speed in revolutions per minute (RPM) and the speed of the vehicle in miles per hour (MPH) and/or kilometers per hour (KPH). One skilled in the art will recognize that the two signals can be received from existing sensors in a vehicle comprising a tachometer and a speedometer, respectively. Alternatively, the current engine speed and vehicle speed can be received in a communication packet as numeric values from a conventional dashboard subsystem comprising a tachometer and a speedometer. The transmission speed sensor signal can be similarly received as a digital input comprising a signal coupled to a counter or interrupt signal of the processor 304 or received as a value in a communication packet on a network or port interface from an existing subsystem of the vehicle 104. The ignition sensor signal can be configured as a digital input, wherein a HIGH value represents that the ignition is on and a LOW value represents that the ignition is OFF. Three bits of the port interface can be configured as a digital input to receive the gear shift position signal, representing eight possible gear shift positions. Alternatively, the gear shift position signal can be received in a communication packet as a numeric value on the port interface. The throttle position signal can be received as an analog input value, typically in the range

0-5 volts. Alternatively, the throttle position signal can be received in a communication packet as a numeric value on the port interface. The output of other sensors can be processed in a similar fashion.

[0179] Other sensors may be included and positioned in the interior space 108 of the vehicle 104. Generally, these interior sensors obtain data about the health of the driver and/or passenger(s), data about the safety of the driver and/or passenger(s), and/or data about the comfort of the driver and/or passenger(s). The health data sensors can include sensors in the steering wheel that can measure various health telemetry for the person (e.g., heart rate, temperature, blood pressure, blood presence, blood composition, etc.). Sensors in the seats may also provide for health telemetry (e.g., presence of liquid, weight, weight shifts, etc.). Infrared sensors could detect a person's temperature; optical sensors can determine a person's position and whether the person has become unconscious. Other health sensors are possible and included herein.

[0180] Safety sensors can measure whether the person is acting safely. Optical sensors can determine a person's position and focus. If the person stops looking at the road ahead, the optical sensor can detect the lack of focus. Sensors in the seats may detect if a person is leaning forward or may be injured by a seat belt in a collision. Other sensors can detect that the driver has at least one hand on a steering wheel. Other safety sensors are possible and contemplated as if included herein.

[0181] Comfort sensors can collect information about a person's comfort. Temperature sensors may detect a temperature of the interior cabin. Moisture sensors can determine a relative humidity. Audio sensors can detect loud sounds or other distractions. Audio sensors may also receive input from a person through voice data. Other comfort sensors are possible and contemplated as if included herein.

[0182] Fig. 6B shows an interior sensor configuration for one or more zones 512 of a vehicle 104 optionally. Optionally, the areas 508 and/or zones 512 of a vehicle 104 may include sensors that are configured to collect information associated with the interior 108 of a vehicle 104. In particular, the various sensors may collect environmental information, user information, and safety information, to name a few. Embodiments of these sensors may be as described in conjunction with Figs. 7A-8B.

[0183] Optionally, the sensors may include one or more of optical, or image, sensors 622A-B (e.g., cameras, etc.), motion sensors 624A-B (e.g., utilizing RF, IR, and/or other sound/image sensing, etc.), steering wheel user sensors 642 (e.g., heart rate, temperature, blood pressure, sweat, health, etc.), seat sensors 677 (e.g., weight, load cell, moisture,

electrical, force transducer, etc.), safety restraint sensors 679 (e.g., seatbelt, airbag, load cell, force transducer, etc.), interior sound receivers 692A-B, environmental sensors 694 (e.g., temperature, humidity, air, oxygen, etc.), and the like.

[0184] The image sensors 622A-B may be used alone or in combination to identify objects, users 216, and/or other features, inside the vehicle 104. Optionally, a first image sensor 622A may be located in a different position within a vehicle 104 from a second image sensor 622B. When used in combination, the image sensors 622A-B may combine captured images to form, among other things, stereo and/or three-dimensional (3D) images. The stereo images can be recorded and/or used to determine depth associated with objects and/or users 216 in a vehicle 104. Optionally, the image sensors 622A-B used in combination may determine the complex geometry associated with identifying characteristics of a user 216. For instance, the image sensors 622A-B may be used to determine dimensions between various features of a user's face (e.g., the depth/distance from a user's nose to a user's cheeks, a linear distance between the center of a user's eyes, and more). These dimensions may be used to verify, record, and even modify characteristics that serve to identify a user 216. As can be appreciated, utilizing stereo images can allow for a user 216 to provide complex gestures in a 3D space of the vehicle 104. These gestures may be interpreted via one or more of the subsystems as disclosed herein. Optionally, the image sensors 622A-B may be used to determine movement associated with objects and/or users 216 within the vehicle 104. It should be appreciated that the number of image sensors used in a vehicle 104 may be increased to provide greater dimensional accuracy and/or views of a detected image in the vehicle 104.

[0185] The vehicle 104 may include one or more motion sensors 624A-B. These motion sensors 624A-B may detect motion and/or movement of objects inside the vehicle 104. Optionally, the motion sensors 624A-B may be used alone or in combination to detect movement. For example, a user 216 may be operating a vehicle 104 (e.g., while driving, etc.) when a passenger in the rear of the vehicle 104 unbuckles a safety belt and proceeds to move about the vehicle 104. In this example, the movement of the passenger could be detected by the motion sensors 624A-B. Optionally, the user 216 could be alerted of this movement by one or more of the devices 212, 248 in the vehicle 104. In another example, a passenger may attempt to reach for one of the vehicle control features (e.g., the steering wheel 640, the console, icons displayed on the head unit and/or device 212, 248, etc.). In this case, the movement (i.e., reaching) of the passenger may be detected by the motion sensors 624A-B. Optionally, the path, trajectory, anticipated path, and/or some other

direction of movement/motion may be determined using the motion sensors 624A-B. In response to detecting the movement and/or the direction associated with the movement, the passenger may be prevented from interfacing with and/or accessing at least some of the vehicle control features (e.g., the features represented by icons may be hidden from a user interface, the features may be locked from use by the passenger, combinations thereof, etc.). As can be appreciated, the user 216 may be alerted of the movement/motion such that the user 216 can act to prevent the passenger from interfering with the vehicle 104 controls. Optionally, the number of motion sensors in a vehicle 104, or areas of a vehicle 104, may be increased to increase an accuracy associated with motion detected in the vehicle 104.

[0186] The interior sound receivers 692A-B may include, but are not limited to, microphones and other types of acoustic-to-electric transducers or sensors. Optionally, the interior sound receivers 692A-B may be configured to receive and convert sound waves into an equivalent analog or digital signal. The interior sound receivers 692A-B may serve to determine one or more locations associated with various sounds in the vehicle 104. The location of the sounds may be determined based on a comparison of volume levels, intensity, and the like, between sounds detected by two or more interior sound receivers 692A-B. For instance, a first interior sound receiver 692A may be located in a first area of the vehicle 104 and a second interior sound receiver 692B may be located in a second area of the vehicle 104. If a sound is detected at a first volume level by the first interior sound receiver 692A and a second, higher, volume level by the second interior sound receiver 692B in the second area of the vehicle 104, the sound may be determined to be closer to the second area of the vehicle 104. As can be appreciated, the number of sound receivers used in a vehicle 104 may be increased (e.g., more than two, etc.) to increase measurement accuracy surrounding sound detection and location, or source, of the sound (e.g., via triangulation, etc.).

[0187] Seat sensors 677 may be included in the vehicle 104. The seat sensors 677 may be associated with each seat and/or zone 512 in the vehicle 104. Optionally, the seat sensors 677 may provide health telemetry and/or identification via one or more of load cells, force transducers, weight sensors, moisture detection sensor, electrical conductivity/resistance sensor, and the like. For example, the seat sensors 677 may determine that a user 216 weighs 180 lbs. This value may be compared to user data stored in memory to determine whether a match exists between the detected weight and a user 216 associated with the vehicle 104. In another example, if the seat sensors 677 detect

that a user 216 is fidgeting, or moving, in a seemingly uncontrollable manner, the system may determine that the user 216 has suffered a nervous and/or muscular system issue (e.g., seizure, etc.). The vehicle control system 204 may then cause the vehicle 104 to slow down and in addition or alternatively the automobile controller 8104 (described below) can safely take control of the vehicle 104 and bring the vehicle 104 to a stop in a safe location (e.g., out of traffic, off a freeway, etc).

[0188] Health telemetry and other data may be collected via the steering wheel user sensors 642. Optionally, the steering wheel user sensors 642 may collect heart rate, temperature, blood pressure, and the like, associated with a user 216 via at least one contact disposed on or about the steering wheel 640.

[0189] The safety restraint sensors 679 may be employed to determine a state associated with one or more safety restraint devices in a vehicle 104. The state associated with one or more safety restraint devices may serve to indicate a force observed at the safety restraint device, a state of activity (e.g., retracted, extended, various ranges of extension and/or retraction, deployment, buckled, unbuckled, etc.), damage to the safety restraint device, and more.

[0190] Environmental sensors 694, including one or more of temperature, humidity, air, oxygen, carbon monoxide, smoke, and other environmental condition sensors may be used in a vehicle 104. These environmental sensors 694 may be used to collect data relating to the safety, comfort, and/or condition of the interior space 108 of the vehicle 104. Among other things, the data collected by the environmental sensors 694 may be used by the vehicle control system 204 to alter functions of a vehicle. The environment may correspond to an interior space 108 of a vehicle 104 and/or specific areas 508 and/or zones 512 of the vehicle 104. It should be appreciate that an environment may correspond to a user 216. For example, a low oxygen environment may be detected by the environmental sensors 694 and associated with a user 216 who is operating the vehicle 104 in a particular zone 512. In response to detecting the low oxygen environment, at least one of the subsystems of the vehicle 104, as provided herein, may alter the environment, especially in the particular zone 512, to increase the amount of oxygen in the zone 512. Additionally or alternatively, the environmental sensors 694 may be used to report conditions associated with a vehicle (e.g., fire detected, low oxygen, low humidity, high carbon monoxide, etc.). The conditions may be reported to a user 216 and/or a third party via at least one communications module as provided herein.

[0191] Among other things, the sensors as disclosed herein may communicate with each other, with devices 212, 248, and/or with the vehicle control system 204 via the signal carrier network 224. Additionally or alternatively, the sensors disclosed herein may serve to provide data relevant to more than one category of sensor information including, but not limited to, combinations of environmental information, user information, and safety information to name a few.

[0192] Figs. 7A-7B show block diagrams of various sensors that may be associated with a vehicle 104. Although depicted as interior and exterior sensors, it should be appreciated that any of the one or more of the sensors shown may be used in both the interior space 108 and the exterior space of the vehicle 104. Moreover, sensors having the same symbol or name may include the same, or substantially the same, functionality as those sensors described elsewhere in the present disclosure. Further, although the various sensors are depicted in conjunction with specific groups (e.g., environmental 708, 708E, user interface 712, safety 716, 716E, etc.) the sensors should not be limited to the groups in which they appear. In other words, the sensors may be associated with other groups or combinations of groups and/or disassociated from one or more of the groups shown. The sensors as disclosed herein may communicate with each other, the devices 212, 248, and/or the vehicle control system 204 via one or more communications channel(s) 356.

[0193] Fig. 7A is a block diagram of an embodiment of interior sensors 340 for a vehicle 104 is provided. The interior sensors 340 may be arranged into one or more groups, based at least partially on the function of the interior sensors 340. The interior space 108 of a vehicle 104 may include an environmental group 708, a user interface group 712, and a safety group 716. Additionally or alternatively, there may be sensors associated with various devices inside the vehicle (e.g., devices 212, 248, smart phones, tablets, mobile computers, etc.)

[0194] The environmental group 708 may comprise sensors configured to collect data relating to the internal environment of a vehicle 104. It is anticipated that the environment of the vehicle 104 may be subdivided into areas 508 and zones 512 in an interior space 108 of a vehicle 104. In this case, each area 508 and/or zone 512 may include one or more of the environmental sensors. Examples of environmental sensors associated with the environmental group 708 may include, but are not limited to, oxygen/air sensors 724, temperature sensors 728, humidity sensors 732, light/photo sensors 736, and more. The oxygen/air sensors 724 may be configured to detect a quality of the air in the interior space 108 of the vehicle 104 (e.g., ratios and/or types of gasses comprising the air inside the

vehicle 104, dangerous gas levels, safe gas levels, etc.). Temperature sensors 728 may be configured to detect temperature readings of one or more objects, users 216, and/or areas 508 of a vehicle 104. Humidity sensors 732 may detect an amount of water vapor present in the air inside the vehicle 104. The light/photo sensors 736 can detect an amount of light present in the vehicle 104. Further, the light/photo sensors 736 may be configured to detect various levels of light intensity associated with light in the vehicle 104.

[0195] The user interface group 712 may comprise sensors configured to collect data relating to one or more users 216 in a vehicle 104. As can be appreciated, the user interface group 712 may include sensors that are configured to collect data from users 216 in one or more areas 508 and zones 512 of the vehicle 104. For example, each area 508 and/or zone 512 of the vehicle 104 may include one or more of the sensors in the user interface group 712. Examples of user interface sensors associated with the user interface group 712 may include, but are not limited to, infrared sensors 740, motion sensors 744, weight sensors 748, wireless network sensors 752, biometric sensors 756, camera (or image) sensors 760, audio sensors 764, and more.

[0196] Infrared sensors 740 may be used to measure IR light irradiating from at least one surface, user 216, or other object in the vehicle 104. Among other things, the Infrared sensors 740 may be used to measure temperatures, form images (especially in low light conditions), identify users 216, and even detect motion in the vehicle 104.

[0197] The motion sensors 744 may be similar to the motion detectors 624A-B, as described in conjunction with Fig. 6B. Weight sensors 748 may be employed to collect data relating to objects and/or users 216 in various areas 508 of the vehicle 104. In some cases, the weight sensors 748 may be included in the seats and/or floor of a vehicle 104.

[0198] Optionally, the vehicle 104 may include a wireless network sensor 752. This sensor 752 may be configured to detect one or more wireless network(s) inside the vehicle 104. Examples of wireless networks may include, but are not limited to, wireless communications utilizing Bluetooth®, Wi-Fi™, ZigBee, IEEE 802.11, and other wireless technology standards. For example, a mobile hotspot may be detected inside the vehicle 104 via the wireless network sensor 752. In this case, the vehicle 104 may determine to utilize and/or share the mobile hotspot detected via/with one or more other devices 212, 248 and/or components associated with the vehicle 104.

[0199] Biometric sensors 756 may be employed to identify and/or record characteristics associated with a user 216. It is anticipated that biometric sensors 756 can include at least

one of image sensors, IR sensors, fingerprint readers, weight sensors, load cells, force transducers, heart rate monitors, blood pressure monitors, and the like as provided herein.

[0200] The camera sensors 760 may be similar to image sensors 622A-B, as described in conjunction with Fig. 6B. Optionally, the camera sensors may record still images, video, and/or combinations thereof. The audio sensors 764 may be similar to the interior sound receivers 692A-B, as described in conjunction with Figs. 6A-6B. The audio sensors may be configured to receive audio input from a user 216 of the vehicle 104. The audio input from a user 216 may correspond to voice commands, conversations detected in the vehicle 104, phone calls made in the vehicle 104, and/or other audible expressions made in the vehicle 104.

[0201] The safety group 716 may comprise sensors configured to collect data relating to the safety of a user 216 and/or one or more components of a vehicle 104. The vehicle 104 may be subdivided into areas 508 and/or zones 512 in an interior space 108 of a vehicle 104 where each area 508 and/or zone 512 may include one or more of the safety sensors provided herein. Examples of safety sensors associated with the safety group 716 may include, but are not limited to, force sensors 768, mechanical motion sensors 772, orientation sensors 776, restraint sensors 780, and more.

[0202] The force sensors 768 may include one or more sensors inside the vehicle 104 configured to detect a force observed in the vehicle 104. One example of a force sensor 768 may include a force transducer that converts measured forces (e.g., force, weight, pressure, etc.) into output signals.

[0203] Mechanical motion sensors 772 may correspond to encoders, accelerometers, damped masses, and the like. Optionally, the mechanical motion sensors 772 may be adapted to measure the force of gravity (i.e., G-force) as observed inside the vehicle 104. Measuring the G-force observed inside a vehicle 104 can provide valuable information related to a vehicle's acceleration, deceleration, collisions, and/or forces that may have been suffered by one or more users 216 in the vehicle 104. As can be appreciated, the mechanical motion sensors 772 can be located in an interior space 108 or an exterior of the vehicle 104.

[0204] Orientation sensors 776 can include accelerometers, gyroscopes, magnetic sensors, and the like that are configured to detect an orientation associated with the vehicle 104. Similar to the mechanical motion sensors 772, the orientation sensors 776 can be located in an interior space 108 or an exterior of the vehicle 104.

[0205] The restraint sensors 780 may be similar to the safety restraint sensors 679 as described in conjunction with Figs. 6A-6B. These sensors 780 may correspond to sensors associated with one or more restraint devices and/or systems in a vehicle 104. Seatbelts and airbags are examples of restraint devices and/or systems. As can be appreciated, the restraint devices and/or systems may be associated with one or more sensors that are configured to detect a state of the device/system. The state may include extension, engagement, retraction, disengagement, deployment, and/or other electrical or mechanical conditions associated with the device/system.

[0206] The associated device sensors 720 can include any sensors that are associated with a device 212, 248 in the vehicle 104. As previously stated, typical devices 212, 248 may include smart phones, tablets, laptops, mobile computers, and the like. It is anticipated that the various sensors associated with these devices 212, 248 can be employed by the vehicle control system 204. For example, a typical smart phone can include, an image sensor, an IR sensor, audio sensor, gyroscope, accelerometer, wireless network sensor, fingerprint reader, and more. It is an aspect of the present disclosure that one or more of these associated device sensors 720 may be used by one or more subsystems of the vehicle system 200.

[0207] In Fig. 7B, a block diagram of an embodiment of exterior sensors 340 for a vehicle 104 is shown. The exterior sensors may include sensors that are identical, or substantially similar, to those previously disclosed in conjunction with the interior sensors of Fig. 7A. Optionally, the exterior sensors 340 may be configured to collect data relating to one or more conditions, objects, users 216, and other events that are external to the interior space 108 of the vehicle 104. For instance, the oxygen/air sensors 724 may measure a quality and/or composition of the air outside of a vehicle 104. As another example, the motion sensors 744 may detect motion outside of a vehicle 104.

[0208] The external environmental group 708E may comprise sensors configured to collect data relating to the external environment of a vehicle 104. In addition to including one or more of the sensors previously described, the external environmental group 708E may include additional sensors, such as, vehicle sensors 750, biological sensors, and wireless signal sensors 758. Vehicle sensors 750 can detect vehicles that are in an environment surrounding the vehicle 104. For example, the vehicle sensors 750 may detect vehicles in a first outside area 516, a second outside area 520, and/or combinations of the first and second outside areas 516, 520. Optionally, the vehicle sensors 750 may include one or more of RF sensors, IR sensors, image sensors, and the like to detect

vehicles, people, hazards, etc. that are in an environment exterior to the vehicle 104. Additionally or alternatively, the vehicle sensors 750 can provide distance/directional information relating to a distance (e.g., distance from the vehicle 104 to the detected object) and/or a direction (e.g., direction of travel, etc.) associated with the detected object.

[0209] The biological sensors 754 may determine whether one or more biological entities (e.g., an animal, a person, a user 216, etc.) is in an external environment of the vehicle 104. Additionally or alternatively, the biological sensors 754 may provide distance information relating to a distance of the biological entity from the vehicle 104. Biological sensors 754 may include at least one of RF sensors, IR sensors, image sensors and the like that are configured to detect biological entities. For example, an IR sensor may be used to determine that an object, or biological entity, has a specific temperature, temperature pattern, or heat signature. Continuing this example, a comparison of the determined heat signature may be compared to known heat signatures associated with recognized biological entities (e.g., based on shape, locations of temperature, and combinations thereof, etc.) to determine whether the heat signature is associated with a biological entity or an inanimate, or non-biological, object.

[0210] The wireless signal sensors 758 may include one or more sensors configured to receive wireless signals from signal sources such as Wi-Fi™ hotspots, cell towers, roadside beacons, other electronic roadside devices, and satellite positioning systems. Optionally, the wireless signal sensors 758 may detect wireless signals from one or more of a mobile phone, mobile computer, keyless entry device, RFID device, near field communications (NFC) device, and the like.

[0211] The external safety group 716E may comprise sensors configured to collect data relating to the safety of a user 216 and/or one or more components of a vehicle 104. Examples of safety sensors associated with the external safety group 716E may include, but are not limited to, force sensors 768, mechanical motion sensors 772, orientation sensors 776, vehicle body sensors 782, and more. Optionally, the exterior safety sensors 716E may be configured to collect data relating to one or more conditions, objects, vehicle components, and other events that are external to the vehicle 104. For instance, the force sensors 768 in the external safety group 716E may detect and/or record force information associated with the outside of a vehicle 104. For instance, if an object strikes the exterior of the vehicle 104, the force sensors 768 from the exterior safety group 716E may determine a magnitude, location, and/or time associated with the strike.

[0212] The vehicle 104 may include a number of vehicle body sensors 782. The vehicle body sensors 782 may be configured to measure characteristics associated with the body (e.g., body panels, components, chassis, windows, etc.) of a vehicle 104. For example, two vehicle body sensors 782, including a first body sensor and a second body sensor, may be located at some distance apart. Continuing this example, the first body sensor may be configured to send an electrical signal across the body of the vehicle 104 to the second body sensor, or vice versa. Upon receiving the electrical signal from the first body sensor, the second body sensor may record a detected current, voltage, resistance, and/or combinations thereof associated with the received electrical signal. Values (e.g., current, voltage, resistance, etc.) for the sent and received electrical signal may be stored in a memory. These values can be compared to determine whether subsequent electrical signals sent and received between vehicle body sensors 782 deviate from the stored values. When the subsequent signal values deviate from the stored values, the difference may serve to indicate damage and/or loss of a body component. Additionally or alternatively, the deviation may indicate a problem with the vehicle body sensors 782. The vehicle body sensors 782 may communicate with each other, a vehicle control system 204, and/or systems of the vehicle system 200 via a communications channel 356. Although described using electrical signals, it should be appreciated that alternative embodiments of the vehicle body sensors 782 may use sound waves and/or light to perform a similar function.

[0213] Fig. 8A is a block diagram of an embodiment of a media controller subsystem 348 for a vehicle 104. The media controller subsystem 348 may include, but is not limited to, a media controller 804, a media processor 808, a match engine 812, an audio processor 816, a speech synthesis module 820, a network transceiver 824, a signal processing module 828, memory 832, and a language database 836. Optionally, the media controller subsystem 348 may be configured as a dedicated blade that implements the media-related functionality of the system 200. Additionally or alternatively, the media controller subsystem 348 can provide voice input, voice output, library functions for multimedia, and display control for various areas 508 and/or zones 512 of the vehicle 104.

[0214] Optionally, the media controller subsystem 348 may include a local IP address (e.g., IPv4, IPv6, combinations thereof, etc.) and even a routable, global unicast address. The routable, global unicast address may allow for direct addressing of the media controller subsystem 348 for streaming data from Internet resources (e.g., cloud storage, user accounts, etc.). It is anticipated, that the media controller subsystem 348 can provide

multimedia via at least one Internet connection, or wireless network communications module, associated with the vehicle 104. Moreover, the media controller subsystem 348 may be configured to service multiple independent clients simultaneously.

[0215] The media processor 808 may comprise a general purpose programmable processor or controller for executing application programming or instructions related to the media subsystem 348. The media processor 808 may include multiple processor cores, and/or implement multiple virtual processors. Optionally, the media processor 808 may include multiple physical processors. By way of example, the media processor 808 may comprise a specially configured application specific integrated circuit (ASIC) or other integrated circuit, a digital signal processor, a controller, a hardwired electronic or logic circuit, a programmable logic device or gate array, a special purpose computer, or the like. The media processor 808 generally functions to run programming code or instructions implementing various functions of the media controller 804.

[0216] The match engine 812 can receive input from one or more components of the vehicle system 800 and perform matching functions. Optionally, the match engine 812 may receive audio input provided via a microphone 886 of the system 800. The audio input may be provided to the media controller subsystem 348 where the audio input can be decoded and matched, via the match engine 812, to one or more functions available to the vehicle 104. Similar matching operations may be performed by the match engine 812 relating to video input received via one or more image sensors, cameras 878, and the like.

[0217] The media controller subsystem 348 may include a speech synthesis module 820 configured to provide audio output to one or more speakers 880, or audio output devices, associated with the vehicle 104. Optionally, the speech synthesis module 820 may be configured to provide audio output based at least partially on the matching functions performed by the match engine 812.

[0218] As can be appreciated, the coding/decoding, the analysis of audio input/output, and/or other operations associated with the match engine 812 and speech synthesis module 820, may be performed by the media processor 808 and/or a dedicated audio processor 816. The audio processor 816 may comprise a general purpose programmable processor or controller for executing application programming or instructions related to audio processing. Further, the audio processor 816 may be similar to the media processor 808 described herein.

[0219] The network transceiver 824 can include any device configured to transmit and receive analog and/or digital signals. Optionally, the media controller subsystem 348 may

utilize a network transceiver 824 in one or more communication networks associated with the vehicle 104 to receive and transmit signals via the communications channel 356. Additionally or alternatively, the network transceiver 824 may accept requests from one or more devices 212, 248 to access the media controller subsystem 348. One example of the communication network is a local-area network (LAN). As can be appreciated, the functionality associated with the network transceiver 824 may be built into at least one other component of the vehicle 104 (e.g., a network interface card, communications module, etc.).

[0220] The signal processing module 828 may be configured to alter audio/multimedia signals received from one or more input sources (e.g., microphones 886, etc.) via the communications channel 356. Among other things, the signal processing module 828 may alter the signals received electrically, mathematically, combinations thereof, and the like.

[0221] The media controller 804 may also include memory 832 for use in connection with the execution of application programming or instructions by the media processor 808, and for the temporary or long term storage of program instructions and/or data. As examples, the memory 832 may comprise RAM, DRAM, SDRAM, or other solid state memory.

[0222] The language database 836 may include the data and/or libraries for one or more languages, as are used to provide the language functionality as provided herein. In one case, the language database 836 may be loaded on the media controller 804 at the point of manufacture. Optionally, the language database 836 can be modified, updated, and/or otherwise changed to alter the data stored therein. For instance, additional languages may be supported by adding the language data to the language database 836. In some cases, this addition of languages can be performed via accessing administrative functions on the media controller 804 and loading the new language modules via wired (e.g., USB, etc.) or wireless communication. In some cases, the administrative functions may be available via a vehicle console device 248, a user device 212, 248, and/or other mobile computing device that is authorized to access administrative functions (e.g., based at least partially on the device's address, identification, etc.).

[0223] One or more video controllers 840 may be provided for controlling the video operation of the devices 212, 248, 882 associated with the vehicle. Optionally, the video controller 840 may include a display controller for controlling the operation of touch sensitive screens, including input (touch sensing) and output (display) functions. Video data may include data received in a stream and unpacked by a processor and loaded into a

display buffer. In this example, the processor and video controller 840 can optimize the display based on the characteristics of a screen of a display device 212, 248, 882. The functions of a touch screen controller may be incorporated into other components, such as a media processor 808 or display subsystem.

[0224] The audio controller 844 can provide control of the audio entertainment system (e.g., radio, subscription music service, multimedia entertainment, etc.), and other audio associated with the vehicle 104 (e.g., navigation systems, vehicle comfort systems, convenience systems, etc.). Optionally, the audio controller 844 may be configured to translate digital signals to analog signals and vice versa. As can be appreciated, the audio controller 844 may include device drivers that allow the audio controller 844 to communicate with other components of the system 800 (e.g., processors 816, 808, audio I/O 874, and the like).

[0225] The system 800 may include a profile identification module 848 to determine whether a user profile is associated with the vehicle 104. Among other things, the profile identification module 848 may receive requests from a user 216, or device 212, 228, 248, to access a profile stored in a profile database 856 or profile data 252. Additionally or alternatively, the profile identification module 848 may request profile information from a user 216 and/or a device 212, 228, 248, to access a profile stored in a profile database 856 or profile data 252. In any event, the profile identification module 848 may be configured to create, modify, retrieve, and/or store user profiles in the profile database 856 and/or profile data 252. The profile identification module 848 may include rules for profile identification, profile information retrieval, creation, modification, and/or control of components in the system 800.

[0226] By way of example, a user 216 may enter the vehicle 104 with a smart phone or other device 212. In response to determining that a user 216 is inside the vehicle 104, the profile identification module 848 may determine that a user profile is associated with the user's smart phone 212. As another example, the system 800 may receive information about a user 216 (e.g., from a camera 878, microphone 886, etc.), and, in response to receiving the user information, the profile identification module 848 may refer to the profile database 856 to determine whether the user information matches a user profile stored in the database 856. It is anticipated that the profile identification module 848 may communicate with the other components of the system to load one or more preferences, settings, and/or conditions based on the user profile. Further, the profile identification

module 848 may be configured to control components of the system 800 based on user profile information.

[0227] Optionally, data storage 852 may be provided. Like the memory 832, the data storage 852 may comprise a solid state memory device or devices. Alternatively or in addition, the data storage 852 may comprise a hard disk drive or other random access memory. Similar to the data storage 852, the profile database 856 may comprise a solid state memory device or devices.

[0228] An input/output module 860 and associated ports may be included to support communications over wired networks or links, for example with other communication devices, server devices, and/or peripheral devices. Examples of an input/output module 860 include an Ethernet port, a Universal Serial Bus (USB) port, CAN Bus, Institute of Electrical and Electronics Engineers (IEEE) 1594, or other interface. Users may bring their own devices (e.g., Bring Your Own Device (BYOD), device 212, etc.) into the vehicle 104 for use with the various systems disclosed. Although most BYOD devices can connect to the vehicle systems (e.g., the media controller subsystem 348, etc.) via wireless communications protocols (e.g., Wi-Fi™, Bluetooth®, etc.) many devices may require a direct connection via USB, or similar. In any event, the input/output module 860 can provide the necessary connection of one or more devices to the vehicle systems described herein.

[0229] A video input/output interface 864 can be included to receive and transmit video signals between the various components in the system 800. Optionally, the video input/output interface 864 can operate with compressed and uncompressed video signals. The video input/output interface 864 can support high data rates associated with image capture devices. Additionally or alternatively, the video input/output interface 864 may convert analog video signals to digital signals.

[0230] The infotainment system 870 may include information media content and/or entertainment content, informational devices, entertainment devices, and the associated programming therefor. Optionally, the infotainment system 870 may be configured to handle the control of one or more components of the system 800 including, but in no way limited to, radio, streaming audio/video devices, audio devices 880, 882, 886, video devices 878, 882, travel devices (e.g., GPS, navigational systems, etc.), wireless communication devices, network devices, and the like. Further, the infotainment system 870 can provide the functionality associated with other infotainment features as provided herein.

[0231] An audio input/output interface 874 can be included to provide analog audio to an interconnected speaker 880 or other device, and to receive analog audio input from a connected microphone 886 or other device. As an example, the audio input/output interface 874 may comprise an associated amplifier and analog to digital converter. Alternatively or in addition, the devices 212, 248 can include integrated audio input/output devices 880, 886 and/or an audio jack for interconnecting an external speaker 880 or microphone 886. For example, an integrated speaker 880 and an integrated microphone 886 can be provided, to support near talk, voice commands, spoken information exchange, and/or speaker phone operations.

[0232] Among other things, the system 800 may include devices that are part of the vehicle 104 and/or part of a device 212, 248 that is associated with the vehicle 104. For instance, these devices may be configured to capture images, display images, capture sound, and present sound. Optionally, the system 800 may include at least one of image sensors/cameras 878, display devices 882, audio input devices/microphones 886, and audio output devices/speakers 880. The cameras 878 can be included for capturing still and/or video images. Alternatively or in addition, image sensors 878 can include a scanner or code reader. An image sensor/camera 878 can include or be associated with additional elements, such as a flash or other light source. In some cases, the display device 882 may include an audio input device and/or an audio output device in addition to providing video functions. For instance, the display device 882 may be a console, monitor, a tablet computing device, and/or some other mobile computing device.

[0233] Fig. 8B is a block diagram of an embodiment of a user/device interaction subsystem 817 in a vehicle system 800. The user/device interaction subsystem 817 may comprise hardware and/or software that conduct various operations for or with the vehicle 104. For instance, the user/device interaction subsystem 817 may include at least one user interaction subsystem 332 and device interaction subsystem 352 as previously described. These operations may include, but are not limited to, providing information to the user 216, receiving input from the user 216, and controlling the functions or operation of the vehicle 104, etc. Among other things, the user/device interaction subsystem 817 may include a computing system operable to conduct the operations as described herein.

[0234] Optionally, the user/device interaction subsystem 817 can include one or more of the components and modules provided herein. For instance, the user/device interaction subsystem 817 can include one or more of a video input/output interface 864, an audio input/output interface 874, a sensor module 814, a device interaction module 818, a user

identification module 822, a vehicle control module 826, an environmental control module 830, and a gesture control module 834. The user/device interaction subsystem 817 may be in communication with other devices, modules, and components of the system 800 via the communications channel 356.

[0235] The user/device interaction subsystem 817 may be configured to receive input from a user 216 and/or device via one or more components of the system. By way of example, a user 216 may provide input to the user/device interaction subsystem 817 via wearable devices 802, 806, 810, video input (e.g., via at least one image sensor/camera 878, etc.) audio input (e.g., via the microphone, audio input source, etc.), gestures (e.g., via at least one image sensor 878, motion sensor 888, etc.), device input (e.g., via a device 212, 248 associated with the user, etc.), combinations thereof, and the like.

[0236] The wearable devices 802, 806, 810 can include heart rate monitors, blood pressure monitors, glucose monitors, pedometers, movement sensors, wearable computers, and the like. Examples of wearable computers may be worn by a user 216 and configured to measure user activity, determine energy spent based on the measured activity, track user sleep habits, determine user oxygen levels, monitor heart rate, provide alarm functions, and more. It is anticipated that the wearable devices 802, 806, 810 can communicate with the user/device interaction subsystem 817 via wireless communications channels or direct connection (e.g., where the device docks, or connects, with a USB port or similar interface of the vehicle 104).

[0237] A sensor module 814 may be configured to receive and/or interpret input provided by one or more sensors in the vehicle 104. In some cases, the sensors may be associated with one or more user devices (e.g., wearable devices 802, 806, 810, smart phones 212, mobile computing devices 212, 248, and the like). Optionally, the sensors may be associated with the vehicle 104, as described in conjunction with Figs. 6A-7B.

[0238] The device interaction module 818 may communicate with the various devices as provided herein. Optionally, the device interaction module 818 can provide content, information, data, and/or media associated with the various subsystems of the vehicle system 800 to one or more devices 212, 248, 802, 806, 810, 882, etc. Additionally or alternatively, the device interaction module 818 may receive content, information, data, and/or media associated with the various devices provided herein.

[0239] The user identification module 822 may be configured to identify a user 216 associated with the vehicle 104. The identification may be based on user profile information that is stored in profile data 252. For instance, the user identification module

822 may receive characteristic information about a user 216 via a device, a camera, and/or some other input. The received characteristics may be compared to data stored in the profile data 252. Where the characteristics match, the user 216 is identified. As can be appreciated, where the characteristics do not match a user profile, the user identification module 822 may communicate with other subsystems in the vehicle 104 to obtain and/or record profile information about the user 216. This information may be stored in a memory and/or the profile data storage 252.

[0240] The vehicle control module 826 may be configured to control settings, features, and/or the functionality of a vehicle 104. In some cases, the vehicle control module 826 can communicate with the vehicle control system 204 to control critical functions (e.g., driving system controls, braking, accelerating, etc.) and/or noncritical functions (e.g., driving signals, indicator/hazard lights, mirror controls, window actuation, etc.) based at least partially on user/device input received by the user/device interaction subsystem 817.

[0241] The environmental control module 830 may be configured to control settings, features, and/or other conditions associated with the environment, especially the interior environment, of a vehicle 104. Optionally, the environmental control module 830 may communicate with the climate control system (e.g. changing cabin temperatures, fan speeds, air direction, etc.), oxygen and/or air quality control system (e.g., increase/decrease oxygen in the environment, etc.), interior lighting (e.g., changing intensity of lighting, color of lighting, etc.), an occupant seating system 648 (e.g., adjusting seat position, firmness, height, etc.), steering wheel 640 (e.g., position adjustment, etc.), infotainment/entertainment system (e.g., adjust volume levels, display intensity adjustment, change content, etc.), and/or other systems associated with the vehicle environment. Additionally or alternatively, these systems can provide input, set-points, and/or responses, to the environmental control module 830. As can be appreciated, the environmental control module 830 may control the environment based at least partially on user/device input received by the user/device interaction subsystem 817.

[0242] The gesture control module 834 is configured to interpret gestures provided by a user 216 in the vehicle 104. Optionally, the gesture control module 834 may provide control signals to one or more of the vehicle systems 300 disclosed herein. For example, a user 216 may provide gestures to control the environment, critical and/or noncritical vehicle functions, the infotainment system, communications, networking, and more. Optionally, gestures may be provided by a user 216 and detected via one or more of the sensors as described in conjunction with Figs. 6B-7A. As another example, one or more

motion sensors 888 may receive gesture input from a user 216 and provide the gesture input to the gesture control module 834. Continuing this example, the gesture input is interpreted by the gesture control module 834. This interpretation may include comparing the gesture input to gestures stored in a memory. The gestures stored in memory may include one or more functions and/or controls mapped to specific gestures. When a match is determined between the detected gesture input and the stored gesture information, the gesture control module 834 can provide a control signal to any of the systems/subsystems as disclosed herein.

[0243] Fig. 8C illustrates a GPS/Navigation subsystem(s) 336. The Navigation subsystem(s) 336 can be any present or future-built navigation system that may use location data, for example, from the Global Positioning System (GPS), to provide navigation information or control the vehicle 104. The Navigation subsystem(s) 336 can include several components or modules, such as, one or more of, but not limited to, a GPS Antenna/receiver 892, a location module 896, a maps database 8100, an automobile controller 8104, a vehicle systems transceiver 8108, a traffic controller 8112, a network traffic transceiver 8116, a vehicle-to-vehicle transceiver 8120, a traffic information database 8124, etc. Generally, the several components or modules 892-8124 may be hardware, software, firmware, computer readable media, or combinations thereof.

[0244] A GPS Antenna/receiver 892 can be any antenna, GPS puck, and/or receiver capable of receiving signals from a GPS satellite or other navigation system, as mentioned hereinbefore. The signals may be demodulated, converted, interpreted, etc. by the GPS Antenna/receiver 892 and provided to the location module 896. Thus, the GPS Antenna/receiver 892 may convert the time signals from the GPS system and provide a location (e.g., coordinates on a map) to the location module 896. Alternatively, the location module 896 can interpret the time signals into coordinates or other location information.

[0245] The location module 896 can be the controller of the satellite navigation system designed for use in automobiles. The location module 896 can acquire position data, as from the GPS Antenna/receiver 892, to locate the user or vehicle 104 on a road in the unit's map database 8100. Using the road database 8100, the location module 896 can give directions to other locations along roads also in the database 8100. When a GPS signal is not available, the location module 896 may apply dead reckoning to estimate distance data from sensors 242 including one or more of, but not limited to, a speed sensor attached to the drive train of the vehicle 104, a gyroscope, an accelerometer, etc. GPS signal loss

and/or multipath can occur due to urban canyons, tunnels, and other obstructions. Additionally or alternatively, the location module 896 may use known locations of Wi-Fi hotspots, cell tower data, etc. to determine the position of the vehicle 104, such as by using time difference of arrival (TDOA) and/or frequency difference of arrival (FDOA) techniques.

[0246] The maps database 8100 can include any hardware and/or software to store information about maps, geographical information system information, location information, etc. The maps database 8100 can include any data definition or other structure to store the information. Generally, the maps database 8100 can include a road database that may include one or more vector maps of areas of interest. Street names, street numbers, house numbers, and other information can be encoded as geographic coordinates so that the user can find some desired destination by street address. Points of interest (waypoints) can also be stored with their geographic coordinates. For example, a point of interest may include speed cameras, fuel stations, public parking, and "parked here" (or "you parked here") information. The map database contents can be produced or updated by a server connected through a wireless system in communication with the Internet, even as the vehicle 104 is driven along existing streets, yielding an up-to-date map.

[0247] An automobile controller 8104 can be any hardware and/or software that can receive instructions from the location module 896 or the traffic controller 8112 and operate the vehicle 104. The automobile controller 8104 receives this information and data from the sensors 242 to operate the vehicle 104 without driver input. Thus, the automobile controller 8104 can drive the vehicle 104 along a route provided by the location module 896. The route may be adjusted by information sent from the traffic controller 8112. Discrete and real-time driving can occur with data from the sensors 242. To operate the vehicle 104, the automobile controller 8104 can communicate with a vehicle systems transceiver 8108.

[0248] The vehicle systems transceiver 8108 can be any present or future-developed device that can comprise a transmitter and/or a receiver, which may be combined and can share common circuitry or a single housing. The vehicle systems transceiver 8108 may communicate or instruct one or more of the vehicle control subsystems 328. For example, the vehicle systems transceiver 8108 may send steering commands, as received from the automobile controller 8104, to an electronic steering system, to adjust the steering of the vehicle 100 in real time. The automobile controller 8104 can determine the effect of the

commands based on received sensor data 242 and can adjust the commands as need be. The vehicle systems transceiver 8108 can also communicate with the braking system, the engine and drive train to speed or slow the car, the signals (e.g., turn signals and brake lights), the headlights, the windshield wipers, etc. Any of these communications may occur over the components or function as described in conjunction with Fig. 4.

[0249] A traffic controller 8112 can be any hardware and/or software that can communicate with an automated traffic system and adjust the function of the vehicle 104 based on instructions from the automated traffic system. An automated traffic system is a system that manages the traffic in a given area. This automated traffic system can instruct cars to drive in certain lanes, instruct cars to raise or lower their speed, instruct a car to change their route of travel, instruct cars to communicate with other cars, etc. To perform these functions, the traffic controller 8112 may register the vehicle 104 with the automated traffic system and then provide other information including the route of travel. The automated traffic system can return registration information and any required instructions. The communications between the automated traffic system and the traffic controller 8112 may be received and sent through a network traffic transceiver 8116.

[0250] The network traffic transceiver 8116 can be any present or future-developed device that can comprise a transmitter and/or a receiver, which may be combined and can share common circuitry or a single housing. The network traffic transceiver 8116 may communicate with the automated traffic system using any known or future-developed, protocol, standard, frequency, bandwidth range, etc. The network traffic transceiver 8116 enables the sending of information between the traffic controller 8112 and the automated traffic system.

[0251] The traffic controller 8112 can also communicate with another vehicle, which may be in physical proximity (i.e., within range of a wireless signal), using the vehicle-to-vehicle transceiver 8120. As with the network traffic transceiver 8116, the vehicle-to-vehicle transceiver 8120 can be any present or future-developed device that can comprise a transmitter and/or a receiver, which may be combined and can share common circuitry or a single housing. Generally, the vehicle-to-vehicle transceiver 8120 enables communication between the vehicle 104 and any other vehicle. These communications allow the vehicle 104 to receive traffic or safety information, control or be controlled by another vehicle, establish an alternative communication path to communicate with the automated traffic system, establish a node including two or more vehicle that can function as a unit, etc. The vehicle-to-vehicle transceiver 8120 may communicate with the other

vehicles using any known or future-developed, protocol standard, frequency, bandwidth range, etc.

[0252] The traffic controller 8112 can control functions of the automobile controller 8104 and communicate with the location module 896. The location module 896 can provide current location information and route information that the traffic controller 8112 may then provide to the automated traffic system. The traffic controller 8112 may receive route adjustments from the automated traffic system that are then sent to the location module 896 to change the route. Further, the traffic controller 8112 can also send driving instructions to the automobile controller 8104 to change the driving characteristics of the vehicle 104. For example, the traffic controller 8112 can instruct the automobile controller 8104 to accelerate or decelerate to a different speed, change lanes, or perform another driving maneuver. The traffic controller 8112 can also manage vehicle-to-vehicle communications and store information about the communications or other information in the traffic information database 8124.

[0253] The traffic information database 8124 can be any type of database, such as relational, hierarchical, object-oriented, and/or the like. The traffic information database 8124 may reside on a storage medium local to (and/or resident in) the vehicle control system 204 or in the vehicle 104. The traffic information database 8124 may be adapted to store, update, and retrieve information about communications with other vehicles or any active instructions from the automated traffic system. This information may be used by the traffic controller 8112 to instruct or adjust the performance of driving maneuvers.

[0254] Fig. 9 illustrates an optional communications architecture where, the host device 908 may include one more routing profiles, permission modules, and rules that control how communications within the vehicle 104 are to occur. This communications architecture can be used in conjunction with the routing tables, rules and permissions associated with access point 456 and optional firewall 484, or can be in lieu thereof. For example, the host device 908 acts as a mobile hot spot to one or more other devices within vehicle 104, such as, other device 1 912, other device 2 916, other device 3 920, and other device N 924. Optionally, one or more of the other devices 912 can communicate directly with the host device 908 which then provides Internet access to those devices 912 via the device 908. The host device 908 can act as a mobile hot spot for any one or more of the other devices 912, which may not need to communicate over the network/communications buses 224/404, but could instead connect directly to the host device 908 via, for example, NFC, Bluetooth®, WiFi, or the like. When the device 908 is acting as the host device, the

device 908 can include one or more routing profiles, permissions, rules modules, and can also act as a firewall for the various inter and intra vehicle communications.

[0255] As will be appreciated, there could be alternative host devices, such as, host 904 which could also act as, for example, a co-host in association with device 908. Optionally, one or more of the routing profile, permission information, and rules could be shared between the co-host devices 904, 908, both of those devices being usable for Internet access for one or more of the other devices, 912-924. As will be appreciated, the other devices 912-924 need not necessarily connect to one or more of host device 908 and the other device 904 via a direct communications link, but could also interface with those devices 904, 908 utilizing the network /communications buses 224/404 associated with the vehicle100. As previously discussed, one or more of the other devices can connect to the network/communications buses 224/404 utilizing the various networks and/or buses discussed herein which would therefore enable, for example, regulation of the various communications based on the Ethernet zone that the other device 912 is associated with.

[0256] An embodiment of one or more modules that may be associated with the vehicle control system 204 may be as shown in Fig. 10. The modules can include a communication subsystem interface 1008 in communication with an operating system 1004. The communications may pass through a firewall 1044. The firewall 1044 can be any software that can control the incoming and outgoing communications by analyzing the data packets and determining whether the packets should be allowed through the firewall, based on applied rule set. A firewall 1044 can establish a "barrier" between a trusted, secure internal network and another network (e.g., the Internet) that is not assumed to be secure and trusted.

[0257] In some situations, the firewall 1044 may establish security zones that are implemented by running system services and/or applications in restricted user groups and accounts. A set of configuration files and callbacks may then be linked to an IP table firewall. The IP table firewall can be configured to notify a custom filter application at any of the layers of the Ethernet packet. The different users/group rights to access the system may include: system users, which may have exclusive right over all device firewall rules and running software; a big-brother user, which may have access to on board device (OBD) control data and may be able to communicate with the vehicle subsystem 328 and may be able to alter the parameters in the vehicle control system 204; a dealer user, which can have rights to read OBD data for diagnostics and repairs; a dashboard user, which can have rights to launch dashboard applications and/or authenticate guest users and change

their permissions to trusted/friend/family, and can read but cannot write into OBD diagnostic data; a world wide web (WWW) data user, which can have HTTP rights to respond to HTTP requests (the HTTP requests also can target different user data, but may be filtered by default user accounts); a guest user, which may have no rights; a family/friend user, which may have rights to play media from the media subsystem 348 and/or to stream media to the media subsystem 348.

[0258] The operating system 1004 can be a collection of software that manages computer hardware resources and provides common services for applications and other programs. The operating system 1004 may schedule time-sharing for efficient use of the system. For hardware functions, such as input, output, and memory allocation, the operating system 1004 can act as an intermediary between applications or programs and the computer hardware. Examples of operating systems that may be deployed as operating system 1004 include Android, BSD, iOS, Linux, OS X, QNX, Microsoft Windows, Windows Phone, IBM z/OS, etc.

[0259] The operating system 1004 can include one or more sub-modules. For example, a desktop manager 1012 can manage one or more graphical user interfaces (GUI) in a desktop environment. Desktop GUIs can help the user to easily access and edit files. A command-line interface (CLI) may be used if full control over the operating system (OS) 1004 is required. The desktop manager 1012 is described further hereinafter.

[0260] A kernel 1028 can be a computer program that manages input/output requests from software and translates them into data processing instructions for the processor 304 and other components of the vehicle control system 204. The kernel 1028 is the fundamental component of the operating system 1004 that can execute many of the functions associated with the OS 1004.

[0261] The kernel 1028 can include other software functions, including, but not limited to, driver(s) 1056, communication software 1052, and/or Internet Protocol software 1048. A driver 1056 can be any computer program that operates or controls a particular type of device that is attached to a vehicle control system 204. A driver 1056 can communicate with the device through the bus 356 or communications subsystem 1008 to which the hardware connects. When a calling program invokes a routine in the driver 1056, the driver 1056 may issue one or more commands to the device. Once the device sends data back to the driver 1056, the driver 1056 may invoke routines in the original calling program. Drivers can be hardware-dependent and operating-system-specific. Driver(s)

1056 can provide the interrupt handling required for any necessary asynchronous time-dependent hardware interface.

[0262] The IP module 1048 can conduct any IP addressing, which may include the assignment of IP addresses and associated parameters to host interfaces. The address space may include networks and sub-networks. The IP module 1048 can perform the designation of network or routing prefixes and may conduct IP routing, which transports packets across network boundaries. Thus, the IP module 1048 may perform all functions required for IP multicast operations.

[0263] The communications module 1052 may conduct all functions for communicating over other systems or using other protocols not serviced by the IP module 1048. Thus, the communications module 1052 can manage multicast operations over other busses or networks not serviced by the IP module 1048. Further, the communications module 1052 may perform or manage communications to one or more devices, systems, data stores, services, etc. that are in communication with the vehicle control system 204 or other subsystems through the firewall 1044. Thus, the communications module 1052 can conduct communications through the communication subsystem interface 1008.

[0264] A file system 1016 may be any data handling software that can control how data is stored and retrieved. The file system 1016 can separate the stored data into individual pieces, and giving each piece a name, can easily separate and identify the pieces of data. Each piece of data may be considered a "file". The file system 1016 can construct data structure and logic rules used to manage the information and the identifiers for the information. The structure and logic rules can be considered a "file system."

[0265] A device discovery daemon 1020 may be a computer program that runs as a background process that can discover new devices that connect with the network 356 or communication subsystem 1008 or devices that disconnect from the network 356 or communication subsystem 1008. The device discovery daemon 1020 can ping the network 356 (the local subnet) when the vehicle 104 starts, when a vehicle door opens or closes, or upon the occurrence of other events. Additionally or alternatively, the device discovery daemon 1020 may force Bluetooth®, USB, and/or wireless detection. For each device that responds to the ping, the device discovery daemon 1020 can populate the system data 208 with device information and capabilities, using any of one or more protocols, including one or more of, but not limited to, IPv6 Hop-by-Hop Option (HOPOPT), Internet Control Message Protocol (ICMP), Internet Group Management Protocol (IGMP), Gateway-to-Gateway Protocol (GGP), Internet Protocol (IP), Internet

Stream Protocol (ST), Transmission Control Protocol (TCP), Exterior Gateway Protocol (EGP), CHAOS, User Datagram Protocol (UDP), etc.

[0266] For example, the device discovery daemon 1020 can determine device capabilities based on the opened ports the device exposes. If a camera exposes port 80, then the device discovery daemon 1020 can determine that the camera is using a Hypertext Transfer Protocol (HTTP). Alternatively, if a device is supporting Universal Plug and Play (UPnP), the system data 208 can include more information, for example, a camera control universal resource locator (URL), a camera zoom URL, etc. When a scan stops, the device discovery daemon 1020 can trigger a dashboard refresh to ensure the user interface reflects the new devices on the desktop.

[0267] A desktop manager 1012 may be a computer program that manages the user interface of the vehicle control system 204. The desktop environment may be designed to be customizable and allow the definition of the desktop configuration look-and-feel for a wide range of appliances or devices from computer desktops, mobile devices, computer tablets, etc. Launcher(s), panels, desktop areas, the desktop background, notifications, panes, etc., can be configured from a dashboard configuration file managed by the desktop manager 1012. The graphical elements in which the desktop manager 1012 controls can include launchers, the desktop, notification bars, etc.

[0268] The desktop may be an area of the display where the applications are running. The desktop can have a custom background. Further, the desktop may be divided into two or more areas. For example, the desktop may be divided into an upper half of a display and a lower half of the display. Each application can be configured to run in a portion of the desktop. Extended settings can be added to the desktop configuration file, such that, some objects may be displayed over the whole desktop or in custom size out of the context of the divided areas.

[0269] The notification bar may be a part of a bar display system, which may provide notifications by displaying, for example, icons and/or pop-up windows that may be associated with sound notifications. The notification mechanism can be designed for separate plug-ins, which run in separate processes and may subscribe to a system Intelligent Input Bus (IBUS)/D-BUS event service. The icons on the notifications bar can be accompanied with application short-cuts to associated applications, for example, a Bluetooth® manager, a USB manager, radio volume and or tone control, a security firewall, etc.

[0270] The desktop manager 1012 may include a windows manager 1032, an application launcher 1036, and/or a panel launcher 1040. Each of these components can control a different aspect of the user interface. The desktop manager 1012 can use a root window to create panels that can include functionality for one or more of, but not limited to: launching applications, managing applications, providing notifications, etc.

[0271] The windows manager 1032 may be software that controls the placement and appearance of windows within a graphical user interface presented to the user. Generally, the windows manager 1032 can provide the desktop environment used by the vehicle control system 204. The windows manager 1032 can communicate with the kernel 1028 to interface with the graphical system that provides the user interface(s) and supports the graphics hardware, pointing devices, keyboard, touch-sensitive screens, etc. The windows manager 1032 may be a tiling window manager (i.e., a window manager with an organization of the screen into mutually non-overlapping frames, as opposed to a coordinate-based stacking of overlapping objects (windows) that attempts to fully emulate the desktop metaphor). The windows manager 1032 may read and store configuration files, in the system data 208, which can control the position of the application windows at precise positions.

[0272] An application manager 1036 can control the function of any application over the lifetime of the process. The process or application can be launched from a panel launcher 1040 or from a remote console. The application manager 1036 can intercept the process name and may take appropriate action to manage that process. If the process is not running, the application manager 1036 can load the process and may bring the process to a foreground in a display. The application manager 1036 may also notify the windows manager 1032 to bring the associated window(s) to a top of a window stack for the display. When a process starts from a shell or a notification out of the context of the desktop, the application manager 1036 can scan files to match the process name with the entry name provided. When a match is found, the application manager 1036 can configure the process according to a settings file.

[0273] In some situations, the application manager 1036 may restrict an application as singleton (i.e., restricts the instantiation of a class to one object). If an application is already running and the application manager 1036 is asked to run the application again, the application manager 1036 can bring the running process to a foreground on a display. There can be a notification event exchange between the windows manager 1032 and the application manager 1036 for activating the appropriate window for the foreground

process. Once an application is launched, the application may not be terminated or killed. The application can be sent to the background, except, possibly, for some applications (e.g., media player, Bluetooth®, notifications, etc.), which may be given a lowest process priority.

[0274] The panel launcher 1040 can be a widget configured to be placed along a portion of the display. The panel launcher 1040 may be built from desktop files from a desktop folder. The desktop folder location can be configured by a configuration file stored in system data 208. The panel launcher 1040 can allow for the launching or executing of applications or processes by receiving inputs from a user interface to launch programs.

[0275] A desktop plugin 1024 may be a software component that allows for customization of the desktop or software interface through the initiation of plug-in applications.

[0276] One or more gestures used to interface with the vehicle control system 204 may be as described in conjunction with Fig. 11A through 11K. Figs. 11A through 11H depict various graphical representations of gesture inputs that may be recognized by the devices 212, 248. The gestures may be performed not only by a user's body part, such as a digit, but also by other devices, such as a stylus, that may be sensed by the contact sensing portion(s) of a screen associated with the device 212, 248. In general, gestures are interpreted differently, based on where the gestures are performed (either directly on a display or in a gesture capture region). For example, gestures in a display may be directed to a desktop or application, and gestures in a gesture capture region may be interpreted as for the system.

[0277] With reference to Figs. 11A-11H, a first type of gesture, a touch gesture 1120, is substantially stationary on a portion (e.g., a screen, a display, etc.) of a device 212, 248 for a selected length of time. A circle 1128 represents a touch or other contact type received at particular location of a contact sensing portion of the screen. The circle 1128 may include a border 1132, the thickness of which indicates a length of time that the contact is held substantially stationary at the contact location. For instance, a tap 1120 (or short press) has a thinner border 1132A than the border 1132B for a long press 1124 (or for a normal press). The long press 1124 may involve a contact that remains substantially stationary on the screen for longer time period than that of a tap 1120. As will be appreciated, differently defined gestures may be registered depending upon the length of time that the touch remains stationary prior to contact cessation or movement on the screen.

[0278] With reference to Fig. 11C, a drag gesture 1100 on the screen is an initial contact (represented by circle 1128) with contact movement 1136 in a selected direction. The initial contact 1128 may remain stationary on the screen for a certain amount of time represented by the border 1132. The drag gesture typically requires the user to contact an icon, window, or other displayed image at a first location followed by movement of the contact in a drag direction to a new second location desired for the selected displayed image. The contact movement need not be in a straight line but have any path of movement so long as the contact is substantially continuous from the first to the second locations.

[0279] With reference to Fig. 11D, a flick gesture 1104 on the screen is an initial contact (represented by circle 1128) with truncated contact movement 1136 (relative to a drag gesture) in a selected direction. A flick may have a higher exit velocity for the last movement in the gesture compared to the drag gesture. The flick gesture can, for instance, be a finger snap following initial contact. Compared to a drag gesture, a flick gesture generally does not require continual contact with the screen from the first location of a displayed image to a predetermined second location. The contacted displayed image is moved by the flick gesture in the direction of the flick gesture to the predetermined second location. Although both gestures commonly can move a displayed image from a first location to a second location, the temporal duration and distance of travel of the contact on the screen is generally less for a flick than for a drag gesture.

[0280] With reference to Fig. 11E, a pinch gesture 1108 on the screen is depicted. The pinch gesture 1108 may be initiated by a first contact 1128A to the screen by, for example, a first digit and a second contact 1128B to the screen by, for example, a second digit. The first and second contacts 1128A,B may be detected by a common contact sensing portion of a common screen, by different contact sensing portions of a common screen, or by different contact sensing portions of different screens. The first contact 1128A is held for a first amount of time, as represented by the border 1132A, and the second contact 1128B is held for a second amount of time, as represented by the border 1132B. The first and second amounts of time are generally substantially the same, and the first and second contacts 1128A,B generally occur substantially simultaneously. The first and second contacts 1128A,B generally also include corresponding first and second contact movements 1136A,B, respectively. The first and second contact movements 1136A,B are generally in opposing directions. Stated another way, the first contact movement 1136A is towards the second contact 1136B, and the second contact movement 1136B is towards

the first contact 1136A. More simply stated, the pinch gesture 1108 may be accomplished by a user's digits touching the screen in a pinching motion.

[0281] With reference to Fig. 11F, a spread gesture 1110 on the screen is depicted. The spread gesture 1110 may be initiated by a first contact 1128A to the screen by, for example, a first digit, and a second contact 1128B to the screen by, for example, a second digit. The first and second contacts 1128A,B may be detected by a common contact sensing portion of a common screen, by different contact sensing portions of a common screen, or by different contact sensing portions of different screens. The first contact 1128A is held for a first amount of time, as represented by the border 1132A, and the second contact 1128B is held for a second amount of time, as represented by the border 1132B. The first and second amounts of time are generally substantially the same, and the first and second contacts 1128A,B generally occur substantially simultaneously. The first and second contacts 1128A,B generally also include corresponding first and second contact movements 1136A,B, respectively. The first and second contact movements 1136A,B are generally in an opposing direction. Stated another way, the first and second contact movements 1136A,B are away from the first and second contacts 1128A,B. More simply stated, the spread gesture 1110 may be accomplished by a user's digits touching the screen in a spreading motion.

[0282] The above gestures may be combined in any manner, such as those shown by Figs. 11G and 11H, to produce a determined functional result. For example, in Fig. 11G a tap gesture 1120 is combined with a drag or flick gesture 1112 in a direction away from the tap gesture 1120. In Fig. 11H, a tap gesture 1120 is combined with a drag or flick gesture 1116 in a direction towards the tap gesture 1120.

[0283] The functional result of receiving a gesture can vary depending on a number of factors, including a state of the vehicle 104, display, or screen of a device, a context associated with the gesture, or sensed location of the gesture, etc. The state of the vehicle 104 commonly refers to one or more of a configuration of the vehicle 104, a display orientation, and user and other inputs received by the vehicle 104. Context commonly refers to one or more of the particular application(s) selected by the gesture and the portion(s) of the application currently executing, whether the application is a single- or multi-screen application, and whether the application is a multi-screen application displaying one or more windows. A sensed location of the gesture commonly refers to whether the sensed set(s) of gesture location coordinates are on a touch sensitive display or a gesture capture region of a device 212, 248, whether the sensed set(s) of gesture

location coordinates are associated with a common or different display, or screen, or device 212, 248, and/or what portion of the gesture capture region contains the sensed set(s) of gesture location coordinates.

[0284] A tap, when received by a touch sensitive display of a device 212, 248, can be used, for instance, to select an icon to initiate or terminate execution of a corresponding application, to maximize or minimize a window, to reorder windows in a stack, and/or to provide user input such as by keyboard display or other displayed image. A drag, when received by a touch sensitive display of a device 212, 248, can be used, for instance, to relocate an icon or window to a desired location within a display, to reorder a stack on a display, or to span both displays (such that the selected window occupies a portion of each display simultaneously). A flick, when received by a touch sensitive display of a device 212, 248 or a gesture capture region, can be used to relocate a window from a first display to a second display or to span both displays (such that the selected window occupies a portion of each display simultaneously). Unlike the drag gesture, however, the flick gesture is generally not used to move the displayed image to a specific user-selected location but to a default location that is not configurable by the user.

[0285] The pinch gesture, when received by a touch sensitive display or a gesture capture region of a device 212, 248, can be used to minimize or otherwise increase the displayed area or size of a window (typically when received entirely by a common display), to switch windows displayed at the top of the stack on each display to the top of the stack of the other display (typically when received by different displays or screens), or to display an application manager (a "pop-up window" that displays the windows in the stack). The spread gesture, when received by a touch sensitive display or a gesture capture region of a device 212, 248, can be used to maximize or otherwise decrease the displayed area or size of a window, to switch windows displayed at the top of the stack on each display to the top of the stack of the other display (typically when received by different displays or screens), or to display an application manager (typically when received by an off-screen gesture capture region on the same or different screens).

[0286] The combined gestures of Fig. 11G, when received by a common display capture region in a common display or screen of a device 212, 248, can be used to hold a first window location constant for a display receiving the gesture while reordering a second window location to include a window in the display receiving the gesture. The combined gestures of Fig. 11H, when received by different display capture regions in a common display or screen of a device 212, 248 or in different displays or screens of one more

devices 212, 248, can be used to hold a first window location for a display receiving the tap part of the gesture while reordering a second window location to include a window in the display receiving the flick or drag gesture. Although specific gestures and gesture capture regions in the preceding examples have been associated with corresponding sets of functional results, it is to be appreciated that these associations can be redefined in any manner to produce differing associations between gestures and/or gesture capture regions and/or functional results.

[0287] Gestures that may be completed in three-dimensional space and not on a touch sensitive screen or gesture capture region of a device 212, 248 may be as shown in Figs. 11I-11K. The gestures may be completed in an area where a sensor, such as an optical sensor, infrared sensor, or other type of sensor, may detect the gesture. For example, the gesture 1140 in Fig. 11I may be executed by a person when the person opens their hand 1164 and moves their hand in a back and forth direction 1148 as a gesture 1140 to complete some function with the vehicle 104. For example gesture 1140 may change the station of the radio in the vehicle 104. The sensors 242 may both determine the configuration of the hand 1164 and the vector of the movement. The vector and hand configuration can be interpreted to mean certain things to the vehicle control system 204 and produce different results.

[0288] In another example of a gesture 1152 in Fig. 11J, a user may configure their hand 1164 to extend two fingers and move the hand 1164 in an up and down operation 1156. This gesture 1152 may control the volume of the radio or some other function. For instance, this gesture 1152 may be configured to place the vehicle in a "valet" mode to, among other things, restrict access to certain features associated with the vehicle. Again, the sensors 242 may determine how the person has configured their hand 1164, and the vector of the movement. In another example of a gesture 1160 shown in Fig. 11K, a user may extend their middle three fingers at an angle that is substantially 45° for vertical from straight vertical and circle the hand in a counter-clockwise motion 1166. This gesture 1160 may cause the automobile to change the heat setting or do some other function. As can be understood by one skilled in the art, the configurations of the hand and the types of movement are variable. Thus, the user may configure the hand 1164 in any way imaginable and may also move that hand 1164 in any direction with any vector in three-dimensional space.

[0289] The gestures 1140, 1152, 1160, as shown in Figs. 11I-11K, may occur in a predetermined volume of space within the vehicle 104. For example, a sensor may be

configured to identify such gestures 1140, 1152, 1160 between the front passenger's and front driver's seats over a console area within the passenger compartment of the vehicle 104. The gestures 1140, 1152, 1160 may be made within area 1 508A between zones A 512A and B 512B. However, there may be other areas 508 where a user may use certain gestures, where sensors 242 may be able to determine a certain function is desired. Gestures that may be similar but used in different areas within the vehicle 104 may cause different functions to be performed. For example, the gesture 1140 in Fig. 11I, if used in zone E 512E, may change the heat provided in zone E 512E, but may change the station of a radio if used in zone A 512A and/or zone B 512B. Further, the gestures may be made with other body parts or, for example, different expressions of a person's face and may be used to control functions in the vehicle 104. Also, the user may use two hands in some circumstances or do other types of physical movements that can cause different reactions in the vehicle 104.

[0290] Figs. 12A-12D show various embodiments of a data structure 1200 to store different settings. The data structure 1200 may include one or more of data files or data objects 1204, 1250, 1270, 1280. Thus, the data structure 1200 may represent different types of databases or data storage, for example, object-oriented data bases, flat file data structures, relational database, or other types of data storage arrangements. Embodiments of the data structure 1200 disclosed herein may be separate, combined, and/or distributed. As indicated in Figs. 12A-12D, there may be more or fewer portions in the data structure 1200, as represented by ellipses 1244. Further, there may be more or fewer files in the data structure 1200, as represented by ellipses 1248.

[0291] Referring to Fig. 12A, a first data structure is shown. The data file 1204 may include several portions 1208-1242 representing different types of data. Each of these types of data may be associated with a user, as shown in portion 1208.

[0292] There may be one or more user records 1240 and associated data stored within the data file 1204. As provided herein, the user can be any person that uses or rides within the vehicle or conveyance 104. The user may be identified in portion 1212. For the vehicle 104, the user may include a set of one or more features that may identify the user. These features may be the physical characteristics of the person that may be identified by facial recognition or some other type of system. In other situations, the user may provide a unique code to the vehicle control system 204 or provide some other type of data that allows the vehicle control system 204 to identify the user. The features or characteristics of the user are then stored in portion 1212.

[0293] Each user, identified in portion 1208, may have a different set of settings for each area 508 and/or each zone 512 within the vehicle 104. Thus, each set of settings may also be associated with a predetermined zone 512 or area 508. The zone 512 is stored in portion 1220, and the area 508 is stored in portion 1216.

[0294] One or more settings may be stored in portion 1224. These settings 1224 may be the configurations of different functions within the vehicle 104 that are specified by or for that user. For example, the settings 1224 may be the position of a seat, the position of a steering wheel, the position of accelerator and/or brake pedals, positions of mirrors, a heating/cooling setting, a radio setting, a cruise control setting, or some other type of setting associated with the vehicle 104. Further, in vehicles adapted to have a configurable console or a configurable dash or heads-up display, the settings 1224 may also provide for how that heads-up display, dash, or console are configured for this particular user.

[0295] Each setting 1224 may be associated with a different area 508 or zone 512. Thus, there may be more settings 1224 for when the user is the driver and in zone A 512A, 512A, of area 1, 508A. However, there may be similar settings 1224 among the different zones 512 or areas 508 as shown in portion 1224. For example, the heating or radio settings for the user may be similar in every zone 512.

[0296] The sensors 242 within the vehicle 104 may be able to either obtain or track health data in portion 1228. Health data 1228 may include any type of physical characteristic associated with the user. For example, a heart rate, a blood pressure, a temperature, or other types of heath data may be obtained and stored in portion 1228. The user may have this health data tracked over a period of time to allow for statistical analysis of the user's health while operating the vehicle 104. In this way, if some function of the user's health deviates from a norm (e.g., a baseline measurement, average measurements taken over time, and the like), the vehicle 104 may be able to determine there is a problem with the person and react to that data.

[0297] One or more gestures may be stored in portion 1232. Thus, the gestures used and described in conjunction Fig. 11A through 11K may be configurable. These gestures may be determined or created by the user and stored in portion 1132. A user may have different gestures for each zone 512 or area 508 within the vehicle. The gestures that do certain things while driving may do other things while in a different area 508 of the vehicle 104. Thus, the user may use a first set of gestures while driving and a second set while a passenger. Further, one or more users may share gestures as shown in portion

1232. Each driver may have a common set of gestures that they use in zone A 512A, 512A. Each of these gestures may be determined or captured and then stored with their characteristics (e.g., vector, position of gesture, etc.) in portion 1232.

[0298] One or more sets of safety parameters may be stored in portion 1236. Safety parameters 1236 may be common operating characteristics for this driver/passenger or for all drivers/passengers that if deviated from may determine there is a problem with the driver/passenger or the vehicle 104. For example, a certain route may be taken repeatedly and an average speed or mean speed may be determined. If the mean speed deviates by some number of standard deviations, a problem with the vehicle 104 or the user may be determined. In another example, the health characteristics or driving experience of the user may be determined. If the user drives in a certain position where their head occupies a certain portion of three-dimensional space within the vehicle 104, the vehicle control system 204 may determine that the safety parameter includes the users face or head being within this certain portion of the vehicle interior space. If the user's head deviates from that interior space for some amount of time, the vehicle control system 204 can determine that something is wrong with the driver and change the function or operation of the vehicle 104 to assist the driver. This may happen, for example, when a user falls asleep at the wheel. If the user's head droops and no longer occupies a certain three dimensional space, the vehicle control system 204 can determine that the driver has fallen asleep and may take control of the operation of the vehicle 204 and the automobile controller 8104 may steer the vehicle 204 to the side of the road. In other examples, if the user's reaction time is too slow or some other safety parameter is not nominal, the vehicle control system 204 may determine that the user is inebriated or having some other medical problem. The vehicle control system 204 may then assume control of the vehicle to ensure that the driver is safe.

[0299] Information corresponding to a user and/or a user profile may be stored in the profile information portion 1238. For example, the profile information 1238 may include data relating to at least one of current data, historical data, a user preference, user habit, user routine, observation, location data (e.g., programmed and/or requested destinations, locations of parking, routes traveled, average driving time, etc.), social media connections, contacts, brand recognition (e.g., determined via one or more sensors associated with the vehicle 104, a device 212, 248, etc.), audible recording data, text data, email data, political affiliation, preferred retail locations/sites (e.g., physical locations, web-based locations, etc.), recent purchases, behavior associated with the aforementioned data, and the like. The data in the profile information portion 1238 may be stored in one or more of the data

structures 1200 provided herein. As can be appreciated, these one or more data structures may be stored in one or more memory locations. Examples of various memory locations are described in conjunction with Fig. 2.

[0300] One or more additional data fields may be stored in the linked data portion 1242 as data and/or locations of data. The linked data 1242 may include at least one of pointers, addresses, location identification, data source information, and other information corresponding to additional data associated with the data structure 1200. Optionally, the linked data portion 1242 may refer to data stored outside of a particular data structure 1200. For example, the linked data portion 1242 may include a link/locator to the external data. Continuing this example, the link/locator may be resolved (e.g., via one or more of the methods and/or systems provided herein, etc.) to access the data stored outside of the data structure 1200. Additionally or alternatively, the linked data portion 1242 may include information configured to link the data objects 1204 to other data files or data objects 1250, 1270, 1280. For instance, the data object 1204 relating to a user may be linked to at least one of a device data object 1250, a vehicle system data object 1270, and a vehicle data object 1280, to name a few.

[0301] An embodiment of a data structure 1200 to store information associated with one or more devices is shown in Fig. 12B. The data file 1250 may include several portions 1216-1262 representing different types of data. Each of these types of data may be associated with a device, as shown in portion 1252.

[0302] There may be one or more device records 1250 and associated data stored within the data file 1250. As provided herein, the device may be any device that is associated with the vehicle 104. For example, a device may be associated with a vehicle 104 when that device is physically located within the interior space 108 of the vehicle 104. As another example, a device may be associated with a vehicle 104 when the device registers with the vehicle 104. Registration may include pairing the device with the vehicle 104 and/or one or more of the vehicle systems (e.g., as provided in Fig. 3). In some cases, the registration of a device with a vehicle 104 may be performed manually and/or automatically. An example of automatic registration may include detecting, via one or more of the vehicle systems, that a device is inside the vehicle 104. Upon detecting that the device is inside the vehicle 104, the vehicle system may identify the device and determine whether the device is or should be registered. Registration may be performed outside of a vehicle 104 via providing a unique code to the vehicle 104 and/or at least one of the vehicle systems.

[0303] The device may be identified in portion 1256. Among other things, the device identification may be based on the hardware associated with the device (e.g., Media Access Control (MAC) address, Burned-In Address (BIA), Ethernet Hardware Address (EHA), physical address, hardware address, and the like).

[0304] Optionally, a device may be associated with one or more users. For example, a tablet and/or graphical user interface (GUI) associated with the vehicle 104 may be used by multiple members of a family. For instance, the GUI may be located in a particular area 508 and/or zone 512 of the vehicle 104. Continuing this example, when a family member is located in the particular area 508 and/or zone 512, the device may include various settings, features, priorities, capabilities, and the like, based on an identification of the family member. The user may be identified in portion 1254. For the device, the user identification portion 1254 may include a set of one or more features that may identify a particular user. These features may be the physical characteristics of the person that may be identified by facial recognition, or some other type of system, associated with the device and/or the vehicle 104. Optionally, the user may provide a unique code to the device, or provide some other type of data, that allows the device to identify the user. The features or characteristics of the user are then stored in portion 1254.

[0305] Each device identified in the device identification portion 1256 may have a different set of settings for each area 508 and/or each zone 512, and/or each user of the device. Thus, each set of settings may also be associated with a predetermined zone 512, area 508, and/or user. The zone 512 is stored in portion 1220 and the area 508 is stored in portion 1216.

[0306] One or more settings may be stored in portion 1224. These settings 1224 may be similar and/or identical to those previously described. Further, the settings 1224 may also provide for how a device is configured for a particular user. Each setting 1224 may be associated with a different area 508 or zone 512. Thus, there may be more restrictive settings 1224 (e.g., restricted multimedia, texting, limited access to device functions, and the like) for the device when the user is the driver and in zone A 512A, 512A, of area 1, 508A. However, when the user is in another zone 512 or area 508, for example, where the user is not operating a vehicle 104, the settings 1224 may provide unrestricted access to one or more features of the device (e.g., allowing texting, multimedia, etc.).

[0307] Optionally, the capabilities of a device may be stored in portion 1258. Examples of device capabilities may include, but are not limited to, a communications ability (e.g., via wireless network, EDGE, 3G, 4G, LTE, wired, Bluetooth®, Near Field

Communications (NFC), Infrared (IR), etc.), hardware associated with the device (e.g., cameras, gyroscopes, accelerometers, touch interface, processor, memory, display, etc.), software (e.g., installed, available, revision, release date, etc.), firmware (e.g., type, revision, etc.), operating system, system status, and the like. Optionally, the various capabilities associated with a device may be controlled by one or more of the vehicle systems provided herein. Among other things, this control allows the vehicle 104 to leverage the power and features of various devices to collect, transmit, and/or receive data.

[0308] One or more priorities may be stored in portion 1260. The priority may correspond to a value, or combination of values, configured to determine how a device interacts with the vehicle 104 and/or its various systems. The priority may be based on a location of the device (e.g., as stored in portions 1216, 1220). A default priority can be associated with each area 508 and/or zone 512 of a vehicle 104. For example, the default priority associated with a device found in zone 1 512A of area 1 508A (e.g., a vehicle operator position) may be set higher than an (or the highest of any) alternative zone 512 or area 508 of the vehicle 104. Continuing this example, the vehicle 104 may determine that, although other devices are found in the vehicle, the device, having the highest priority, controls features associated with the vehicle 104. These features may include vehicle control features, critical and/or non-critical systems, communications, and the like. Additionally or alternatively, the priority may be based on a particular user associated with the device. Optionally, the priority may be used to determine which device will control a particular signal in the event of a conflict.

[0309] Registration data may be stored in portion 1262. As described above, when a particular device registers with a vehicle 104, data related to the registration may be stored in the registration data portion 1262. Such data may include, but is not limited to, registration information, registration codes, initial registration time, expiration of registration, registration timers, and the like. Optionally, one or more systems of the vehicle 104 may refer to the registration data portion 1262 to determine whether a device has been previously registered with the vehicle 104. As shown in Fig. 12B, User 4 of Device 2 has not been registered. In this case, the registration data field 1262, for this user, may be empty, contain a null value, or other information/indication that there is no current registration information associated with the user.

[0310] Additionally or alternatively, the data structure 1200 may include a profile information portion 1238 and/or a linked data portion 1242. Although the profile information portion 1238 and/or the linked data portion 1242 may include different

information from that described above, it should be appreciated that the portions 1238, 1242 may be similar, or identical, to those as previously disclosed.

[0311] An embodiment of a data structure 1200 to store information associated with one or more vehicle systems is shown in Fig. 12C. The data file 1270 may include several portions 1216-1279 representing different types of data. Each of these types of data may be associated with a vehicle system, as shown in portion 1272.

[0312] There may be one or more system records 1270 and associated data stored within the data file 1270. As provided herein, the vehicle systems may be any system and/or subsystem that is associated with the vehicle 104. Examples of various systems are described in conjunction with Fig. 3 and other related figures (e.g., systems 324-352, etc.). One example of a system associated with the vehicle 104 is the vehicle control system 204. Other systems may include communications subsystems 344, vehicle subsystems 328, and media subsystems 348, to name a few. It should be appreciated that the various systems may be associated with the interior space 108 and/or the exterior of the vehicle 104.

[0313] Each system may include one or more components. The components may be identified in portion 1274. Identification of the one or more components may be based on hardware associated with the component. This identification may include hardware addresses similar to those described in conjunction with the devices of Fig. 12B. Additionally or alternatively, a component can be identified by one or more signals sent via the component. Such signals may include an Internet Protocol (IP), or similar, address as part of the signal. Optionally, the signal may identify the component sending the signal via one or more of a header, a footer, a payload, and/or an identifier associated with the signal (e.g., a packet of a signal, etc.).

[0314] Each system and/or component may include priority type information in portion 1276. Among other things, the priority type information stored in portion 1276 may be used by the various methods and systems provided herein to differentiate between critical and non-critical systems. Non-limiting examples of critical systems may correspond to those systems used to control the vehicle 104, such as, steering control, engine control, throttle control, braking control, and/or navigation informational control (e.g., speed measurement, fuel measurement, etc.) Non-critical systems may include other systems that are not directly related to the control of the vehicle 104. By way of example, non-critical systems may include media presentation, wireless communications, comfort settings systems (e.g., climate control, seat position, seat warmers, etc.), and the like.

Although examples of critical and/or non-critical systems are provided above, it should be appreciated that the priority type of a system may change (e.g., from critical to non-critical, from non-critical to critical, etc.) depending on the scenario. For instance, although the interior climate control system may be classified as a non-critical system at a first point in time, it may be subsequently classified as a critical system when a temperature inside/outside of the vehicle 104 is measured at a dangerous level (e.g., sub-zero Fahrenheit, greater than 90-degrees Fahrenheit, etc.). As such, the priority type may be associated with temperature conditions, air quality, times of the day, condition of the vehicle 104, and the like.

[0315] Each system may be associated with a particular area 508 and/or zone 512 of a vehicle 104. Among other things, the location of a system may be used to assess a state of the system and/or provide how the system interacts with one or more users of the vehicle 104. As can be appreciated each system may have a different set of settings for each area 508 and/or each zone 512, and/or each user of the system. Thus, each set of settings may also be associated with a predetermined zone 512, area 508, system, and/or user. The zone 512 is stored in portion 1220 and the area 508 is stored in portion 1216.

[0316] One or more settings may be stored in portion 1224. These settings 1224 may be similar and/or identical to those previously described. Further, the settings 1224 may also provide for how a system is configured for a particular user. Each setting 1224 may be associated with a different area 508 or zone 512. For instance, a climate control system may be associated with more than one area 508 and/or zone 512. As such, a first user seated in zone 1 512A of area 1 508A may store settings related to the climate control of that zone 512A that are different from other users and/or zones 512 of the vehicle 104. Optionally, the settings may not be dependent on a user. For instance, specific areas 508 and/or zones 512 of a vehicle 104 may include different, default, or the same settings based on the information stored in portion 1224.

[0317] The various systems and/or components may be able to obtain or track health status data of the systems and/or components in portion 1278. The health status 1278 may include any type of information related to a state of the systems. For instance, an operational condition, manufacturing date, update status, revision information, time in operation, fault status, state of damage detected, inaccurate data reporting, and other types of component/system health status data may be obtained and stored in portion 1278.

[0318] Each component and/or system may be configured to communicate with users, systems, servers, vehicles, third parties, and/or other endpoints via one or more

communication type. At least one communication ability and/or type associated with a system may be stored in the communication type portion 1279. Optionally, the communication types contained in this portion 1279 may be ordered in a preferential order of communication types. For instance, a system may be configured to preferably communicate via a wired communication protocol over one or more wired communication channels (e.g., due to information transfer speeds, reliability, and the like). However, in this instance, if the one or more wired communication channels fail, the system may transfer information via an alternative communication protocol and channel (e.g., a wireless communication protocol and wireless communication channel, etc.). Among other things, the methods and systems provided herein may take advantage of the information stored in the communication type portion 1279 to open available communication channels in the event of a communication channel failure, listen on other ports for information transmitted from the systems, provide a reliability rating based on the number of redundant communication types for each component, and more. Optionally, a component or system may be restricted from communicating via a particular communication type (e.g., based on rules, traffic, critical/non-critical priority type, and the like). In this example, the component or system may be forced by the vehicle control system 204 to use an alternate communication type where available, cease communications, or store communications for later transfer.

[0319] Additionally or alternatively, the data structure 1200 may include a profile information portion 1238 and/or a linked data portion 1242. Although the profile information portion 1238 and/or the linked data portion 1242 may include different information from that described above, it should be appreciated that the portions 1238, 1242 may be similar, or identical, to those as previously disclosed.

[0320] Referring now to Fig. 12D, a data structure 1200 is shown optionally. The data file 1280 may include several portions 1216-1286 representing different types of data. Each of these types of data may be associated with a vehicle, as shown in portion 1282.

[0321] There may be one or more vehicle records 1280 and associated data stored within the data file 1282. As provided herein, the vehicle 104 can be any vehicle or conveyance 104 as provided herein. The vehicle 104 may be identified in portion 1282. Additionally or alternatively, the vehicle 104 may be identified by one or more systems and/or subsystems. The various systems of a vehicle 104 may be identified in portion 1284. For example, various features or characteristics of the vehicle 104 and/or its systems may be

stored in portion 1284. Optionally, the vehicle 104 may be identified via a unique code or some other type of data that allows the vehicle 104 to be identified.

[0322] Each system may be associated with a particular area 508 and/or zone 512 of a vehicle 104. Among other things, the location of a system may be used to assess a state of the system and/or provide how the system interacts with one or more users of the vehicle 104. As can be appreciated each system may have a different set of settings for each area 508 and/or each zone 512, and/or each user of the system. Thus, each set of settings may also be associated with a predetermined zone 512, area 508, system, and/or user. The zone 512 is stored in portion 1220 and the area 508 is stored in portion 1216.

[0323] One or more settings may be stored in portion 1224. These settings 1224 may be similar and/or identical to those previously described. Further, the settings 1224 may also provide for how a vehicle and/or its systems are configured for one or more users. Each setting 1224 may be associated with a different area 508 or zone 512. Optionally, the settings may not be dependent on a particular user. For instance, specific areas 508 and/or zones 512 of a vehicle 104 may include different, default, or the same settings based on the information stored in portion 1224.

[0324] The various systems and/or components may be able to obtain or track health status data of the systems and/or components in portion 1278. The health status 1278 may include any type of information related to a state of the systems. For instance, an operational condition, manufacturing date, update status, revision information, time in operation, fault status, state of damage detected, inaccurate data reporting, and other types of component/system health status data may be obtained and stored in portion 1278.

[0325] One or more warnings may be stored in portion 1286. The warnings data 1286 may include warning generated by the vehicle 104, systems of the vehicle 104, manufacturer of the vehicle, federal agency, third party, and/or a user associated with the vehicle. For example, several components of the vehicle may provide health status information (e.g., stored in portion 1278) that, when considered together, may suggest that the vehicle 104 has suffered some type of damage and/or failure. Recognition of this damage and/or failure may be stored in the warnings data portion 1286. The data in portion 1286 may be communicated to one or more parties (e.g., a manufacturer, maintenance facility, user, etc.). In another example, a manufacturer may issue a recall notification for a specific vehicle 104, system of a vehicle 104, and/or a component of a vehicle 104. It is anticipated that the recall notification may be stored in the warning data

field 1286. Continuing this example, the recall notification may then be communicated to the user of the vehicle 104 notifying the user of the recall issued by the manufacturer.

[0326] Additionally or alternatively, the data structure 1200 may include a profile information portion 1238 and/or a linked data portion 1242. Although the profile information portion 1238 and/or the linked data portion 1242 may include different information from that described above, it should be appreciated that the portions 1238, 1242 may be similar, or identical, to those as previously disclosed.

[0327] An embodiment of a method 1300 for storing settings for a user 216 associated with vehicle 104 is shown in Fig. 13. While a general order for the steps of the method 1300 is shown in Fig. 13, the method 1300 can include more or fewer steps or can arrange the order of the steps differently than those shown in Fig. 13. Generally, the method 1300 starts with a start operation 1304 and ends with an end operation 1336. The method 1300 can be executed as a set of computer-executable instructions executed by a computer system and encoded or stored on a computer readable medium. Hereinafter, the method 1300 shall be explained with reference to the systems, components, modules, software, data structures, user interfaces, etc. described in conjunction with Figs. 1-12.

[0328] A person may enter the vehicle space 108. One or more sensors 242 may then identify that a person is sitting within the vehicle 104, in step 1308. For example, sensors 242 in a seat, may determine that some new amount of weight has been registered. The amount of weight may fall within predetermined parameters (e.g., over a threshold, in a specific range, etc.). This weight may then be determined to be a person by one or more optical or other sensors 242. The vehicle control system 204 may then determine that a person is in a certain zone 512 or area 508. For example, the sensors 242 may send signals to the vehicle controls system 204 that an event has occurred. This information may be sent to the vehicle control system processor 304 to determine the zone 512 and area 508 where the event occurred. Further, the vehicle control system 204 may then identify the person, in step 1312.

[0329] The vehicle control system 204 can receive the information from the sensors 242 and use that information to search the database 1200 that may be stored within the system data 208. The sensor data may be compared to ID characteristics 1212 to determine if the person has already been identified. The vehicle control system 204 may also send the characteristic data from the sensors to the communication network 224 to a server 228 to compare the sensor data to stored data 232 that may be stored in a cloud system. The

person's features can be compared to stored features 1212 to determine if the person in the vehicle 104 can be identified.

[0330] If the person has been identified previously and their characteristics stored in portion 1212, the method 1300 proceeds YES to step 1316 where that person may be identified. In identifying a person, the information associated with that person 1240 may be retrieved and provided to the vehicle control system 204 for further action. If a person cannot be identified by finding their sensor characteristics in portion 1212, the method 1300 proceeds NO to step 1320. In step 1320, the vehicle control system 204, using an application, may create a new record in table 1200 for the user. This new record may store a user identifier and their characteristics 1212. It may also store the area 508 and zone 512 in data portions 1216 and 1220. The new record may then be capable of receiving new settings data for this particular user. In this way, the vehicle 104 can automatically identify or characterize a person so that settings may be established for the person in the vehicle 104.

[0331] The input module 312 may then determine if settings are to be stored, in step 1324. Settings might be any configuration of the vehicle 104 that may be associated with the user. The determination may be made after receiving a user input from the user. For example, the user may make a selection on a touch sensitive display indicating that settings currently made are to be stored. In other situations, a period of time may elapse after the user has made a configuration. After determining that the user is finished making changes to the settings, based on the length of the period of time since the setting was established, the vehicle control system 204 can save the setting. Thus, the vehicle control system 204 can make settings automatically based on reaching a steady state for settings for user.

[0332] The vehicle control system 204 may then store the settings for the person, in step 1328. The user interaction subsystem 332 can make a new entry for the user 1208 in data structure 1204. The new entry may be either a new user or a new settings listed in 1224. The settings may be stored based on the area 508 and zone 512. As explained previously, the settings can be any kind of configuration of the vehicle 104 that may be associated with the user in that area 508 and the zone 512.

[0333] The settings may also be stored in cloud storage, in step 1332. Thus, the vehicle control system 204 can send the new settings to the server 228 to be stored in storage 232. In this way, these new settings may be ported to other vehicles for the user. Further, the

settings in storage system 232 may be retrieved, if local storage does not include the settings in storage system 208.

[0334] Additionally or alternatively, the settings may be stored in profile data 252. As provided herein, the profile data 252 may be associated with one or more devices 212, 248, servers 228, vehicle control systems 204, and the like. Optionally, the settings in profile data 252 may be retrieved in response to conditions. For instance, the settings may be retrieved from at least one source having the profile data if local storage does not include the settings in storage system 208. As another example, a user 216 may wish to transfer settings stored in profile data 252 to the system data 208. In any event, the retrieval and transfer of settings may be performed automatically via one or more devices 204, 212, 248, associated with the vehicle 104.

[0335] An embodiment of a method 1400 to configure the vehicle 104 based on stored settings is shown in Fig. 14. A general order for the steps of the method 1400 is shown in Fig. 14. Generally, the method 1400 starts with a start operation 1404 and ends with an end operation 1428. The method 1400 can include more or fewer steps or can arrange the order of the steps differently than those shown in Fig. 14. The method 1400 can be executed as a set of computer-executable instructions executed by a computer system and encoded or stored on a computer readable medium. Hereinafter, the method 1400 shall be explained with reference to the systems, components, modules, software, data structures, user interfaces, etc. described in conjunction with Figs. 1-13.

[0336] The vehicle control system 204 can determine if a person is in a zone 512 or area 508, in step 1408. This determination may be made by receiving data from one or more sensors 242. The vehicle 104 can use facial recognition, weight sensors, heat sensors, or other sensors to determine whether a person is occupying a certain zone 512.

[0337] Using the information from the sensors 242, the vehicle control system 204 can identify the person, in step 1412. The vehicle control system 204 can obtain characteristics for the user currently occupying the zone 512 and compare those characteristics to the identifying features in portion 1212 of data structure 1204. Thus, the settings in portion 1224 may be retrieved by identifying the correct zone 512, area 508, and characteristics for the user.

[0338] The vehicle control system 204 can first determine if there are settings associated with the identified person for that zone 512 and/or area 508, in step 1416. After identifying the user by matching characteristics with the features in portion 1212, the vehicle control system 204 can determine if there are settings for the user for the area 1216

and zone 1220 the user currently occupies. If there are settings, then the vehicle control system 204 can make the determination that there are settings in portion 1224, and the vehicle control system 204 may then read and retrieve those settings, in step 1420. The settings may be then used to configure or react to the presence of the user, in step 1424. Thus, these settings may be obtained to change the configuration of the vehicle 104, for example, how the position of the seats or mirrors are set, how the dash, console, or heads up display is configured, how the heat or cooling is configured, how the radio is configured, or how other different configurations are made.

[0339] Embodiments of a method 1500 for storing settings in cloud storage are shown in Fig. 15. A general order for the steps of the method 1500 is shown in Fig. 15. Generally, the method 1500 starts with a start operation 1504 and ends with an end operation 1540. The method 1500 can include more or fewer steps or can arrange the order of the steps differently than those shown in Fig. 15. The method 1500 can be executed as a set of computer-executable instructions executed by a computer system and encoded or stored on a computer readable medium. Hereinafter, the method 1500 shall be explained with reference to the systems, components, modules, software, data structures, user interfaces, etc. described in conjunction with Figs. 1-14.

[0340] The vehicle control system 204 can determine if a person is in a zone 512 or area 508, in step 1508. As explained previously, the vehicle control system 204 can receive vehicle sensor data from vehicle sensors 242 that show a person has occupied a zone 512 or an area 508 of the vehicle 104. Using the vehicle sensor data, the vehicle control system 204 can determine characteristics of the person, in step 1512. These characteristics are compared to the features in portion 1212 of the data structure 1204. From this comparison, the vehicle control system 204 can determine if the person is identified within the data structure 1204, in step 1516. If there is a comparison and the person can be identified, the method 1500 proceeds YES to step 1520. However, if the person cannot be identified, the method 1500 proceeds NO, to step 1524.

[0341] In step 1520, the person is identified in portion 1208 by the successful comparison of the characteristics and the features. It should be noted that there may be a degree of variability between the characteristics and the features in portion 1212. Thus, the comparison may not be an exact comparison but may use methods known in the art to make a statistically significant comparison between the characteristics received from the sensors 242 and the features stored in portion 1212. In step 1524, the characteristics received from sensors 242 are used to characterize the person. In this way, the received

characteristics may be used as an ID, in portion 1212, for a new entry for a new user in portion 1208.

[0342] The user may make one or more settings for the vehicle 104. The vehicle control system 204 may determine if the settings are to be stored, in step 1528. If the settings are to be stored, the method 1500 proceeds YES to step 1536. If the settings are not to be stored or if there are no settings to be stored, the method 1500 proceeds NO to step 1532. In step 1532, the vehicle control system 204 can retrieve the settings in the portion 1224 of the data structure 1204. Retrieval of the settings may be as described in conjunction with Fig. 14. If settings are to be stored, the vehicle control system 204 can send those settings to server 228 to be stored in data storage 232, in step 1536. Data storage 232 acts as cloud storage that can be used to retrieve information on the settings from other vehicles or from other sources. Thus, the cloud storage 232 allows for permanent and more robust storage of user preferences for the settings of the vehicle 104.

[0343] An embodiment of a method 1600 for storing gestures associated with the user is shown in Fig. 16. A general order for the steps of the method 1600 is shown in Fig. 16. Generally, the method 1600 starts with a start operation 1604 and ends with an end operation 1640. The method 1600 can include more or fewer steps or can arrange the order of the steps differently than those shown in Fig. 16. The method 1600 can be executed as a set of computer-executable instructions executed by a computer system and encoded or stored on a computer readable medium. Hereinafter, the method 1600 shall be explained with reference to the systems, components, modules, software, data structures, user interfaces, etc. described in conjunction with Figs. 1-15.

[0344] Vehicle control system 204 may receive sensor data from sensors 242 to determine a person is occupying a zone 512 in an area 508 of the vehicle 104, in step 1608. The sensor data may provide characteristics for the person, in step 1612. The vehicle control system 204 may then use the characteristics to determine if the person can be identified, in step 1616. The vehicle control system 204 may compare the characteristics to the features in portion 1212 for the people having been recognized and having data associated therewith. If a comparison is made between the characteristics and the features in portion 1212, the person can be identified, and the method 1600 proceeds YES to step 1620. If there is no comparison, the method 1600 may proceed NO to step 1624. In step 1620, the person may be identified by the vehicle control system 204. Thus, the person's features and associated data record 1240 may be determined and the user identified in portion 1208. If the person is not identified, the vehicle control system 204

can characterize the person in step 1624 by establishing a new record in data structure 1204 using the characteristics, received from the sensors 242, for the features in portion 1212.

[0345] Thereinafter, the vehicle control system 204 may determine if gestures are to be stored and associated with the user, in step 1628. The vehicle control system 204 may receive user input on a touch sensitive display or some other type of gesture capture region which acknowledges that the user wishes to store one or more gestures. Thus, the user may create their own gestures such as those described in conjunction with Figs. 11A-11K. These gestures may then be characterized and stored in data structure 1204. If there are gestures to be stored, the method 1600 proceeds YES to step 1636. If gestures are not to be stored the method 1600 may proceed NO to step 1632.

[0346] In step 1632, the vehicle control system 204 can retrieve current gestures from portion 1232, which are associated with user 1240. These gestures may be used then to configure how the vehicle 104 will react if a gesture is received. If gestures are to be stored, the vehicle control system 204 may store characteristics, in step 1636, as received from sensor 242 or from one more user interface inputs. These characteristics may then be used to create the stored gestures 1232, in data structure 1204. The characteristics may include what the gesture looks like or appears and also what affect the gesture should have. This information may then be used to change the configuration or operation of the vehicle 104 based on the gesture if it is received at a later time.

[0347] An embodiment of a method 1700 for receiving a gesture and configuring the vehicle 104 based on the gesture may be as provided in Fig. 17. A general order for the steps of the method 1700 is shown in Fig. 17. Generally, the method 1700 starts with a start operation 1704 and ends with an end operation 1728. The method 1700 can include more or fewer steps or can arrange the order of the steps differently than those shown in Fig. 17. The method 1700 can be executed as a set of computer-executable instructions executed by a computer system and encoded or stored on a computer readable medium. Hereinafter, the method 1700 shall be explained with reference to the systems, components, modules, software, data structures, user interfaces, etc. described in conjunction with Figs. 1-16.

[0348] A vehicle control system 204 can receive sensor data from vehicle sensors 242. The vehicle sensor data can be used by the vehicle control system 204 to determine that a person is in a zone 512 or area 508, in step 1708. The vehicle sensor data may then be used to compare against feature characteristics 1212 to identify a person, in step 1712.

The vehicle control system 204 thereinafter may receive a gesture, in step 1716. The gesture may be perceived by vehicle sensors 242 or received in a gesture capture region. The gesture may be as described in conjunction with Figs. 11A-11K. Upon receiving the gesture, the vehicle control system 204 can compare the gesture to gesture characteristics in portion 1232, in step 1720. The comparison may be made so that a statistically significant coorelation between the sensor data or gesture data and the gesture characteristic 1232 is made. Upon identifying the gesture, the vehicle control system 204 can configure the vehicle 104 and/or react to the gesture, in step 1724. The configuration or reaction to the gesture may be as prescribed in the gesture characteristic 1232.

[0349] An embodiment of a method 1800 for storing health data may be as shown in Fig. 18. A general order for the steps of the method 1800 is shown in Fig. 18. Generally, the method 1800 starts with a start operation 1804 and ends with an end operation 1844. The method 1800 can include more or fewer steps or can arrange the order of the steps differently than those shown in Fig. 18. The method 1800 can be executed as a set of computer-executable instructions executed by a computer system and encoded or stored on a computer readable medium. Hereinafter, the method 1800 shall be explained with reference to the systems, components, modules, software, data structures, user interfaces, etc. described in conjunction with Figs. 1-17.

[0350] Vehicle control system 204 can receive sensor data from sensors 242. The sensor data may be used to determine that a person is in a zone 512 or area 508, in step 1808. The sensor data may then be used to determine characteristics of the person, in step 1812. From the characteristics, the vehicle control system 204 can determine if a person may be identified in data structure 1204, in step 1816. If it is determined that the person can be identified in step 1816, the method 1800 proceeds YES to step 1820. If the person cannot be identified, the method 1800 proceeds NO to step 1824. A person may be identified by matching the characteristics of a person from the sensor data to the features shown in portion 1212. If these comparisons are statistically significant, the person may be identified in portion 1208, in step 1820. However, if the person is not identified in portion 1208, the vehicle control system 204 can characterize the person using the vehicle sensor data, in step 1824. In this way, the vehicle control system 204 can create a new record for a new user in data structure 1204.

[0351] Thereinafter, the vehicle control system 204 may receive health and/or safety data from the vehicle sensors 242, in step 1828. The vehicle control system 204 can determine if the health or safety data is to be stored, in step 1832. The determination is

made as to whether or not there is sufficient health data or safety parameters, in portion 1228 and 1236, to provide a reasonable baseline data pattern for the user 1240. If there is data to be received and stored, the vehicle control system 204 can store the data for the person in portions 1228 and 1236 of the data structure 1204, in step 1832.

[0352] The vehicle control system 204 may then wait a period of time, in step 1836. The period of time may be any amount of time from seconds to minutes to days. Thereinafter, the vehicle control system 204 can receive new data from vehicle sensors 242, in step 1828. Thus, the vehicle control system 204 can receive data periodically and update or continue to refine the health data and safety parameters in data structure 1204. Thereinafter, the vehicle control system 204 may optionally store the health and safety data in cloud storage 232 by sending it through the communication network 224 to the server 228, in step 1840.

[0353] An embodiment of a method 1900 for monitoring the health of a user may be as shown in Fig. 19. A general order for the steps of the method 1900 is shown in Fig. 19. Generally, the method 1900 starts with a start operation 1904 and ends with an end operation 1928. The method 1900 can include more or fewer steps or can arrange the order of the steps differently than those shown in Fig. 19. The method 1900 can be executed as a set of computer-executable instructions executed by a computer system and encoded or stored on a computer readable medium. Hereinafter, the method 1900 shall be explained with reference to the systems, components, modules, software, data structures, user interfaces, etc. described in conjunction with Figs. 1-18.

[0354] The vehicle control system 204 can receive health data from sensors 242. The health data may be received in step 1908. The vehicle control system 204 may then compare the received health data to stored health parameters in portion 1228 or portion 1236, in step 1912. The comparison may check if there is statistically significant separation or disagreement between the received health data and the stored health data. Thus, the vehicle control system 204 can make a health comparison of the user based on a baseline of health data previously stored. A statistically significant comparison may include determining if there are any parameters more than three standard deviations from the average or norm, any parameter that is increasing or decreasing over a period of eight different measurements, a measurement that is more than two standard deviations from the norm more than three measurements consecutively, or other types of statistical comparisons.

[0355] If the vehicle control system 204 determines that measured health parameter does deviate from the norm, the vehicle control system 204 can determine whether the health data is within acceptable limits, in step 1916. If the health data is within acceptable limits, the method 1900 proceeds YES back to receiving new health data, in step 1908. In this way, the health data is periodically or continually monitored to ensure that the driver is in a healthy state and able to operate the vehicle. If the health data is not within acceptable parameters, the method 1900 may proceed NO to step 1924 where the vehicle control system 204 may react to the change in the health data. The reaction may include any measure to provide for the safety of the user, such as stopping the vehicle, beginning to drive the vehicle, driving the vehicle to a new location, such as a hospital, waking the driver with an alarm or other noise, or performing some other function that may help maintain the health or safety of the user.

[0356] The health data received may be a reaction from the driver. For example, the driver may call for help or ask the vehicle for assistance. For example, the driver or passenger may say that they are having a medical emergency and ask the car to perform some function to help. The function to help may include driving the person to a hospital or stopping the car and calling for emergency assistance.

[0357] Fig. 20 is a block diagram of an embodiment of a personality subsystem 2000 for a vehicle 104. The personality subsystem 2000 may include a personality module 2004, a personality matching module 2008, a personality data memory 2028, and a memory 2032. The subsystems, modules, components, etc. 2004-2028 may communicate over a network or bus 356. This communication bus 356 may be bidirectional and perform data communications using any known or future-developed standard or protocol. An example of the communication bus 356 may be as described in conjunction with Fig. 4. As one example of the communication, the personality module 2004 and/or the personality matching module 2008, aside from communicating with each other, may communicate with profile data 252, vehicle sensors 242, and/or non-vehicle sensors via the communication bus 356.

[0358] The personality module 2004 may be configured to present a virtual personality to a user 216 associated with a vehicle 104 via one or more displays, screens, speakers, and/or devices, associated with the vehicle 104. As can be appreciated, the virtual personality may be presented to a user 216 in at least one of an audible, visual, and tactile form. The personality module 2004 may be configured to interact with one or more users 216 of a vehicle 104. In some cases, input may be received and interpreted by the

personality module 2004. Input corresponding to personality information may be stored in the personality data memory 2028 and/or memory 2032. Additionally or alternatively, virtual personalities created by the personality module 2004 may be stored in the personality data memory 2028. As can be appreciate, the stored virtual personalities may be retrieved from at least one personality module 2004 for presentation to a user 216.

[0359] The personality matching module 2008 may include a matching engine 2012 and rules 2016 for matching a virtual personality with a personality of a user 216. The rules can include behavior rules 2020 and preferences 2024. Among other things, behavior rules 2020 may be used by the matching engine 2012 to interpret a user's 216 behavior observed via the vehicle and/or non-vehicle sensors 242, 236. Behavior rules 2020 may include instructions on detecting a context associated with a behavior of the user 216. For instance, the context may correspond to an emotional state of the user 216. Preferences 2024 can be associated with a user 216 and may include data relating to one or more of preferred virtual personalities, the presentation of a virtual personality, timing associated with the presentation of a virtual personality, permissions and access to information, and the like.

[0360] The personality matching module 2008 may communicate with a user profile stored in profile data memory 252. The user profile may have a corresponding user interface or personality defined or configured by the user 216. In some embodiments, the virtual personality can be an animated character that follows the user from vehicle-to-vehicle and/or from communication device-to-communication device. In other words, the virtual personality may include at least one of artificial intelligence, virtual traits, voice, tone, behavior, and predictive behavior based on a defined personality. In some embodiments, this virtual personality may be refined and/or modified over time to match suit a personality of a user 216. Suiting the personality of the user 216 may include matching a personality to the user 216 based on a context associated with the personality of the user 216. This matching may include providing a personality that mirrors and/or tempers the personality of the user 216. For example, in the case where a user 216 is determined to have an impulsive personality, the virtual personality may be configured to present a more rational virtual personality (e.g., providing more non-impulsive, or rational, responses, etc.). As can be appreciated, if the user 216 is determined to have an analytical personality, the virtual personality may be configured to provide impulsive responses and behavioral output. Additionally or alternatively, the virtual personality may be configured to match a personality to what a user 216 desires by monitoring input made by a user 216

(e.g., voice commands, content, context, etc.). In some cases, a user 216 may wish to interface with a virtual personality that is identical to the personality of the user 216. This desire may be determined by the one or more vehicle sensors recording user responses, interactions with a virtual personality, spoken tone, and/or context to refine the virtual personality to meet the preferences of the user 216. Additionally or alternatively, the profile matching module 2008 may refer to preferences 2024 to determine the virtual personality desired by the user 216. The profile matching module 2008 may refer to a personality data memory 2028 for stored virtual personalities (e.g., standard virtual personalities, user-defined virtual personalities, etc.). In some cases, the profile matching module 2008 may refer to a user profile associated with a user 216 (e.g., stored in a profile data memory 252, etc.).

[0361] As provided herein, a user profile may be created, modified, stored, copied, transferred, and/or transported. Additionally, the user profile can be accessed by one or more devices. In some cases, the user profile may be copied from one user to another user, transferred from one memory to another memory, and/or transported from one vehicle to another vehicle, to name a few. A user profile can be stored in a memory associated with a user and may include one or more data records. For example, the user profile may be stored in at least one data file or data object of a data structure 1200 as previously described in conjunction with Figs. 12A-12D.

[0362] User profiles can be compiled and/or modified based on a number of factors and/or information/input received by one or more sensors (e.g., vehicle sensors 242, non-vehicle sensors 236, etc.). In some embodiments, these sensors can be associated with a user 216, a user device 212, and/or a vehicle 104. The sensors may include at least one of environmental sensors 708, user interface sensors 712, associated device sensors 720, and the like. In one example, the associated device sensors 720 can include any sensors of a mobile device (e.g., a smart phone, tablet, mobile computer, etc.) that is connected, either wired or wirelessly, to a vehicle 104 and/or vehicle control system 204.

[0363] Information received by the one or more sensors may include inquiries made and/or input provided by a user (e.g., web browsing history, stored data cookies, voice commands, gesture input, intelligent personal assistant history, knowledge navigator, etc.), geographic location data (e.g., satellite positioning system, Wi-Fi hotspot, cell tower data, indoor positioning system, etc.) associated with a user 216 and/or a vehicle 104, and the like. In some cases, the information may be evaluated to determine whether the received information qualifies as user profile data. This evaluation may include referring to rules

stored in a memory and/or comparing terms in the received information to a list of key terms associated with user profile data.

[0364] An embodiment of a method 2100 for presenting a virtual personality to a user 216 of a vehicle 104 is shown in Fig. 21. A general order for the steps of the method 2100 is shown in Fig. 21. Generally, the method 2100 starts with a start operation 2104 and ends with an end operation 2132. The method 2100 can include more or fewer steps or can arrange the order of the steps differently than those shown in Fig. 21. The method 2100 can be executed as a set of computer-executable instructions executed by a computer system and encoded or stored on a computer readable medium. One example of the computer readable medium may include, but is not limited to, the memory 2032 described in conjunction with the personality subsystem 2000 of Fig. 20. Hereinafter, the method 2100 shall be explained with reference to the systems, components, modules, software, data structures, user interfaces, etc. described in conjunction with Figs. 1-20.

[0365] The method 2100 begins at step 2104 and proceeds when a user 216 is detected (step 2108). This detection and/or identification may be based on information received from the user 216. For example, a user 216 may be recognized based on information detected by at least one image sensor, such as the camera sensors 760 of a vehicle 104. Where a user 216 is recognized, a user profile associated with the user 216 can be accessed and/or modified.

[0366] In some embodiments, the detection step of the method 2100 may include an identification of the user 216. This identification may be based on a facial recognition of the user 216. For instance, the user identification module 822 may collect facial recognition information from a user 216 associated with the vehicle 104. Facial recognition information may be collected from one or more of sites, sources, cameras 878, user profile data 252, vehicle user 216 data, vehicle passenger data, and/or other sensors. The collection of facial recognition information may include recording information via one or more sensors (e.g., vehicle sensors 242, non-vehicle sensors 236, etc.). These one or more sensors may be associated with a vehicle 104. In one example, the one or more sensors may include at least one image sensor, such as a camera 878. Continuing this example, the cameras 878 may be positioned inside and/or outside of a vehicle 104. As can be appreciated, facial recognition information can be collected from one or more users 216 inside the vehicle 104 and/or from one or more users 216 outside the vehicle 104.

[0367] Facial recognition information may include facial features, and information about facial features, that can identify a user 216. For instance, the facial features can include

measurement information that defines a position and/or arrangement of the facial features. In some cases, one or more sensors may be used to determine a measurement between at least one of the facial features of a user 216. Typical facial features can include, but are not limited to, at least one eye, eyebrow, nose, nostril, cavity, socket, tooth, bone, mouth, lip, chin, ear, hairline, forehead, facial hair, mole, birthmark, scar, and/or other distinguishing mark associated with the face of a user 216. The collected facial recognition information can be stored in a memory and may include pointers to a memory. These pointers can be stored in one or more other memory locations.

[0368] The recognition of facial features may include comparing identified facial features associated with a user 216 with one or more identification characteristics stored in a memory. The one or more identification characteristics can be stored in a memory of a social networking site, facial recognition data memory, profile data memory 252 and/or other memory location. When the at least some of the identified facial features match at least one identification characteristic stored in the memory, a successful match, or facial recognition, may be determined. The more identified facial features that match the identification characteristics, the more successful the facial recognition. In other words, the facial recognition may be associated with a confidence level, or accuracy rating. This rating may be based on the number of features that are determined to match.

[0369] In the event that a user 216 is detected, the method 2100 continues by determining whether a user profile associated with the detected user 216 is available and/or accessible (step 2112). This determination may be based on a positive (e.g., matching) facial recognition of the user 216 during the detection step. Where a user 216 is identified, the personality module 2004 may communicate with the profile data memory 252 to access a user profile associated with the identified user 216. In some cases, a user 216 may not be identified, and as such, the user profile associated with that user 216 cannot be retrieved or accessed from memory.

[0370] Next, the method 2100 may continue by determining whether any virtual personality information is stored in the accessed user profile (step 2116). The virtual personality information may include, but is not limited to, at least one of a virtual personality, a personality type of the user, personality preferences, and virtual personality presentation information. The virtual personality may include one or more of an avatar, a voice output, a visual output, a tone, and a volume intensity. If the user profile includes a virtual personality, the personality module 2004 may retrieve and/or access the virtual personality from the user profile for use in the vehicle 104.

[0371] Once the virtual personality is retrieved, and/or accessed, the virtual personality may be presented to the user 216. In some cases, presenting the virtual personality to a user 216 may include altering one or more features of the vehicle 104. For instance, one or more features of the vehicle 104 may be altered to change a mood associated with the virtual personality. Continuing this example, the personality module 2004 may communicate with the vehicle control system 204 to change an internal lighting, an infotainment setting, a temperature, an oxygen level, an air composition, a comfort setting, a seat position, a transmission setting (e.g., automatic to manual, paddle shifting, and more), a navigation output, etc., and/or combinations thereof. In presenting the virtual personality the method 2100 may include interacting with the user 216. One example of interaction may include asking the user 216 questions. Another example may include providing comments to the user 216. The user 216 may respond to the questions and/or comments by providing visual, audible, and/or touch input responses. The personality module 2004 can respond to the user 216 based on a tone, context, and/or volume associated with the user 216 responses.

[0372] In the event that no virtual personality is associated with the user profile in step 2116, the method 2100 may continue by generating a virtual personality to suit the user 216 (step 2136). The virtual personality may be generated by the personality module 2004 in conjunction with the personality matching module 2008. For example, the personality matching module 2008 may receive user input via a user profile associated with the user 216, voice input, visual input, tactile input, manual input, etc., and/or combinations thereof. Continuing this example, the matching engine 2012 may determine a virtual personality that suits the user input received. In some cases, suiting the virtual personality to a user 216 may be based at least partially on rules 2016. If it is determined from the user input that the user 216 is agitated (e.g., angry, frustrated, annoyed, has little patience, is shouting, making fast sharp gestures, frowning, etc.), the matching engine 2012 may determine that a virtual personality should be generated to reduce the user's 216 agitation (e.g., the virtual personality may be generated as an opposite personality to that determined with the user 216). Additionally or alternatively, if it is determined (e.g., via the personality matching module 2008, etc.) from the user input that the user 216 is happy (e.g., whistling, singing, smiling, waving, is talking softly, etc.), the matching engine 2012 may determine that the virtual personality should be generated to match the user's 216 happiness. In any event, the virtual personality is generated by the personality module

2004 in communication with the personality matching module 2008. The method 2100 can then present the generated virtual personality in step 2124, as previously described.

[0373] If no user profile is associated with the user 216 in step 2112, or if the user profile cannot be accessed, the method 2100 may continue by providing a standard virtual personality to the user (step 2140). In some embodiments, while the standard virtual personality is provided to a user 216, and as profile data is collected, the standard virtual personality may be refined to suit the user 216. The standard virtual personality may include a virtual personality stored in a memory (e.g., personality data memory 2028, memory 2032, etc.). This standard virtual personality can be created by at least one of a user 216, company, group, institution, personality module 2004, etc. The method 2100 may continue to present the personality at step 2124 or proceed at step 2144.

[0374] The method 2100 continues by collecting profile data associated with the user 216 (step 2144). In some embodiments, collecting profile data may include determining whether any of the information received qualifies as user profile data. In one embodiment, this determination may be made by the profile identification module 848. For instance, the profile identification module 848 may refer to rules stored in a memory to determine whether a match exists between at least some of the received information and matching information corresponding to user profile and/or virtual personality data. Matching information may include keywords, key terms, input types, context-sensitive data, match indicators, etc., and combinations thereof.

[0375] Next, the method 2100 may proceed by refining the virtual personality (step 2148). Refining the virtual personality, may include using data to custom suit the virtual personality to a user 216 (e.g., based at least partially on rules 2016). This custom suiting operation may be similar, if not identical, to suiting the virtual personality to the user 216 as described in conjunction with step 2136. For instance, the data collected in step 2144 may be used by the personality matching module 2004 in altering the virtual personality to suit the user 216. Continuing this example, as the user 216 continues to provide more information and/or input, the virtual personality may be refined to best suit the user 216. In some embodiments, the virtual personality may be refined while the virtual personality is being presented to a user 216. The virtual personality may be refined in real-time (e.g., as the input is happening, is provided, etc.) and/or near-real-time (e.g., as the input is happening including any system and/or communication delays, etc.). Additionally or alternatively, as the virtual personality is altered, the altered personality may be presented to the user in real-time and/or near-real-time. Additionally or alternatively, the virtual

personality may be refined (e.g., altered) when the user 216 is not being presented the virtual personality. In other words, the virtual personality may be refined in non-real-time (e.g., when the virtual personality is not being used, etc.). As provided herein, a standard personality and/or a virtual personality associated with a user 216 can be refined. The method 2100 continues at step 2124 by presenting the virtual personality and/or refined virtual personality.

[0376] The method 2100 continues by determining whether the user 216 is still present (step 2128). In some embodiments, the presence of a user 216 may include an existing association of the user 216 with a vehicle 104. For instance, the user 216 may be associated with the vehicle 104, although the user 216 may not be physically located inside the vehicle 104. An example of this association may include when the user steps outside of the vehicle 104 (e.g., to maintain the vehicle 104, refuel, temporarily visit a location outside of the vehicle 104, etc.). The detection and/or determination of whether a user 216 is present may include one or more of the detection steps described in conjunction with step 2108. Additionally or alternatively, determining whether a user 216 is present may include determining whether the user 216 is physically inside the vehicle 104. For example, a user 216 may be determined to be present inside a vehicle 140 based on information detected by at least one image sensor, such as the camera sensors 760 of the vehicle 104. In any event, when a user 216 can no longer be detected by at least one sensor (e.g., vehicle sensors 242, non-vehicle sensors 236, etc.) associated with the vehicle 104, the user 216 may be determined as not being present. If the user 216 is determined to still be present, the method 2100 may continue by collecting more profile data (step 2144). If the user is determined not to be present, the method 2100 ends at step 2132.

[0377] In one example, a virtual personality may be represented by an avatar. The avatar may be an intelligent assistant, a virtual assistant, and/or an intelligent virtual assistant as described in application PCT/US14/_____, filed on April 15, 2014, entitled "Vehicle-Based Multimode Discovery" (Attorney Docket No. 6583-585-PCT), which is hereby incorporated herein by reference, in its entirety, for all that it teaches and for all purposes. The avatar may be presented as a theme, color, specific sound output, other user preference, etc., and/or combinations thereof. For instance, the avatar may be configured as one or more icons, figures, colors, and/or themes that are configured to represent the virtual personality.

[0378] In some embodiments the avatar may be configured to follow a user 216 from vehicle-to-vehicle and/or from communication device-to-communication device. The

avatar may be stored in the user profile associated with a user 216. The user profile may be accessed, as provided herein, via one or more vehicle 104 and/or device 212, 248. Avatars may be synchronized, or synced, between vehicles 104 and/or communication devices 212, 248. The synchronization can include a communication of the avatar from one vehicle to another vehicle. The synchronization can include a communication of the avatar from one device 212 to another device 248. Additionally or alternatively, the avatar may be stored in profile data 252 (e.g., in the user profile) accessible across a communication network 224. One example of profile data 252 located across a network 224 may include a cloud-based system (e.g., a server 228 and profile data memory 252). In yet another example, a vehicle 104 may include an avatar associated with a user 216. In this example, the vehicle 104 may synchronize with another vehicle, a device 212, 248, and/or a building automation system 2304. As part of the synchronization communication, the vehicle 104 may transfer the avatar associated with the user 216. As can be appreciated, this operation may be performed in reverse (e.g., the other vehicle, device 212, 248, and/or building automation system 2304 may transfer the avatar associated with the user 216 to the vehicle 104 as part of the synchronization communication).

[0379] An embodiment of a method 2200 for matching a virtual personality to a context of a user 216 of a vehicle 104 is shown in Fig. 22. A general order for the steps of the method 2200 is shown in Fig. 22. Generally, the method 2200 starts with a start operation 2204 and ends with an end operation 2232. The method 2200 can include more or fewer steps or can arrange the order of the steps differently than those shown in Fig. 22. The method 2200 can be executed as a set of computer-executable instructions executed by a computer system and encoded or stored on a computer readable medium. One example of the computer readable medium may include, but is not limited to, the memory 2032 described in conjunction with the personality subsystem 2000 of Fig. 20. Hereinafter, the method 2200 shall be explained with reference to the systems, components, modules, software, data structures, user interfaces, etc. described in conjunction with Figs. 1-21.

[0380] The method 2200 begins at step 2204 and proceeds when user input is received from a user 216 (step 2208). User input can be received by the one or more sensors (e.g., vehicle sensors 242, non-vehicle sensors 236, etc.) associated with the vehicle, as previously described. Additionally or alternatively, the user input may be received by the personality module 2004 and/or the personality matching module 2008. User input may include input provided from one or more users 216. In one embodiment, where two or

more users 216 provide input, a group user input may be received by the modules 2004/2008.

[0381] The method 2200 continues by determining a context of the user input received (step 2212). As previously described in conjunction with Fig. 20, a context may include an emotional state of the user 216. Context may be determined via the personality matching module 2008 based at least partially on rules 2016 stored in memory. In some embodiments, determining the context of the user input may correspond to determining at least one other user-related consideration. For example, the personality matching module 2008 may refer to at least one of a schedule, email, text message, phone call, search engine result, etc., and other content related to the user 216. In some embodiments, determining the context of the user input may correspond to determining at least one non-user consideration. Non-user considerations may include, but are not limited to at least one of, environment (e.g., temperature, humidity, air composition, oxygen level, etc.), weather (e.g., rain, sun, snow, etc.), calendar, traffic, unemployment rate, stock market value, economic index, social unrest, and the like. For instance, a user 216 may be quiet, with a neutral, or sad, expression inside a vehicle 104. In this example, an image sensor (e.g., camera 878, etc.) may detect the facial expressions of the user 216, while an audio sensor (e.g., microphone 886, etc.) may detect audio output, or lack thereof, from the user 216. The personality matching module 2008 may communicate with other systems (e.g., a device 212, 248, etc.) associated with the vehicle 104 to check the user's 216 email, messages, calls, and/or schedule. Continuing this example, the personality matching module 2008 may communicate across a network 224 to determine at least one non-user considerations, such as a low employment rate and/or a severe drop in stock market value. Alone, or together, this input and information may define the context of the user input.

[0382] In some cases, determining a context associated with the user input may include determining a context of a group user input (e.g., two or more users 216, etc.). Determining group user context may include detecting whether any of the users in the group of users have an avatar in user profile data 252. In some cases, two or more users 216 may have avatars that have been created based on profile information associated with the two or more users 216. In other words, each user 216 may have an avatar in user profile data 252, corresponding to that individual user 216.

[0383] Next, the method 2200 proceeds by determining whether the determined context matches a virtual personality of the user 216 (step 2216). This match can be based on rules 2016 stored in memory. As provided herein, a context of user input may match a

virtual personality when the virtual personality is suited to the user 216 based at least partially on the context of the user input provided by the user 216. In some cases, matching a context of the user input may include providing a virtual personality having an opposite context. For instance, a user 216 may provide input having a context determined to be "sad," and a virtual personality identified as "happy" (e.g., having a "happy" or opposite context) may match the "sad" user input context. Additionally or alternatively, a user 216 may provide input having a context determined to be "happy," and a virtual personality identified as "happy" may match the "happy" user input context. In any event, the match is similar to the suiting the virtual personality as described in conjunction with Fig. 21 (e.g., steps 2136 and 2148). In the event that a match is determined, the method 2200 continues by presenting the matching virtual personality to the user 216 (step 2224).

[0384] In embodiments where two or more users 216 have avatars in profile data 252, the context matching may determine whether the avatar of at least one of the two or more users 216 matches an avatar of another user 216 of the two or more users 216. The context matching operation may include determining whether at least one theme, color, specific sound output, other user preference, etc., and/or combinations thereof, of the avatars match. In the event that a match is determined, the method 2200 may continue by presenting the matching avatar to the user 216 (step 2224).

[0385] If a virtual personality does not match the context of the user input, the method 2200 may continue by altering and/or generating a virtual personality to match the context (step 2220). Altering and/or generating a virtual personality to match the context is similar, if not identical, to the refining of and/or generating the virtual personality as described in conjunction with Fig. 21 (e.g., step 2148 and step 2136, respectively). Once a matching virtual personality has been refined and/or generated, the method 2200 continues by presenting the matching virtual personality to the user 216 (step 2224). As can be appreciated, presenting the matching virtual personality in step 2228 may be similar, if not identical to, the presentation of the virtual personality as described in conjunction with Fig. 21. Additionally or alternatively, the output provided by the matching virtual personality may be in the form of at least one avatar, voice output, visual output, tone, and volume intensity, and configured to suit the user 216.

[0386] In another embodiment, if no direct or exact match is determined to exist between the avatars from the group user input, the method 2200 may continue by generating a group avatar that represents two or more users 216 in the group of two or more users (step 2220). This group avatar may include at least one common setting and/or

preference shared between the avatars of the group of users 216. For example, a brother and sister may be seated in a passenger area (e.g., area 2 508B) of a vehicle 104. The brother may like rock music and dark colors (e.g., stored in the brother's user profile), while the sister may like pop music and pastel colors (e.g., stored in the sister's user profile). As provided above, a group avatar may be created to appeal to both users (e.g., without alienating at least one user 216). The group avatar may include secondary and/or tertiary settings and/or preferences associated with the brother and sister's user profiles to find common themes, preferences, settings, etc. In this example, both the brother and sister may like country music (but not necessarily prefer it over other kinds of music). Moreover, the brother and sister may like greyscale color schemes (but they may not prefer them). In this example, the group avatar generated for the group of users 216 (e.g., the brother and sister) for presentation to the passenger area of the vehicle 104 can include greyscale color schemes and may even suggest and/or present country music to the passenger area. When a group avatar is generated, the method 2200 continues by presenting the group avatar to the group of users 216 (step 2224).

[0387] The method 2200 continues by determining whether the user 216 is still present (step 2228). In some embodiments, the presence of a user 216 may include an existing association of the user 216 with a vehicle 104. For instance, the user 216 may be associated with the vehicle 104, although the user 216 may not be physically located inside the vehicle 104. An example of this association may include when the user steps outside of the vehicle 104 (e.g., to maintain the vehicle 104, refuel, temporarily visit a location outside of the vehicle 104, etc.). The detection and/or determination of whether a user 216 is present may include one or more of the detection steps described in conjunction with step 2108 of Fig. 21. Additionally or alternatively, determining whether a user 216 is present may include determining whether the user 216 is physically inside the vehicle 104. For example, a user 216 may be determined to be present inside a vehicle 140 based on information detected by at least one image sensor, such as the camera sensors 760 of the vehicle 104. In any event, when a user 216 can no longer be detected by at least one sensor (e.g., vehicle sensors 242, non-vehicle sensors 236, etc.) associated with the vehicle 104, the user 216 may be determined as not being present. If the user 216 is determined to still be present, the method 2200 may continue to receive user input at step 2208. If the user is determined not to be present, the method 2200 ends at step 2232.

[0388] Fig. 23 is a block diagram of an embodiment of an automation control system 2300. The automation control system 2300 may include a building automation system

2304 having at least one of an HVAC module 2308, an energy module 2312, a security module 2316, an infotainment module 2320, a utilities module 2324, and more. The subsystems, modules, components, etc. 212, 216, 252, 2304 may communicate over a network or bus 356 and/or a communication network 224. The communication bus 356 may be bidirectional and perform data communications using any known or future-developed standard or protocol. An example of the communication bus 356 may be as described in conjunction with Fig. 4. As one example of the communication, the building automation system 2304 may communicate with vehicles 104, devices 212, 248, profile data 252, vehicle sensors 242, and/or non-vehicle sensors 235 via the communication bus 356 and/or the communication network 224. Additionally or alternatively, the building automation system 2304 may communicate across a communication network 224 with at least one of an emergency agency 2328, energy provider 2332, security provider 2336, group 2340, and company 2344.

[0389] For example, building automation systems 2304 may communicate with a user profile to predictively adjust climate and other settings based on user 216 settings associated with a vehicle 104. The user profile may be stored in at least one profile data memory 252. A user 216 may set the inside cabin temperature of a vehicle 104 to a specific value (e.g., 72 degrees Fahrenheit, etc.). Based on this temperature setting, the building automation system 2304 may share the temperatures setting for one or more areas of a home, office, and/or other environmentally controlled space. The building automation system 2304 may be configured to analyze the behavior of a user 216 associated with a vehicle 104. The behavioral analysis of a user's preferred temperature settings may include a consideration of ambient temperature, environmental factors, and/or solar radiation in determining shared settings.

[0390] As provided above, the building automation system 2304 may determine preferred building (e.g., rooms, areas, spaces, etc., associated with the building) temperatures of a user 216 based on information stored in a user profile. For example, the building automation system 2304 may refer to vehicle temperatures set by a user 216 and stored in the user profile. Based on the vehicle temperatures stored in the user profile, the building automation system 2304 may adjust certain areas of a home to match the vehicle temperatures. In some embodiments, the building automation system 2304 may determine that areas of the building may be adjusted based on a combination of the vehicle temperatures, time of day, recorded images and/or sounds from the vehicle, and mood of the user, as provided herein.

[0391] The HVAC module 2308 may be configured to control HVAC settings associated with one or more areas of a building. The one or more areas described herein may include, but are not limited to, rooms, floors, cubicles, an entire building space, subdivisions thereof, and/or the like. Among other things, the HVAC module 2308 can monitor at least one HVAC system and control an operation of the HVAC system based on at least one input, such as, setpoints, timers, schedules, building area temperatures, building area humidity, user profile information, and more. In any event, the HVAC module 2308 may determine an actual state (e.g., an actual temperature, humidity, pressure, etc.) of one or more areas of a building, compare the actual state with a target state (e.g., a desired or goal temperature, humidity, pressure, etc.) of the one or more areas of the building, and regulate the HVAC system at least partially in response to the comparison.

[0392] The energy module 2312 can be configured to control and/or monitor at least one energy feature and/or setting associated with one or more areas of a building. Energy features and/or settings can include, but is in no way limited to, lighting, powered circuits, ionization devices, communications equipment, and/or the like. In some cases, power to the energy features and/or a power setting of the energy features may be controlled by the energy module 2312. For example, when a user 216 is not present in one or more areas of a building, the energy of the one or more areas may be "turned off," disabled, and/or at least partially limited. Continuing this example, when a user 216 is no longer present in a room of a home, the lighting may be turned off in that room. Presence of the user 216 can be detected in a number of ways. For instance, one or more motion sensors, image sensors, signal detectors, etc. may be used in the building to detect the presence of a user 216. The presence of the user 216 can include an identification of a particular user 216. This identification may include referring to a user profile associated with the detected user 216.

[0393] The security module 2316 may be configured to control and/or monitor at least one security system, security component, and/or state thereof. Security systems may include any type of security service equipment associated with one or more areas of a building. Security systems may be residential, commercial, and/or externally monitored (e.g., by a security provider 2332, etc.). The security systems may include one or more surveillance components, locking elements, alarm features, and communication features. In some cases, a security event may be detected by the security system and reported (e.g., via a communication feature such as a phone line, wireless signal, etc.) to a security

provider 2336 and/or an emergency agency 2328 (e.g., police, fire, emergency medical service (EMS), and/or governmental agency, etc.). Additionally or alternatively, the security module can activate, deactivate, monitor, and/or otherwise control the security system of a building.

[0394] The infotainment module 2320 can be configured to communicate with one or more infotainment devices associated with one or more areas of a building. Infotainment systems associated with the one or more areas of a building may include, but are not limited to, radios (e.g., analog, digital, and/or satellite, etc.), home entertainment systems, streaming content players, intercom systems, cable boxes, satellite boxes, set-top boxes (STB), digital video recorders, background music systems, emergency alert system (EAS) devices, over-the-air receiver, speakers, etc. Among other things, the infotainment module 2320 may control a state of the infotainment systems, such as power state (e.g., on, off, standby, etc.), recording content (e.g., content selection, tuning, etc.), playing content (e.g., speed of playback, volume output, etc.), receiving content, presenting content, scheduling the receiving and/or presentation of content, and the like. Additionally or alternatively, the infotainment module 2320 may monitor the state of the infotainment systems.

[0395] Similar to the energy module 2312, the utilities module 2324 can be configured to control and/or monitor at least one utility feature and/or setting associated with one or more areas of a building. Utility features and/or settings can include, but is in no way limited to, electricity, water, gas, telephone, Internet access, etc. In some cases, the utility features may be "turned off," disabled, and/or at least partially disabled. For example, when a user 216 is not present in one or more areas of a building, the utilities of the one or more areas may be controlled as provided above. Continuing this example, when a user 216 is no longer present in a room of a home, the Internet access may be turned off, or limited, in that room. In some cases, the utilities module 2324 may turn off, and/or limit, utilities, in response to detecting an emergency condition and/or security event. For instance, a criminal may have forcefully entered a home at night with the intent to commit a felony therein. In this case, the utilities module 2324 may limit, or turn off, one or more utilities associated with the home to prevent the unlawful use by the criminal. As another example, a gas leak may be detected in the home. In this instance, the utilities module 2324 may shut off the gas supplied to the home.

[0396] In any of the aforementioned modules 2308-2324, a presence of the user 216 may be used by the modules 2308-2324 to control and/or monitor their respective features

and/or settings. The presence of the user 216 can be detected in a number of ways. For instance, one or more motion sensors, image sensors, signal detectors, etc. may be used in the building to detect the presence of a user 216. The presence of the user 216 can include an identification of a particular user 216. This identification may include referring to a user profile associated with the detected user 216.

[0397] In some embodiments, the building automation system 2304 may be controlled and/or monitored by one or more of the user 216, an emergency agency 2328, an energy provider 2332, a security provider 2336, a group 2340, and a company 2344. For example, an emergency agency 2328 may need access to the one or more areas of the building. In this case, the emergency agency 2328 (e.g., police) may communicate with the building automation system 2304 and deactivate, and/or override, a security system (e.g., via the security module 2316). Similarly, in the event of a fire, the emergency agency 2328 (e.g., fire department, etc.) may shut off one or more utilities, such as gas (e.g., via the utilities module 2324). As another example, an owner of one or more areas of a building may have a contract with an energy provider 2332 to limit HVAC output during peak energy usage periods. In this example, the energy provider 2332 may communicate with the building automation system 2304 and turn off, or limit, an HVAC output via the HVAC module 2308. Additionally or alternatively, the energy provider 2332 may throttle an energy usage of the owner by communicating with the energy module 2312, and directing the energy module 2312 to limit, or turn off, power in the one or more areas of the building. The group can represent any other entity not represented by one or more of the other agencies 2328, providers 2332, 2336, or company 2344. The company 2344 can include an owner (or group of owners) of the one or more areas of the building, a business, and/or an entity recognized by a locality to serve others and/or conduct business.

[0398] An embodiment of a method 2400 for determining and adjusting settings of one or more areas of a building based at least partially on user profile information may be as shown in Fig. 24. A general order for the steps of the method 2400 is shown in Fig. 24. Generally, the method 2400 starts with a start operation 2404 and ends with an end operation 2420. The method 2400 can include more or fewer steps or can arrange the order of the steps differently than those shown in Fig. 24. The method 2400 can be executed as a set of computer-executable instructions executed by a computer system and encoded or stored on a computer readable medium. Hereinafter, the method 2400 shall be

explained with reference to the systems, components, modules, software, data structures, user interfaces, etc. described in conjunction with Figs. 1-23.

[0399] The method 2400 begins at step 2404 and continues by storing one or more areas of a building associated with a user 216 in a user profile (2408). The user profile may be associated with the user 216. In some of the many embodiments described herein the user profile may be specific to only one user 216. As a user 216 moves about a building, information corresponding to the movement of the user 216 may be collected. This information may be provided by location information associated with a device 212 of user 216. For instance, the device 212 may determine a physical location of the device using one or more of an SPS, Wi-Fi hotspot, cell tower data, indoor positioning system, and the like. Additionally or alternatively, the location of a user 216 may be determined from position information collected by one or more sensors associated with the building. These sensors may include at least one of image sensors, motion sensors, signal detectors (e.g., key card readers, electronic key station, wireless communication signal detector, etc.) and the like. In one embodiment, a user 216 can be associated with one or more areas of a building via data entered into the user profile corresponding to associated areas. This data may be entered by a user 216, an administrator, a manager, a building owner, and/or some other entity.

[0400] It is anticipated that the one or more areas of the building associated with the user 216 can be stored (in user profile associated with the user) in the profile data memory 252. The profile data memory 252 can be found on a device 212, a vehicle 104, attached to a communication network 224, and/or some other location.

[0401] Next, the method 2400 continues by collecting comfort and/or infotainment information associated with the user 216 (step 2412). In some cases, the infotainment information may correspond to the infotainment settings of a vehicle 104 and/or one or more areas of a building, that are associated with a user 216. Infotainment settings may include, but are not limited to, preferred radio stations, content applications, listening content, viewing content, content playback settings (e.g., volume, speed, quality, etc.), genres, content consumption habits (e.g., including listening times, associated content, trends, etc.), recording preferences, and/or the like. The comfort information may correspond to one or more comfort settings of the user 216. Comfort settings can include, but are in no way limited to, at least one preference such as lighting, temperature, air composition, humidity, oxygen levels, background music/noise, etc.

[0402] Similar to the building area information, this collected comfort and/or infotainment information may be stored in the user profile associated with the user 216. The comfort and/or infotainment information can be stored (in user profile associated with the user) in the profile data memory 252. The profile data memory 252 can be found on a device 212, a vehicle 104, attached to a communication network 224, and/or some other location (e.g., associated with a building, etc.).

[0403] The method 2400 proceeds by using the collected and/or stored information to adjust settings based on the stored information (step 2416). For instance, the building automation system 2304 can alter at least one setting of one or more areas of the building to match information stored in the user profile associated with a user 216. In other words, the settings of a building may be adjusted to match the settings of a vehicle 104 associated with a user 216. Additionally or alternatively, a vehicle 104 may adjust the settings of the vehicle 104 based on information stored in the user profile associated with the user 216. In other words, the settings of a vehicle 104 may be adjusted to match the settings of one or more areas of a building associated with a user 216. The method 2400 ends at step 2420.

[0404] An embodiment of a method 2500 for determining and adjusting settings of a system based on user profile information is shown in Fig. 25. A general order for the steps of the method 2500 is shown in Fig. 25. Generally, the method 2500 starts with a start operation 2504 and ends with an end operation 2536. The method 2500 can include more or fewer steps or can arrange the order of the steps differently than those shown in Fig. 25. The method 2500 can be executed as a set of computer-executable instructions executed by a computer system and encoded or stored on a computer readable medium. Hereinafter, the method 2500 shall be explained with reference to the systems, components, modules, software, data structures, user interfaces, etc. described in conjunction with Figs. 1-24.

[0405] The method 2500 begins at step 2504 and proceeds by detecting the presence of setting information in a user profile associated with a user 216 (step 2508). The presence of setting information may be provided via the user profile reporting the setting information to at least one of the vehicle 104 and/or the building automation system 2304. In some embodiments, the detection of the setting information may be made by the building automation system 2304 detecting a user profile and reading at least one data record of the user profile, the data record containing the setting information. The user profile may be detected in response to identifying a user 216. For example, a user 216

may register with a building automation system 2304. As part of the registration, the user 216 may provide access to at least a portion of the user profile associated with the user 216 via the building automation system 2304. The building automation system 2304 may be configured to retrieve the setting information from the user profile on a periodic basis. Additionally or alternatively, the building automation system 2304 may be configured to retrieve the setting information from the user profile based on detecting the presence of a user 216 (e.g., in one or more areas of a building and/or a vehicle 104).

[0406] The method 2500 may continue by determining user areas associated with the building (step 2512). This determination may be made by referring to a data location of the user profile stored in the profile data memory 252. In one embodiment, the user areas may correspond to the one or more areas of a building associated with the user 216 as described in conjunction with Fig. 24. For example, the user areas may be a space where a user 216 works, lives, and/or plays. User areas can be determined from location information associated with the user 216 and a time the user 216 spends in the user area. As can be appreciated, various thresholds may be set for an area/space to qualify as a user area. For instance, a user 216 may be required to spend a minimum amount of time in a space or area for that space or area to qualify as a user area. Additionally or alternatively, a frequency associated with the time a user 216 spends in a space or area can qualify the space or area as a user area. By way of example, a user 216 may visit a space every day for a week, this frequency may qualify the space as a user area associated with that user 216. In some cases, the user areas may be associated with a work personality, home personality, and/or other rating/rank.

[0407] Next, the method 2500 continues by determining whether a user 216 is present in the user area (step 2516). Presence of a user 216 may include actual physical presence, anticipated presence (e.g., expected time of arrival, based on historical data, planned presence, etc.), and/or a programmed presence (e.g., set by one or more administrative preferences, user-configured, and/or the like) in at least one area of the building. The presence of the user 216 may be determined by one or more sensors of the building, a device 212, etc., as described above. If the user 216 is not determined to be present, the method 2500 ends at step 2536.

[0408] In the event that the user is determined to be present in the user area, the method 2500 proceeds by adjusting at least one setting of the building based on the settings information in the user profile (step 2520). The adjustment may be caused by the building automation system 2304 providing an adjustment output to one or more components (e.g.,

building comfort control systems, modules, etc.) associated with the one or more areas of the building. Adjusting settings may correspond to changing at least one setting of comfort and/or infotainment settings. For instance, a radio may be tuned to a specific station, the lighting may be adjusted to a certain level, the temperature in a home, or area of the home, may be changed, and/or the like. The settings may be adjusted to match the settings stored in the user profile. In some cases, the adjustments may include a scaling factor to compensate for differences between vehicle settings and building settings.

[0409] The method 2500 may continue by determining whether a user 216 changes settings after the settings have been adjusted via the building automation system 2304 (step 2524). For example, a user 216 may change a temperature after the temperature is adjusted via the building automation system 2304. This change may occur where vehicle settings may differ slightly from building settings. Continuing this example, the user 216 may have the inside cabin temperature of a vehicle 104 set to 74 degrees Fahrenheit. When the user 216 is present in the user area of the building, the building automation system 2304 may adjust the user area to match the 74 degrees Fahrenheit. In this example, the user may reduce the user area temperature to 72 degrees after it has been set at 74 degrees Fahrenheit by the building automation system 2304. This user 216 change may indicate that there is a comfort difference in the settings. The comfort difference may be stored in the user profile of the user 216 and used in subsequent matching operations performed by the building automation system 2304 (step 2528). Among other things, the comfort difference may be used to fine-tune, or refine, the matching of settings adjustments provided herein. If no settings have been adjusted, the method 2500 ends at step 2536.

[0410] In the event that the settings have been adjusted by the user 216, and the user 216 change, or comfort difference, is stored in the user profile associated with the user 216, the method 2500 may continue by adjusting the vehicle settings to match the settings of the building automation system 2304. Similar to refining the adjustment matching provided in conjunction with the description of steps 2524 and 2528, the method 2500 may determine whether the user 216 makes any changes to the vehicle settings in response to the settings being adjusted by the vehicle 104 based on the building automation system 2304 settings stored in the user profile associated with the user. The method ends at step 2536.

[0411] Referring to Fig. 26, a block diagram of an embodiment of a vehicle control setup for at least one zone 512 of a vehicle 104 is shown. In some embodiments, the sensitivity, dimension, and even location of typical vehicle controls may be adjusted

according to a preference and/or ability of a user 216. It is anticipated that vehicle control functionality (e.g., including sensitivity, and/or placement, etc.) may be adjusted and stored with a user profile. As can be appreciated, this vehicle control functionality can follow a user 216 from one vehicle 104 to another vehicle 104.

[0412] As shown in Fig. 26, the interior space 108 of a vehicle 104 is shown having one or more controls, actuators, systems, and components, etc. For example, the vehicle 104 may include at least one feature of vehicle 104 including, but not limited to, a speed control pedal 2608, steering wheel 640, occupant seating system 648, and other features 2604, to name a few. These features may each have a feature origin 2628 connecting a positional reference datum 2632 with a feature positional reference 2636. In other words, the position of at least one of the features may be adjusted in reference to the reference datum 2632 and feature origin 2628 associated with the at least one feature. Additionally or alternatively, the feature origin 2628 of each feature may be adjusted according to one or more feature ranges 2612, 2616, 2624. The feature origin may be moved relative to a base origin 2620. At least one feature may be moved, and/or positioned, in one or more directions including, but not limited to, a forward direction 2606 (e.g., away from a user 216 in some cases), a backward direction 2610 (e.g., toward a user 216 in some cases), an upward direction 2614 (e.g., away from the base origin 2620), and/or a downward direction 2618 (e.g., toward the base origin 2620). The directions may include side-to-side positioning (e.g., leftward direction and rightward direction, with reference to a user 216 and/or the base origin 2620).

[0413] In some embodiments, at least one feature may be adjusted according to angular measurements. These angular adjustments can include an angle 2640, 2644, 2648, 2652 between at least one reference datum 2632 and the feature positional reference 2636 of the at least one feature. For example, a user 216 may have configured a vehicle 104 to include control settings having a position of a steering wheel 640 in a steering positional range 2616 and at a steering wheel angle 2648. The origin 2628 of the steering wheel 640 may be adjusted in an upward direction 2614 or downward direction 2618 to adjust a height of the steering wheel 640 in the interior space 108 of the vehicle 104. As another example, the occupant seating system 648 may be adjusted for various positions. These various positions can include a height of the occupant seating system 648 (e.g., as measured from the base origin 2620 across a seating positional range 2624), a forward/backward position, and a seating angle 2640, to name a few. As can be appreciated, the occupant seating system may include lumbar support adjustments, side-to-side settings, seat base angles,

and more. As yet another example, the position of one or more control pedals 2608 may be adjusted according to orientation and/or angle. For instance, a user 216 may have configured a vehicle 104 to include control settings having a position of the control pedal 2608 in a pedal positional range 2612 and at a pedal angle 2644. The origin 2628 of the control pedal 2608 may be adjusted in an upward direction 2614 or downward direction 2618 to adjust a height of the control pedal 2608 in the interior space 108 of the vehicle 104. Additionally or alternatively, a side-to-side position of the control pedal 2608 may be set.

[0414] In some embodiments, the feature ranges 2612, 2616, may include an operational range. For instance, the steering wheel 640 may have an angular operational range corresponding to the rotation of a steering wheel 640 about an axis. Additionally or alternatively, the control pedal 2608 may include an operational range within the control pedal range 2612. The operational range can correspond to an amount of movement of the feature 640, 2608 within the range 2612, 2616. In some embodiments, the operational range can include a sensitivity associated with the movement in the range. The sensitivity may be set to limit and/or restrict movement of the feature 640, 2608 within the operational range. It is anticipated that this restriction may be adjusted between various levels to provide greater or lesser operational force as required from a user 216.

[0415] For instance a user 216 may wish to have sensitive controls in a vehicle 104. In this example, the restriction associated with the sensitivity may be reduced from a default, or mid-level, value to allow less restrictive movement of the feature. Continuing this example, a default value of sensitivity associated with the control pedal 2608 may require 3-4 pounds of force to overcome the restriction and move the control pedal 2608 in the operational range of the feature 2608. Increasing the sensitivity may include reducing the restriction to require less than 3-4 pounds of force (e.g., 4 ounces of force, 1 pound of force, 2 pounds of force, and/or values in between these forces, etc.). In some cases (e.g., where the user 216 may have a "heavy" foot), the sensitivity of the features may be decreased from the default value (e.g., by increasing the restrictive force required to move the feature 2608). This restriction and sensitivity may apply to the steering wheel 640 and/or other features of the vehicle 104.

[0416] Other features 2604, including, but not limited to, mirrors, cameras, sensors, microphones, speakers, and/or controls/instruments may be adjusted/set in a similar, if not identical, manner to that described above.

[0417] An embodiment of a method 2700 for determining and adjusting a vehicle feature control based on user profile information is shown in Fig. 27. A general order for the steps of the method 2700 is shown in Fig. 27. Generally, the method 2700 starts with a start operation 2704 and ends with an end operation 2724. The method 2700 can include more or fewer steps or can arrange the order of the steps differently than those shown in Fig. 27. The method 2700 can be executed as a set of computer-executable instructions executed by a computer system and encoded or stored on a computer readable medium. Hereinafter, the method 2700 shall be explained with reference to the systems, components, modules, software, data structures, user interfaces, etc. described in conjunction with Figs. 1-26.

[0418] The method 2700 begins at step 2704 and proceeds by recording settings of vehicle controls, or features, in a user profile associated with the user 216 (step 2708). Recording settings may include at least one of collecting settings information and storing settings information associated with the features of a vehicle 104. In some cases, these settings may have been preset and/or configured by a user 216. In one embodiment, the settings may be predefined, or default, settings configured by a manufacturer of the vehicle 104. In some embodiments, the profile identification module 848 may be configured to perform one or more of the steps as provided herein. When recording the settings, the profile identification module 848 may communicate with one or more components of the vehicle 104 to determine a position, angle, and/or other measurement of the features of the vehicle 104 as described above in conjunction with Fig. 26.

[0419] The profile identification module 848 may communicate with the various features of the vehicle 104, including vehicle sensors 242, to determine a sensitivity associated with at least one feature (e.g., vehicle controls, etc.) of the vehicle 104 (step 2712). Sensitivity can include at least one of movement restriction, movement range, operational range, and other control related aspects of the features, as described above.

[0420] The method 2700 continues by detecting vehicle feature information stored in a user profile associated with a user 216 of the vehicle 104 (step 2716). In some embodiments, the detection of the vehicle feature setting information may be made by the profile identification module 848 detecting a user profile and reading at least one data record of the user profile, the data record containing the vehicle feature setting information. The user profile may be detected in response to identifying a user 216 as provided herein. For example, a user 216 may register with a vehicle 104. As part of the registration, the user 216 may provide access to at least a portion of the user profile

associated with the user 216 via the one or more components of the vehicle 104. The one or more components of the vehicle 104 may be configured to retrieve the vehicle feature setting information from the user profile on a periodic basis. Additionally or alternatively, the one or more components of the vehicle 104 (e.g., the profile identification module 848, etc.) may be configured to retrieve the setting information from the user profile based on detecting the presence of a user 216 (e.g., in one or more areas of a vehicle 104). The detection and/or determination of whether a user 216 is present may include one or more of the detection steps described in conjunction with step 2108. Additionally or alternatively, determining whether a user 216 is present may include determining whether the user 216 is physically inside the vehicle 104. For example, a user 216 may be determined to be present inside a vehicle 140 based on information detected by at least one image sensor, such as the camera sensors 760 of the vehicle 104.

[0421] Next, the method 2700 may proceed by adjusting the vehicle features (e.g., controls, settings, etc.) to match the settings stored in the user profile associated with the user 216 (step 2720). In some cases, the adjustments may include a scaling factor to compensate for differences between vehicle settings stored for a particular vehicle 104 and the settings of another vehicle. The vehicle features may be adjusted based on the presence of a user 216 in a vehicle 104. Presence of a user 216 may include actual physical presence, anticipated presence (e.g., expected time of arrival, based on historical data, planned presence, etc.), and/or a programmed presence (e.g., set by one or more administrative preferences, user-configured, and/or the like) in the vehicle 104. The presence of the user 216 may be determined by one or more sensors of the vehicle 104, a device 212, etc., as described above. If the user 216 is not determined to be present, or if the adjustments have been made to the features of the vehicle 104, the method 2700 ends at step 2724.

[0422] Referring now to Figs. 28 and 29, methods concerning the health of a user 216 and various outputs are provided. The methods 2800, 2900 may utilize one or more sensors to measure heart rate, weight, vital signs, etc. The measurements collected by these sensors may be used to detect heart attack, seizures, and the like associated with a user 216, and in certain situations provide action to the vehicle 104. For example, the various sensors (e.g., user interface 712, non-vehicle sensors 236, vehicle sensors 242, and/or other sensors, etc.) may communicate with the vehicle control system to stop the vehicle 104, pull over to the shoulder, notify hospitals nearby (e.g., EMS, police, fire departments, etc.). Examples of these sensors may include, but are not limited to, vehicle

sensors 242, non-vehicle sensors 236, associated device sensors 720, sensors associated with a user's device 212, 248 (e.g., cell phone, tablet, smart-phone, etc.), wearable sensors and/or devices (e.g., heart rate monitors, health monitors, Fitbit® health and/or activity sensors, oxygen level sensors, diabetes sensors, etc.), and the like.

[0423] The sensors may at least one of detect, record, and track resting heart rate, maximum heart rate, aerobic heart rate. For example, if a user's heart rate moves into a resting heart rate, the vehicle 104 may respond by altering oxygen levels, providing haptic feedback, etc. In one embodiment, health statistics, vitals, and/or other user 216 information may be sent to a third party (e.g., police, emergency responders, doctors, etc.). This example may be especially useful in the event of an accident where vital statistics are of the utmost importance in providing healthcare assistance and/or emergency aid to those involved in an accident.

[0424] An embodiment of a method 2800 for providing an output based on health information associated with a user 216 is shown in Fig. 28. A general order for the steps of the method 2800 is shown in Fig. 28. Generally, the method 2800 starts with a start operation 2804 and ends with an end operation 2824. The method 2800 can include more or fewer steps or can arrange the order of the steps differently than those shown in Fig. 28. The method 2800 can be executed as a set of computer-executable instructions executed by a computer system and encoded or stored on a computer readable medium. Hereinafter, the method 2800 shall be explained with reference to the systems, components, modules, software, data structures, user interfaces, etc. described in conjunction with Figs. 1-27.

[0425] The method 2800 begins at step 2804 and proceeds by recording data about a user 216 (step 2808). The data may include, but is not limited to, one or more health data, such as heart rate, oxygen levels, glucose levels, blood composition, weight, movement, eye dilation, eye movement, gaze direction, speech pattern, temperature, breathing rate, voluntary body movements (e.g., coughing, spitting, vomiting, etc.), involuntary bodily movements (e.g., sneezing, seizures, twitching, ticks, etc.), skin color changes (e.g., due to lack of blood, lack of oxygen, abundance of blood, sickness, etc.). In some embodiments, the health data may be stored in a user profile associated with a user 216.

[0426] Next, the method 2800 may continue by establishing baseline health levels of a user 216 associated with a vehicle 104 (step 2812). The baseline health levels may be established using the health data recorded in step 2808. Additionally or alternatively, the baseline health levels may be established by monitoring the recorded health data of a user

216 over a period of time. As can be appreciated, this recorded health data may be averaged and/or analyzed to remove statistical health outliers. In other words, if at least some of the measured data does not generally fit with previous and/or subsequent health measurements, that data may be discarded as an outlier. In one embodiment, the baseline health levels may be established by prompting a user 216 to provide baseline health levels. The vehicle 104 may present one or more prompts to a user 216 to collect the health data, while the user 216 is determined to be at a state of average health. The baseline health levels may be used by the profile identification module 848 to create a baseline biometric profile of the user 216. This baseline biometric profile may be stored in a user profile associated with the user 216.

[0427] The method 2800 may proceed by determining whether there is any deviation between the established baseline health levels of a user 216 and a current state of health associated with the user 216 (step 2816). In some embodiments, the sensors may collect health data of user 216 periodically or continually. This health data may be used to detect a state of health associated with the user 216 at any given point in time. Additionally or alternatively, the health data associated with a user 216 may be tracked during travel and/or for a length of time that the user 216 is associated with a vehicle 104.

[0428] The method 2800 continues by providing an output based at least partially on any deviation in health data determined in step 2816 (step 2820). In some cases, a graphical output of a user's health during travel may be output via the profile identification module 848. For example, a user 216 may have multiple routes to a specific location, but it may be determined that one of the routes provides a greater level of stress (e.g., based on the tracked health data) than other routes. In some embodiments, multiple routes may be provided to a user 216 (e.g., via a GPS device, navigation system, etc.) for comparison and/or selection, based on tracked health data (e.g., user stress, emotion, etc.).

[0429] In some embodiments, the output provided may adjust one or more settings of a vehicle 104. For example, the output may be configured to adjust at least one of the vehicle interior environment, temperature, air composition, oxygen level, sound level, window position, seat position, and lighting level. As another example, the output may be configured to adjust a position and/or sensitivity of features of the vehicle 104. This example may be especially useful when a user 216 has lost the ability to accurately control a portion of the user's 216 body (e.g., due to a stroke and/or seizure etc.). For instance, the sensitivity associated with a feature of the vehicle 104 may be decreased, and as such

small movements from the user 216 would not translate into large movements of the vehicle 104.

[0430] In another example, the method 2800 may provide an output that directs the vehicle control system 204 to control at least one aspect of the vehicle 104. For instance, the vehicle control system 204 may maneuver a vehicle 104 into a safe area from a potentially harmful area. In some cases, the vehicle control system 204 can shut off power to the vehicle 104, activate emergency lights, notify others, and more. The method 2800 ends at step 2824.

[0431] An embodiment of a method 2900 for providing health information associated with a user 216 to a third party is shown in Fig. 29. A general order for the steps of the method 2900 is shown in Fig. 29. Generally, the method 2900 starts with a start operation 2904 and ends with an end operation 2924. The method 2900 can include more or fewer steps or can arrange the order of the steps differently than those shown in Fig. 29. The method 2900 can be executed as a set of computer-executable instructions executed by a computer system and encoded or stored on a computer readable medium. Hereinafter, the method 2900 shall be explained with reference to the systems, components, modules, software, data structures, user interfaces, etc. described in conjunction with Figs. 1-28.

[0432] The method 2900 begins at step 2904 and proceeds by detecting an incident (step 2908). In some cases, the incident may act as a trigger to collect and/or determine health data and/or statistics associated with one or more user 216 of a vehicle 104. An incident may correspond to one or more conditions detected by the vehicle and/or non-vehicle sensors 242, 236. For instance, an impact, or collision, may be detected by the vehicle body sensors 762, orientation sensors 776, mechanical motion sensors 772, force sensors 768, and/or other safety sensors 716, 716E associated with the interior and/or exterior of the vehicle 104. Additionally or alternatively, an incident may correspond to a health condition associated with a user 216. For example, a user 216 may suffer from a heart attack in which case, the user's heart rate would deviate from established baseline levels. This deviation may qualify as an incident that can be detected by the various sensors of the vehicle 104.

[0433] Next, the method 2900 may proceed by determining the health data and/or statistics of one or more users 216 associated with the vehicle 104 (step 2912). This determination may be made in response to detecting the incident from step 2908. Similar to the health data collection described above, the health data and/or statistics may be made by the various sensors provided herein. In some embodiments, the health data may be

collected at a greater rate of speed, or sampling rate (e.g., samples per minute, samples per second, etc.), in response to detecting the incident. Additionally or alternatively, the health data may collected from the users 216 of a vehicle 104, and if no health issues are detected (e.g., over a predetermined period of measurement time) then the health data collection may return to a normal sampling rate.

[0434] The method 2900 continues by communicating with at least one third party (step 2916). The communication may include a message, text message, email, phone call, emergency signal, etc., and/or combinations thereof. In some cases, the communication may be made by the transceiver 260 of the vehicle 104. In one embodiment, the communication may be made by at least one device 212, 248 associated with a user 216 and/or a vehicle 104. For instance, the communication may be made by a mobile phone of a user 216. The third party can be a loved one, a friend, a company, a group, an emergency service (e.g., police, fire, EMS, etc.), or other entity.

[0435] The communication may include the collected health data associated with one or more users 216 of the vehicle 104 and/or an identification of the one or more users 216 (step 2920). The identification may be provided based, on device 212 identification, user 216 identification via facial recognition (e.g., as described above), and/or user 216 registration with a vehicle 104. In some embodiments, the communication may provide health data in real-time (e.g., as the health data is collected, etc.), near-real-time (e.g., as the health data is collected including any system and/or communication delays, etc.), and/or in non-real-time (e.g., after the data is collected, etc.). The method 2900 ends at step 2924.

[0436] Fig. 30 provides adjusting an infotainment system 870 based on infotainment information stored in memory. In some embodiments, the infotainment system 870 of a vehicle 104 can record and/or track infotainment information, such as a user's 216 music preferences, favorite morning show, content, genres, and/or the like. The infotainment system 870 can automatically record one or more shows based at least partially on this infotainment information. For example, the user 216 may select and consume content recorded by the infotainment system 870 at any time. The infotainment information and/or any preferences associated therewith may be stored in a user profile associated with the user 216, as disclosed herein. In another example, the infotainment system 870 may know what the user 216 has been watching in the home. In this example, if the user leaves the home to go shopping (e.g., during a football game, etc.), the infotainment system 870 may already be tuned to a station playing the football game. In some embodiments, the

infotainment system 870 may communicate with, or receive communications from, a cable provider, STB, satellite provider, or other content consumption service provider.

[0437] Continuing the example provided above, a user 216 may be watching a game, television show, listening to a radio, or consuming some other content while at home. At least one device (e.g., TV, set-top box, smart-phone, tablet, computer, etc.) associated with the user 216 may record this information to memory (e.g., locally or remotely on the cloud). In some cases this memory may be associated with a user profile of the user 216. When the user 216 moves from home to a vehicle 104, or vice versa, the infotainment system 870 may access the user profile to determine recent entertainment consumption (e.g., consumed by the user 216, etc.). The infotainment system 870 may then tune at least one infotainment component to present a source of entertainment that at least partially matches the entertainment consumption recorded in the user profile.

[0438] An embodiment of a method 3000 for determining and adjusting infotainment settings associated with an infotainment system is shown in Fig. 30. A general order for the steps of the method 3000 is shown in Fig. 30. Generally, the method 3000 starts with a start operation 3004 and ends with an end operation 3028. The method 3000 can include more or fewer steps or can arrange the order of the steps differently than those shown in Fig. 30. The method 3000 can be executed as a set of computer-executable instructions executed by a computer system and encoded or stored on a computer readable medium. Hereinafter, the method 3000 shall be explained with reference to the systems, components, modules, software, data structures, user interfaces, etc. described in conjunction with Figs. 1-29.

[0439] The method 3000 begins at step 3004 and proceeds by collecting infotainment information (step 3008). In some embodiments, the infotainment information may include infotainment settings. As provided above, the infotainment settings may include, but are not limited to, preferred radio stations, content applications, listening content, viewing content, content playback settings (e.g., volume, speed, quality, etc.), genres, content consumption habits (e.g., including listening times, associated content, trends, etc.), recording preferences, and/or the like. This infotainment information may be stored in a user profile associated with a user 216. In one embodiment, the user profile may be stored in a profile data memory 252 that can be found on a device 212, in a vehicle 104, attached to a communication network 224, on the cloud (e.g., a server 228, etc.) and/or some other location.

[0440] Next, the method 3000 may continue when user profile infotainment settings are detected (step 3012). Detecting the presence of infotainment information may be provided via the user profile reporting the infotainment information to at least one of the vehicle 104 and/or the infotainment system 870. In some embodiments, the detection of the infotainment information may be made by the infotainment system 870 detecting a user profile and reading at least one data record of the user profile, the data record containing the infotainment information. The user profile may be detected in response to identifying a user 216. For example, a user 216 may register with an infotainment system 870. As part of the registration, the user 216 may provide access to at least a portion of the user profile associated with the user 216 via the infotainment system 870. The infotainment system 870 may be configured to retrieve the setting information from the user profile on a periodic basis. Additionally or alternatively, the infotainment system 870 may be configured to retrieve the setting information from the user profile based on detecting the presence of a user 216 (e.g., in one or more areas of a building and/or a vehicle 104).

[0441] The method 3000 may continue by detecting an available infotainment system 870 (step 3016). In some embodiments the infotainment system 870 may be associated with a vehicle 104, a home, a building, or other location. For example, a profile identification module can detect one or more infotainment system 870 that has been registered with a device 212 and/or user 216. The vehicle 104 may detect an available infotainment system 870 based on a communication with across a bus 356 or communication network 224. The detection of an available infotainment system 870 may be provided via device discovery on a network (e.g., wired and/or wireless). Additionally or alternatively, the detection may include determining a configuration of the infotainment system 870. Configurations may include settings, preferences, content, tuners, power state, associated users 216 and/or devices 212, 248, access priorities, and/or the like.

[0442] The method 3000 proceeds by using the collected and/or stored infotainment information to adjust settings based on the infotainment information (step 3020). For instance, the infotainment system 870 can alter at least one setting of one or more components of the infotainment system 870 to match information stored in the user profile associated with a user 216. In other words, the settings of an infotainment system 870 may be adjusted to match the settings of an infotainment system of a building, another vehicle 104, or other device 212 associated with a user 216.

[0443] In some cases, the adjustment of one or more settings associated with the infotainment system 870 may be allowed, denied, and/or limited based on one or more

access priorities. Users 216 may have an access priority assigned by the infotainment system 870. High access priorities have precedence to access of the infotainment system 870 over lower access priorities. For example, a parent may have a high access priority (e.g., AP1), and a child may have a lower access priority (e.g., AP3) when compared to the parent's access priority. In the event that an access conflict arises (e.g., where the child wishes to play music via the infotainment system 870 while the parent is currently playing content via the infotainment system 870, the access priority serves to deny access to the child (e.g., because the parent's access priority is greater than, or a higher priority, than the child's access priority). In determining the ability to adjust infotainment settings, the access priorities may be compared by the infotainment system 870.

[0444] The method 3000 continues by determining whether the infotainment system 870 is online or offline (step 3000). An infotainment system 870 may be turned off, or may have no communications ability in which case, the infotainment system 870 would be determined to be offline. The determination may be made by the vehicle control system 204, media subsystems 348, a device 212, 248, and/or other systems of the vehicle 104. If it is determined that the infotainment system 870 is online, or not offline, the method 3000 may continue at step 3008 by continuing to collect infotainment information for the user profile associated with a user 216. In the event that the infotainment system 870 is determined to be offline, the method 3000 ends at step 3028.

[0445] It should be appreciated that the user profiles as described herein can be associated with a single user 216. In some embodiments, each user profile may be unique to the user 216 with whom the user profile is associated. Additionally or alternatively, one or more user profiles associated with one or more users 216 may be stored in a profile data memory 252. In some cases, the one or more user profiles may be stored in the profile data memory separately from one another. In other words, the one or more user profiles may be stored according to an identification of a unique user 216 associated with each user profile.

[0446] The exemplary systems and methods of this disclosure have been described in relation to configurable vehicle consoles and associated devices. However, to avoid unnecessarily obscuring the present disclosure, the preceding description omits a number of known structures and devices. This omission is not to be construed as a limitation of the scopes of the claims. Specific details are set forth to provide an understanding of the present disclosure. It should however be appreciated that the present disclosure may be practiced in a variety of ways beyond the specific detail set forth herein.

[0447] Furthermore, while the exemplary aspects, embodiments, options, and/or configurations illustrated herein show the various components of the system collocated, certain components of the system can be located remotely, at distant portions of a distributed network, such as a LAN and/or the Internet, or within a dedicated system. Thus, it should be appreciated, that the components of the system can be combined in to one or more devices, such as a Personal Computer (PC), laptop, netbook, smart phone, Personal Digital Assistant (PDA), tablet, etc., or collocated on a particular node of a distributed network, such as an analog and/or digital telecommunications network, a packet-switch network, or a circuit-switched network. It will be appreciated from the preceding description, and for reasons of computational efficiency, that the components of the system can be arranged at any location within a distributed network of components without affecting the operation of the system. For example, the various components can be located in a switch such as a PBX and media server, gateway, in one or more communications devices, at one or more users' premises, or some combination thereof. Similarly, one or more functional portions of the system could be distributed between a telecommunications device(s) and an associated computing device.

[0448] Furthermore, it should be appreciated that the various links connecting the elements can be wired or wireless links, or any combination thereof, or any other known or later developed element(s) that is capable of supplying and/or communicating data to and from the connected elements. These wired or wireless links can also be secure links and may be capable of communicating encrypted information. Transmission media used as links, for example, can be any suitable carrier for electrical signals, including coaxial cables, copper wire and fiber optics, and may take the form of acoustic or light waves, such as those generated during radio-wave and infra-red data communications.

[0449] Also, while the flowcharts have been discussed and illustrated in relation to a particular sequence of events, it should be appreciated that changes, additions, and omissions to this sequence can occur without materially affecting the operation of the disclosed embodiments, configuration, and aspects.

[0450] A number of variations and modifications of the disclosure can be used. It would be possible to provide for some features of the disclosure without providing others.

[0451] It should be appreciated that the various processing modules (e.g., processors, vehicle systems, vehicle subsystems, modules, etc.), for example, can perform, monitor, and/or control critical and non-critical tasks, functions, and operations, such as interaction with and/or monitoring and/or control of critical and non-critical on board sensors and

vehicle operations (e.g., engine, transmission, throttle, brake power assist/ brake lock-up, electronic suspension, traction and stability control, parallel parking assistance, occupant protection systems, power steering assistance, self-diagnostics, event data recorders, steer-by-wire and/or brake-by-wire operations, vehicle-to-vehicle interactions, vehicle-to-infrastructure interactions, partial and/or full automation, telematics, navigation/SPS, multimedia systems, audio systems, rear seat entertainment systems, game consoles, tuners (SDR), heads-up display, night vision, lane departure warning, adaptive cruise control, adaptive headlights, collision warning, blind spot sensors, park/reverse assistance, tire pressure monitoring, traffic signal recognition, vehicle tracking (e.g., LoJack™), dashboard/instrument cluster, lights, seats, climate control, voice recognition, remote keyless entry, security alarm systems, and wiper/window control). Processing modules can be enclosed in an advanced EMI-shielded enclosure containing multiple expansion modules. Processing modules can have a "black box" or flight data recorder technology, containing an event (or driving history) recorder (containing operational information collected from vehicle on board sensors and provided by nearby or roadside signal transmitters), a crash survivable memory unit, an integrated controller and circuitry board, and network interfaces.

[0452] Critical system controller(s) can control, monitor, and/or operate critical systems. Critical systems may include one or more of (depending on the particular vehicle) monitoring, controlling, operating the ECU, TCU, door settings, window settings, blind spot monitor, monitoring, controlling, operating the safety equipment (e.g., airbag deployment control unit, collision sensor, nearby object sensing system, seat belt control unit, sensors for setting the seat belt, etc.), monitoring and/or controlling certain critical sensors such as the power source controller and energy output sensor, engine temperature, oil pressure sensing, hydraulic pressure sensors, sensors for headlight and other lights (e.g., emergency light, brake light, parking light, fog light, interior or passenger compartment light, and/or tail light state (on or off)), vehicle control system sensors, wireless network sensor (e.g., Wi-Fi and/or Bluetooth sensors, etc.), cellular data sensor, and/or steering/torque sensor, controlling the operation of the engine (e.g., ignition, etc.), head light control unit, power steering, display panel, switch state control unit, power control unit, and/or brake control unit, and/or issuing alerts to a user and/or remote monitoring entity of potential problems with a vehicle operation.

[0453] Non-critical system controller(s) can control, monitor, and/or operate non-critical systems. Non-critical systems may include one or more of (depending on the particular

vehicle) monitoring, controlling, operating a non-critical system, emissions control, seating system controller and sensor, infotainment/entertainment system, monitoring certain non-critical sensors such as ambient (outdoor) weather readings (e.g., temperature, precipitation, wind speed, and the like), odometer reading sensor, trip mileage reading sensor, road condition sensors (e.g., wet, icy, etc.), radar transmitter/receiver output, brake wear sensor, oxygen sensor, ambient lighting sensor, vision system sensor, ranging sensor, parking sensor, heating, venting, and air conditioning (HVAC) system and sensor, water sensor, air-fuel ratio meter, hall effect sensor, microphone, radio frequency (RF) sensor, and/or infrared (IR) sensor.

[0454] It is an aspect of the present disclosure that one or more of the non-critical components and/or systems provided herein may become critical components and/or systems, and/or vice versa, depending on a context associated with the vehicle.

[0455] Optionally, the systems and methods of this disclosure can be implemented in conjunction with a special purpose computer, a programmed microprocessor or microcontroller and peripheral integrated circuit element(s), an ASIC or other integrated circuit, a digital signal processor, a hard-wired electronic or logic circuit such as discrete element circuit, a programmable logic device or gate array such as PLD, PLA, FPGA, PAL, special purpose computer, any comparable means, or the like. In general, any device(s) or means capable of implementing the methodology illustrated herein can be used to implement the various aspects of this disclosure. Exemplary hardware that can be used for the disclosed embodiments, configurations and aspects includes computers, handheld devices, telephones (e.g., cellular, Internet enabled, digital, analog, hybrids, and others), and other hardware known in the art. Some of these devices include processors (e.g., a single or multiple microprocessors), memory, nonvolatile storage, input devices, and output devices. Furthermore, alternative software implementations including, but not limited to, distributed processing or component/object distributed processing, parallel processing, or virtual machine processing can also be constructed to implement the methods described herein.

[0456] In yet another embodiment, the disclosed methods may be readily implemented in conjunction with software using object or object-oriented software development environments that provide portable source code that can be used on a variety of computer or workstation platforms. Alternatively, the disclosed system may be implemented partially or fully in hardware using standard logic circuits or VLSI design. Whether software or hardware is used to implement the systems in accordance with this disclosure

is dependent on the speed and/or efficiency requirements of the system, the particular function, and the particular software or hardware systems or microprocessor or microcomputer systems being utilized.

[0457] In yet another embodiment, the disclosed methods may be partially implemented in software that can be stored on a storage medium, executed on programmed general-purpose computer with the cooperation of a controller and memory, a special purpose computer, a microprocessor, or the like. In these instances, the systems and methods of this disclosure can be implemented as program embedded on personal computer such as an applet, JAVA® or CGI script, as a resource residing on a server or computer workstation, as a routine embedded in a dedicated measurement system, system component, or the like. The system can also be implemented by physically incorporating the system and/or method into a software and/or hardware system.

[0458] Although the present disclosure describes components and functions implemented in the aspects, embodiments, and/or configurations with reference to particular standards and protocols, the aspects, embodiments, and/or configurations are not limited to such standards and protocols. Other similar standards and protocols not mentioned herein are in existence and are considered to be included in the present disclosure. Moreover, the standards and protocols mentioned herein and other similar standards and protocols not mentioned herein are periodically superseded by faster or more effective equivalents having essentially the same functions. Such replacement standards and protocols having the same functions are considered equivalents included in the present disclosure.

[0459] The present disclosure, in various aspects, embodiments, and/or configurations, includes components, methods, processes, systems and/or apparatus substantially as depicted and described herein, including various aspects, embodiments, configurations embodiments, subcombinations, and/or subsets thereof. Those of skill in the art will understand how to make and use the disclosed aspects, embodiments, and/or configurations after understanding the present disclosure. The present disclosure, in various aspects, embodiments, and/or configurations, includes providing devices and processes in the absence of items not depicted and/or described herein or in various aspects, embodiments, and/or configurations hereof, including in the absence of such items as may have been used in previous devices or processes, e.g., for improving performance, achieving ease and\or reducing cost of implementation.

[0460] The foregoing discussion has been presented for purposes of illustration and description. The foregoing is not intended to limit the disclosure to the form or forms disclosed herein. In the foregoing Detailed Description for example, various features of the disclosure are grouped together in one or more aspects, embodiments, and/or configurations for the purpose of streamlining the disclosure. The features of the aspects, embodiments, and/or configurations of the disclosure may be combined in alternate aspects, embodiments, and/or configurations other than those discussed above. This method of disclosure is not to be interpreted as reflecting an intention that the claims require more features than are expressly recited in each claim. Rather, as the following claims reflect, inventive aspects lie in less than all features of a single foregoing disclosed aspect, embodiment, and/or configuration. Thus, the following claims are hereby incorporated into this Detailed Description, with each claim standing on its own as a separate preferred embodiment of the disclosure.

[0461] Moreover, though the description has included description of one or more aspects, embodiments, and/or configurations and certain variations and modifications, other variations, combinations, and modifications are within the scope of the disclosure, e.g., as may be within the skill and knowledge of those in the art, after understanding the present disclosure. It is intended to obtain rights which include alternative aspects, embodiments, and/or configurations to the extent permitted, including alternate, interchangeable and/or equivalent structures, functions, ranges or steps to those claimed, whether or not such alternate, interchangeable and/or equivalent structures, functions, ranges or steps are disclosed herein, and without intending to publicly dedicate any patentable subject matter.

[0462] This application is also related to PCT Patent Application Nos. PCT/US14/_____, filed on April 15, 2014, entitled, "Building Profiles Associated with Vehicle Users" (Attorney Docket No. 6583-543-PCT); PCT/US14/_____, filed on April 15, 2014, entitled "Access and Portability of User Profiles Stored as Templates" (Attorney Docket No. 6583-544-PCT); PCT/US14/_____, filed on April 15, 2014, entitled "User Interface and Virtual Personality Presentation Based on User Profile" (Attorney Docket No. 6583-547-PCT); PCT/US14/_____, filed on April 15, 2014, entitled "Creating Targeted Advertising Profiles Based on User Behavior" (Attorney Docket No. 6583-549-PCT); PCT/US14/_____, filed on April 15, 2014, entitled "Behavior Modification via Altered Map Routes Based on User Profile Information" (Attorney Docket No. 6583-550-PCT); PCT/US14/_____, filed on April 15, 2014, entitled "Vehicle Location-Based Home

Automation Triggers" (Attorney Docket No. 6583-556-PCT); PCT/US14/_____, filed on April 15, 2014, entitled "Vehicle Initiated Communications with Third Parties via Virtual Personalities" (Attorney Docket No. 6583-559-PCT); PCT/US14/_____, filed on April 15, 2014, entitled "Vehicle Intruder Alert Detection and Indication" (Attorney Docket No. 6583-562-PCT); PCT/US14/_____, filed on April 15, 2014, entitled "Driver Facts Behavior Information Storage System" (Attorney Docket No. 6583-565-PCT); PCT/US14/_____, filed on April 15, 2014, entitled "Synchronization Between Vehicle and User Device Calendar" (Attorney Docket No. 6583-567-PCT); PCT/US14/_____, filed on April 15, 2014, entitled "User Gesture Control of Vehicle Features" (Attorney Docket No. 6583-569-PCT); PCT/US14/_____, filed on April 15, 2014, entitled "Central Network for the Automated Control of Vehicular Traffic" (Attorney Docket No. 6583-574-PCT); and PCT/US14/_____, filed on April 15, 2014, entitled "Vehicle-Based Multimode Discovery" (Attorney Docket No. 6583-585-PCT). The entire disclosures of the applications listed above are hereby incorporated by reference, in their entirety, for all that they teach and for all purposes.

[0463] Examples of the processors as described herein may include, but are not limited to, at least one of Qualcomm® Snapdragon® 800 and 801, Qualcomm® Snapdragon® 610 and 615 with 4G LTE Integration and 64-bit computing, Apple® A7 processor with 64-bit architecture, Apple® M7 motion coprocessors, Samsung® Exynos® series, the Intel® Core™ family of processors, the Intel® Xeon® family of processors, the Intel® Atom™ family of processors, the Intel Itanium® family of processors, Intel® Core® i5-4670K and i7-4770K 22nm Haswell, Intel® Core® i5-3570K 22nm Ivy Bridge, the AMD® FX™ family of processors, AMD® FX-4300, FX-6300, and FX-8350 32nm Vishera, AMD® Kaveri processors, Texas Instruments® Jacinto C6000™ automotive infotainment processors, Texas Instruments® OMAP™ automotive-grade mobile processors, ARM® Cortex™-M processors, ARM® Cortex-A and ARM926EJ-S™ processors, other industry-equivalent processors, and may perform computational functions using any known or future-developed standard, instruction set, libraries, and/or architecture.

What is claimed is:

1. A method, comprising:

determining a location inside a vehicle associated with a user;

determining at least one vehicle control associated with the location inside the vehicle;

referring to a user profile memory associated with the user for vehicle control settings; and

determining, based at least partially on the vehicle control settings, to adjust the at least one vehicle control associated with the location inside the vehicle.

2. The method of claim 1, further comprising:

providing an adjustment output to a vehicle control system, wherein the vehicle control system is adapted to control the at least one vehicle control associated with the location inside the vehicle.

3. The method of claim 2, wherein prior to providing the adjustment output, the method further comprises:

determining a presence of the user inside the vehicle, wherein the adjustment output is provided based at least partially on determining the user is present in the location of the vehicle.

4. The method of claim 1, wherein prior to determining the location inside the vehicle associated with the user the method further comprises:

storing, in the user profile memory, information corresponding to locations inside the vehicle occupied by the user;

collecting vehicle control setting data associated with the user, wherein the vehicle control setting data includes at least one vehicle control setting made by the user in at least one of the locations inside the vehicle; and

storing the vehicle control setting data in the user profile memory.

5. The method of claim 1, wherein the at least one vehicle control includes one or more vehicle features such as a seat system, a steering control, a foot pedal control, a mirror position, and a display device.

6. The method of claim 5, wherein the vehicle control settings include at least one of a position, a sensitivity, an angle, and a movement, associated with the one or more vehicle features.

7. The method of claim 3, wherein determining the presence of the user inside the vehicle further comprises:

detecting a person via at least one image sensor associated with the vehicle;

identifying facial features associated with the person detected via the at least one image sensor; and

determining whether the identified facial features associated with the person match user characteristics stored in a memory.

8. The method of claim 3, wherein determining the presence of the user inside the vehicle further comprises:

detecting a device associated with the user in an area of the vehicle.

9. The method of claim 2, further comprising:

determining that the user made a change to the adjusted at least one vehicle control; and

storing the change made to the adjusted at least one vehicle control in the user profile memory.

10. The method of claim 2, wherein the at least one vehicle control is adjusted via the adjustment output to match the vehicle control settings in the user profile memory.

11. A non-transitory computer readable medium having instructions stored thereon that, when executed by a processor, perform a method comprising:

determining a location inside a vehicle associated with a user;

determining at least one vehicle control associated with the location inside the vehicle;

referring to a user profile memory associated with the user for vehicle control settings; and

determining, based at least partially on the vehicle control settings, to adjust the at least one vehicle control associated with the location inside the vehicle.

12. The non-transitory computer readable medium of claim 11, wherein the method further comprises:

providing an adjustment output to a vehicle control system, wherein the vehicle control system is adapted to control the at least one vehicle control associated with the location inside the vehicle.

13. The non-transitory computer readable medium of claim 12, wherein prior to providing the adjustment output, the method further comprises:

determining a presence of the user inside the vehicle, wherein the adjustment output is provided based at least partially on determining the user is present in the location of the vehicle.

14. The non-transitory computer readable medium of claim 11, wherein prior to determining the location inside the vehicle associated with the user the method further comprises:

storing, in the user profile memory, information corresponding to locations inside the vehicle occupied by the user;

collecting vehicle control setting data associated with the user, wherein the vehicle control setting data includes at least one vehicle control setting made by the user in at least one of the locations inside the vehicle; and

storing the vehicle control setting data in the user profile memory.

15. The non-transitory computer readable medium of claim 11, wherein the at least one vehicle control includes one or more vehicle features such as a seat system, a steering control, a foot pedal control, a mirror position, and a display device, and wherein the vehicle control settings include at least one of a position, a sensitivity, an angle, and a movement, associated with the one or more vehicle features.

16. The non-transitory computer readable medium of claim 13, wherein determining the presence of the user inside the vehicle further comprises:

detecting a person via at least one image sensor associated with the vehicle;

identifying facial features associated with the person detected via the at least one image sensor; and

determining whether the identified facial features associated with the person match user characteristics stored in a memory.

17. The non-transitory computer readable medium of claim 12, wherein the method further comprises:

determining that the user made a change to the adjusted at least one vehicle control; and

storing the change made to the adjusted at least one vehicle control in the user profile memory.

18. The non-transitory computer readable medium of claim 12, wherein the at least one vehicle control is adjusted via the adjustment output to match the vehicle control settings in the user profile memory.

19. A vehicle control system, comprising:

a profile identification module contained in a memory and executed by a processor of the vehicle control system, the profile identification module configured to determine a location inside a vehicle associated with a user, determine at least one vehicle control associated with the location inside the vehicle, refer to a user profile memory associated with the user for vehicle control settings, and determine, based at least partially on the vehicle control settings, to adjust the at least one vehicle control associated with the location inside the vehicle.

20. The system of claim 19, wherein the profile identification module is further configured to provide an adjustment output to the vehicle control system, wherein the vehicle control system is adapted to control the at least one vehicle control associated with the location inside the vehicle.

ABSTRACT

Methods and systems for a complete vehicle ecosystem are provided. Specifically, systems that when taken alone, or together, provide an individual or group of individuals with an intuitive and comfortable vehicular environment. The present disclosure includes a system that provides various outputs based on a user profile and determined context. An output provided by the present disclosure can change a configuration of a vehicle, device, building, and/or a system associated with the user profile. The configurations can include comfort and interface settings that can be adjusted based on the user profile information. Further, the user profiles can track health data related to the user and make adjustments to the configuration to assist the health of the user.

Electronic Patent Application Fee Transmittal

Application Number:	
Filing Date:	
Title of Invention:	CUSTOMIZATION OF VEHICLE CONTROLS AND SETTINGS BASED ON USER PROFILE DATA
First Named Inventor/Applicant Name:	Christopher P. Ricci
Filer:	Thaine Lennox-Gentle/Kathy Johnston
Attorney Docket Number:	6583-561

Filed as Large Entity

Utility under 35 USC 111(a) Filing Fees

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Basic Filing:				
Utility application filing	1011	1	280	280
Utility Search Fee	1111	1	600	600
Utility Examination Fee	1311	1	720	720
Pages:				
Utility Appl Size fee per 50 sheets >100	1081	1	400	400
Claims:				
Miscellaneous-Filing:				
Late Filing Fee for Oath or Declaration	1051	1	140	140

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				
Extension-of-Time:				
Miscellaneous:				
		Total in USD ($)		**2140**

Electronic Acknowledgement Receipt

EFS ID:	18759687
Application Number:	14253204
International Application Number:	
Confirmation Number:	7690
Title of Invention:	CUSTOMIZATION OF VEHICLE CONTROLS AND SETTINGS BASED ON USER PROFILE DATA
First Named Inventor/Applicant Name:	Christopher P. Ricci
Customer Number:	111285
Filer:	Thaine Lennox-Gentle/Kathy Johnston
Filer Authorized By:	Thaine Lennox-Gentle
Attorney Docket Number:	6583-561
Receipt Date:	15-APR-2014
Filing Date:	
Time Stamp:	15:07:05
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	Deposit Account
Payment was successfully received in RAM	$2140
RAM confirmation Number	1398
Deposit Account	191970
Authorized User	

The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows:

Charge any Additional Fees required under 37 C.F.R. Section 1.16 (National application filing, search, and examination fees)

Charge any Additional Fees required under 37 C.F.R. Section 1.17 (Patent application and reexamination processing fees)

Charge any Additional Fees required under 37 C.F.R. Section 1.19 (Document supply fees) Charge any Additional Fees required under 37 C.F.R. Section 1.20 (Post Issuance fees) Charge any Additional Fees required under 37 C.F.R. Section 1.21 (Miscellaneous fees and charges)	

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Application Data Sheet	6583-561_ADS.pdf	1565889 1d2d19539d24fcf317442e23f114ae6074913b43	no	7
Warnings:					
Information:					
2	Drawings-only black and white line drawings	FIGURES_6583-561_FINAL.pdf	312911 772638f1cc20ab01d3e0cebffef4b31586bf4d39	no	41
Warnings:					
Information:					
3		APPLICATION_6583-561_FINAL.pdf	774587 f56468edbfc412fc2659f0e5f5c377c86cd0e1e5	yes	136

Multipart Description/PDF files in .zip description		
Document Description	**Start**	**End**
Specification	1	131
Claims	132	135
Abstract	136	136

Warnings:					
Information:					
4	Fee Worksheet (SB06)	fee-info.pdf	38238 e26a0c48f8481ee0bfc5cf9249978d026a288c9f	no	2
Warnings:					
Information:					
		Total Files Size (in bytes):	2691625		

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111

If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NUMBER	FILING or 371(c) DATE	GRP ART UNIT	FIL FEE REC'D	ATTY.DOCKET.NO	TOT CLAIMS	IND CLAIMS
14/253,204	04/15/2014	2835	2140	6583-561	20	3

CONFIRMATION NO. 7690

111285
Sheridan Ross P.C.
1560 Broadway
Suite 1200
Denver, CO 80202

FILING RECEIPT

OC000000068196314

Date Mailed: 05/05/2014

Receipt is acknowledged of this non-provisional patent application. The application will be taken up for examination in due course. Applicant will be notified as to the results of the examination. Any correspondence concerning the application must include the following identification information: the U.S. APPLICATION NUMBER, FILING DATE, NAME OF APPLICANT, and TITLE OF INVENTION. Fees transmitted by check or draft are subject to collection. Please verify the accuracy of the data presented on this receipt. **If an error is noted on this Filing Receipt, please submit a written request for a Filing Receipt Correction. Please provide a copy of this Filing Receipt with the changes noted thereon. If you received a "Notice to File Missing Parts" for this application, please submit any corrections to this Filing Receipt with your reply to the Notice. When the USPTO processes the reply to the Notice, the USPTO will generate another Filing Receipt incorporating the requested corrections**

Inventor(s)

Christopher P. Ricci, Saratoga, CA;

Applicant(s)

Flextronics AP, LLC, San Jose, CA

Assignment For Published Patent Application

Flextronics AP, LLC, San Jose, CA

Power of Attorney: None

Domestic Priority data as claimed by applicant

This appln claims benefit of 61/811,981 04/15/2013
and claims benefit of 61/865,954 08/14/2013
and claims benefit of 61/870,698 08/27/2013
and claims benefit of 61/891,217 10/15/2013
and claims benefit of 61/904,205 11/14/2013
and claims benefit of 61/924,572 01/07/2014
and claims benefit of 61/926,749 01/13/2014

Foreign Applications for which priority is claimed (You may be eligible to benefit from the **Patent Prosecution Highway** program at the USPTO. Please see http://www.uspto.gov for more information.) - None.
Foreign application information must be provided in an Application Data Sheet in order to constitute a claim to foreign priority. See 37 CFR 1.55 and 1.76.

Permission to Access - A proper **Authorization to Permit Access to Application by Participating Offices** (PTO/SB/39 or its equivalent) has been received by the USPTO.

If Required, Foreign Filing License Granted: 05/01/2014

The country code and number of your priority application, to be used for filing abroad under the Paris Convention, is **US 14/253,204**

Projected Publication Date: 10/16/2014

Non-Publication Request: No

Early Publication Request: No
Title

CUSTOMIZATION OF VEHICLE CONTROLS AND SETTINGS BASED ON USER PROFILE DATA

Preliminary Class

361

Statement under 37 CFR 1.55 or 1.78 for AIA (First Inventor to File) Transition Applications: No

PROTECTING YOUR INVENTION OUTSIDE THE UNITED STATES

Since the rights granted by a U.S. patent extend only throughout the territory of the United States and have no effect in a foreign country, an inventor who wishes patent protection in another country must apply for a patent in a specific country or in regional patent offices. Applicants may wish to consider the filing of an international application under the Patent Cooperation Treaty (PCT). An international (PCT) application generally has the same effect as a regular national patent application in each PCT-member country. The PCT process **simplifies** the filing of patent applications on the same invention in member countries, but **does not result** in a grant of "an international patent" and does not eliminate the need of applicants to file additional documents and fees in countries where patent protection is desired.

Almost every country has its own patent law, and a person desiring a patent in a particular country must make an application for patent in that country in accordance with its particular laws. Since the laws of many countries differ in various respects from the patent law of the United States, applicants are advised to seek guidance from specific foreign countries to ensure that patent rights are not lost prematurely.

Applicants also are advised that in the case of inventions made in the United States, the Director of the USPTO must issue a license before applicants can apply for a patent in a foreign country. The filing of a U.S. patent application serves as a request for a foreign filing license. The application's filing receipt contains further information and guidance as to the status of applicant's license for foreign filing.

Applicants may wish to consult the USPTO booklet, "General Information Concerning Patents" (specifically, the section entitled "Treaties and Foreign Patents") for more information on timeframes and deadlines for filing foreign patent applications. The guide is available either by contacting the USPTO Contact Center at 800-786-9199, or it can be viewed on the USPTO website at http://www.uspto.gov/web/offices/pac/doc/general/index.html.

For information on preventing theft of your intellectual property (patents, trademarks and copyrights), you may wish to consult the U.S. Government website, http://www.stopfakes.gov. Part of a Department of Commerce initiative, this website includes self-help "toolkits" giving innovators guidance on how to protect intellectual property in specific countries such as China, Korea and Mexico. For questions regarding patent enforcement issues, applicants may call the U.S. Government hotline at 1-866-999-HALT (1-866-999-4258).

LICENSE FOR FOREIGN FILING UNDER

Title 35, United States Code, Section 184

Title 37, Code of Federal Regulations, 5.11 & 5.15

GRANTED

The applicant has been granted a license under 35 U.S.C. 184, if the phrase "IF REQUIRED, FOREIGN FILING LICENSE GRANTED" followed by a date appears on this form. Such licenses are issued in all applications where the conditions for issuance of a license have been met, regardless of whether or not a license may be required as set forth in 37 CFR 5.15. The scope and limitations of this license are set forth in 37 CFR 5.15(a) unless an earlier license has been issued under 37 CFR 5.15(b). The license is subject to revocation upon written notification. The date indicated is the effective date of the license, unless an earlier license of similar scope has been granted under 37 CFR 5.13 or 5.14.

This license is to be retained by the licensee and may be used at any time on or after the effective date thereof unless it is revoked. This license is automatically transferred to any related applications(s) filed under 37 CFR 1.53(d). This license is not retroactive.

The grant of a license does not in any way lessen the responsibility of a licensee for the security of the subject matter as imposed by any Government contract or the provisions of existing laws relating to espionage and the national security or the export of technical data. Licensees should apprise themselves of current regulations especially with respect to certain countries, of other agencies, particularly the Office of Defense Trade Controls, Department of State (with respect to Arms, Munitions and Implements of War (22 CFR 121-128)); the Bureau of Industry and Security, Department of Commerce (15 CFR parts 730-774); the Office of Foreign AssetsControl, Department of Treasury (31 CFR Parts 500+) and the Department of Energy.

NOT GRANTED

No license under 35 U.S.C. 184 has been granted at this time, if the phrase "IF REQUIRED, FOREIGN FILING LICENSE GRANTED" DOES NOT appear on this form. Applicant may still petition for a license under 37 CFR 5.12, if a license is desired before the expiration of 6 months from the filing date of the application. If 6 months has lapsed from the filing date of this application and the licensee has not received any indication of a secrecy order under 35 U.S.C. 181, the licensee may foreign file the application pursuant to 37 CFR 5.15(b).

SelectUSA

The United States represents the largest, most dynamic marketplace in the world and is an unparalleled location for business investment, innovation, and commercialization of new technologies. The U.S. offers tremendous resources and advantages for those who invest and manufacture goods here. Through SelectUSA, our nation works to promote and facilitate business investment. SelectUSA provides information assistance to the international investor community; serves as an ombudsman for existing and potential investors; advocates on behalf of U.S. cities, states, and regions competing for global investment; and counsels U.S. economic development organizations on investment attraction best practices. To learn more about why the United States is the best country in the world to develop technology, manufacture products, deliver services, and grow your business, visit http://www.SelectUSA.gov or call +1-202-482-6800.

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
14/253,204	04/15/2014	Christopher P. Ricci	6583-561

CONFIRMATION NO. 7690

111285
Sheridan Ross P.C.
1560 Broadway
Suite 1200
Denver, CO 80202

NOTICE

Date Mailed: 05/05/2014

INFORMATIONAL NOTICE TO APPLICANT

Applicant is notified that the above-identified application contains the deficiencies noted below. No period for reply is set forth in this notice for correction of these deficiencies. However, if a deficiency relates to the inventor's oath or declaration, the applicant must file an oath or declaration in compliance with 37 CFR 1.63, or a substitute statement in compliance with 37 CFR 1.64, executed by or with respect to each actual inventor no later than the expiration of the time period set in the "Notice of Allowability" to avoid abandonment. See 37 CFR 1.53(f).

The item(s) indicated below are also required and should be submitted with any reply to this notice to avoid further processing delays.

- A properly executed inventor's oath or declaration has not been received for the following inventor(s):
  Christopher P. Ricci

PATENT APPLICATION FEE DETERMINATION RECORD

Substitute for Form PTO-875

Application or Docket Number: 14/253,204

APPLICATION AS FILED - PART I

FOR	(Column 1) NUMBER FILED	(Column 2) NUMBER EXTRA	SMALL ENTITY RATE($)	SMALL ENTITY FEE($)	OR	OTHER THAN SMALL ENTITY RATE($)	OTHER THAN SMALL ENTITY FEE($)
BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A	N/A			N/A	280
SEARCH FEE (37 CFR 1.16(k), (i), or (m))	N/A	N/A	N/A			N/A	600
EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A	N/A			N/A	720
TOTAL CLAIMS (37 CFR 1.16(i))	20 minus 20 =	*			OR	x 80 =	0.00
INDEPENDENT CLAIMS (37 CFR 1.16(h))	3 minus 3 =	*				x 420 =	0.00
APPLICATION SIZE FEE (37 CFR 1.16(s))	If the specification and drawings exceed 100 sheets of paper, the application size fee due is $310 ($155 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).						400
MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))							0.00
* If the difference in column 1 is less than zero, enter "0" in column 2.			TOTAL			TOTAL	2000

APPLICATION AS AMENDED - PART II

		(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	SMALL ENTITY RATE($)	SMALL ENTITY ADDITIONAL FEE($)	OR	OTHER THAN SMALL ENTITY RATE($)	OTHER THAN SMALL ENTITY ADDITIONAL FEE($)
AMENDMENT A	Total (37 CFR 1.16(i))	*	Minus	**	=	x =		OR	x =	
	Independent (37 CFR 1.16(h))	*	Minus	***	=	x =		OR	x =	
	Application Size Fee (37 CFR 1.16(s))									
	FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							OR		
						TOTAL ADD'L FEE		OR	TOTAL ADD'L FEE	

		(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	SMALL ENTITY RATE($)	SMALL ENTITY ADDITIONAL FEE($)	OR	OTHER THAN SMALL ENTITY RATE($)	OTHER THAN SMALL ENTITY ADDITIONAL FEE($)
AMENDMENT B	Total (37 CFR 1.16(i))	*	Minus	**	=	x =		OR	x =	
	Independent (37 CFR 1.16(h))	*	Minus	***	=	x =		OR	x =	
	Application Size Fee (37 CFR 1.16(s))									
	FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							OR		
						TOTAL ADD'L FEE		OR	TOTAL ADD'L FEE	

* If the entry in column 1 is less than the entry in column 2, write "0" in column 3.
** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20".
*** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3".
The "Highest Number Previously Paid For" (Total or Independent) is the highest found in the appropriate box in column 1.

To: flexpatents@sheridanross.com,,
From: PAIR_eOfficeAction@uspto.gov
Cc: PAIR_eOfficeAction@uspto.gov
Subject: Private PAIR Correspondence Notification for Customer Number 111285

May 05, 2014 05:28:24 AM

Dear PAIR Customer:

Sheridan Ross P.C.
1560 Broadway
Suite 1200
Denver, CO 80202
UNITED STATES

The following USPTO patent application(s) associated with your Customer Number, 111285 , have new outgoing correspondence. This correspondence is now available for viewing in Private PAIR.

The official date of notification of the outgoing correspondence will be indicated on the form PTOL-90 accompanying the correspondence.

Disclaimer:
The list of documents shown below is provided as a courtesy and is not part of the official file wrapper. The content of the images shown in PAIR is the official record.

Application	Document	Mailroom Date	Attorney Docket No.
14253204	APP.FILE.REC	05/05/2014	6583-561
	M327	05/05/2014	6583-561

To view your correspondence online or update your email addresses, please visit us anytime at https://sportal.uspto.gov/secure/myportal/privatepair.

If you have any questions, please email the Electronic Business Center (EBC) at EBC@uspto.gov with 'e-Office Action' on the subject line or call 1-866-217-9197 during the following hours:

Monday - Friday 6:00 a.m. to 12:00 a.m.

Thank you for prompt attention to this notice,

UNITED STATES PATENT AND TRADEMARK OFFICE

PATENT APPLICATION INFORMATION RETRIEVAL SYSTEM

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In Re the Application of:	Group Art Unit: 3663
RICCI, Christopher P.	Confirmation No.: 7690
Serial No.: 14/253,204	Examiner: TARCZA, Thomas H.
Filed: April 15, 2014	
Atty. File No.: 6583-561	
Entitled: "CUSTOMIZATION OF VEHICLE CONTROLS AND SETTINGS BASED ON USER PROFILE DATA"	***Submitted Via EFS-Web***

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

RESPONSE TO INFORMATIONAL NOTICE TO APPLICANT

Dear Sir/Madam:

In response to the Informational Notice to Applicant mailed May 5, 2014, in connection with the above-identified application, submitted herewith is an executed Declaration by the inventor. Also filed concurrently herewith is a Power of Attorney.

Although no fees are believed to be due with this submission, please charge any underpayment or credit any overpayment to Deposit Account No. 19-1970.

Respectfully submitted,

SHERIDAN ROSS P.C.

By: /Tadd F. Wilson/
Tadd F. Wilson
Registration No. 54544
1560 Broadway, Suite 1200
Denver, Colorado 80202-5141
(303) 863-9700

Date: October 3, 2014

PTO/AIA/01 (06-12)
Approved for use through 01/31/2014. OMB 0651-0032
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

DECLARATION (37 CFR 1.63) FOR UTILITY OR DESIGN APPLICATION USING AN APPLICATION DATA SHEET (37 CFR 1.76)

Title of Invention	CUSTOMIZATION OF VEHICLE CONTROLS AND SETTINGS BASED ON USER PROFILE DATA

As the below named inventor, I hereby declare that:

This declaration is directed to:

☐ The attached application, or

☒ United States application or PCT international application number 14/253,204 filed on April 15, 2014.

The above-identified application was made or authorized to be made by me.

I believe that I am the original inventor or an original joint inventor of a claimed invention in the application.

I hereby acknowledge that any willful false statement made in this declaration is punishable under 18 U.S.C. 1001 by fine or imprisonment of not more than five (5) years, or both.

WARNING:

Petitioner/applicant is cautioned to avoid submitting personal information in documents filed in a patent application that may contribute to identity theft. Personal information such as social security numbers, bank account numbers, or credit card numbers (other than a check or credit card authorization form PTO-2038 submitted for payment purposes) is never required by the USPTO to support a petition or an application. If this type of personal information is included in documents submitted to the USPTO, petitioners/applicants should consider redacting such personal information from the documents before submitting them to the USPTO. Petitioner/applicant is advised that the record of a patent application is available to the public after publication of the application (unless a non-publication request in compliance with 37 CFR 1.213(a) is made in the application) or issuance of a patent. Furthermore, the record from an abandoned application may also be available to the public if the application is referenced in a published application or an issued patent (see 37 CFR 1.14). Checks and credit card authorization forms PTO-2038 submitted for payment purposes are not retained in the application file and therefore are not publicly available.

LEGAL NAME OF INVENTOR

Inventor: Christopher P. Ricci Date (Optional) :

Signature:

Note: An application data sheet (PTO/SB/14 or equivalent), including naming the entire inventive entity, must accompany this form or must have been previously filed. Use an additional PTO/AIA/01 form for each additional inventor.

This collection of information is required by 35 U.S.C. 115 and 37 CFR 1.63. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 1 minute to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

Doc Code: PA..

Document Description: Power of Attorney

PTO/AIA/82A (07-12)

Approved for use through 11/30/2014. OMB 0651-0035

U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

TRANSMITTAL FOR POWER OF ATTORNEY TO ONE OR MORE REGISTERED PRACTITIONERS

NOTE: This form is to be submitted with the Power of Attorney by Applicant form (PTO/AIA/82B or equivalent) to identify the application to which the Power of Attorney is directed, in accordance with 37 CFR 1.5. If the Power of Attorney by Applicant form is not accompanied by this transmittal form or an equivalent, the Power of Attorney will not be recognized in the application.

Application Number	14/253,204
Filing Date	April 15, 2014
First Named Inventor	RICCI, Christopher P.
Title	Customization of Vehicle Controls and Settings Based on User Profile Data
Art Unit	3663
Examiner Name	TARCZA, Thomas H.
Attorney Docket Number	6583-561

SIGNATURE of Applicant or Patent Practitioner

Signature	/Tadd F. Wilson/	Date	2014-10-03
Name	Tadd F. Wilson	Telephone	303-863-9700
Registration Number	54544		

NOTE: This form must be signed in accordance with 37 CFR 1.33. See 37 CFR 1.4(d) for signature requirements and certifications.

■ *Total of 2 forms are submitted.

This collection of information is required by 37 CFR 1.31, 1.32 and 1.33. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 3 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

Doc Code: PA..

Document Description: Power of Attorney

PTO/AIA/82B(07-12)
Approved for use through 11/30/2014. OMB 0651-0035
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

POWER OF ATTORNEY BY APPLICANT

I hereby revoke all previous powers of attorney given in the application identified in the attached transmittal letter.

☒ I hereby appoint Practitioner(s) associated with the following Customer Number as my/our attorney(s) or agent(s), and to transact all business in the United States Patent and Trademark Office connected therewith for the application referenced in the attached transmittal letter (form PTO/AIA/82A or equivalent):

111285

OR

☐ I hereby appoint Practitioner(s) named below as my/our attorney(s) or agent(s), and to transact all business in the United States Patent and Trademark Office connected therewith for the application referenced in the attached transmittal letter (form PTO/AIA/82A or equivalent):

Name	Registration Number		Name	Registration Number

Please recognize or change the correspondence address for the application identified in the attached transmittal letter to:

☒ The address associated with the above-mentioned Customer Number.

OR

☐ The address associated with Customer Number:

OR

☐ Firm or Individual Name					
Address					
City		State		Zip	
Country					
Telephone		Email			

I am the Applicant:

☐ Inventor or Joint Inventor

☐ Legal Representative of a Deceased or Legally Incapacitated Inventor

☒ Assignee or Person to Whom the Inventor is Under an Obligation to Assign

☐ Person Who Otherwise Shows Sufficient Proprietary Interest (e.g., a petition under 37 CFR 1.46(b)(2) was granted in the application or is concurrently being filed with this document)

SIGNATURE of Applicant for Patent

Signature	Timothy L. Stewart	Date	03/26/2013
Name	Timothy L. Stewart	Telephone	408-576-7746
Title and Company	Secretary, Flextronics AP, LLC		

NOTE: Signature - This form must be signed by the applicant in accordance with 37 CFR 1.33. See 37 CFR 1.4 for signature requirements and certifications. Submit multiple forms for more than one signature, see below *

☐ *Total of _____ forms are submitted.

This collection of information is required by 37 CFR 1.31, 1.32 and 1.33. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 3 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: **Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

Electronic Acknowledgement Receipt

EFS ID:	20327934
Application Number:	14253204
International Application Number:	
Confirmation Number:	7690
Title of Invention:	CUSTOMIZATION OF VEHICLE CONTROLS AND SETTINGS BASED ON USER PROFILE DATA
First Named Inventor/Applicant Name:	Christopher P. Ricci
Customer Number:	111285
Filer:	Tadd Fjelp Wilson/Amy Duarte
Filer Authorized By:	Tadd Fjelp Wilson
Attorney Docket Number:	6583-561
Receipt Date:	03-OCT-2014
Filing Date:	15-APR-2014
Time Stamp:	17:19:15
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Applicant Response to Pre-Exam Formalities Notice	Response_Informational_Notice_561.pdf	110695 f9d324cab95492f2b3c95bbfa36e704ff1de7b4b	no	1

Warnings:	
Information:	

2	Oath or Declaration filed	Executed_Declaration_561.pdf	141667 b3c0d3de8b5bd7dcd4d10c820232a8e5e8fb11ba	no	1
Warnings:					
Information:					
3	Power of Attorney	FlexAP_GenPOA.pdf	521257 81fa315f6ededede5c5a540f527d875f0fc12b9118	no	2
Warnings:					
Information:					
		Total Files Size (in bytes):	773619		

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111
If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371
If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office
If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
14/253,204	04/15/2014	Christopher P. Ricci	6583-561

CONFIRMATION NO. 7690

POA ACCEPTANCE LETTER

111285
Sheridan Ross P.C.
1560 Broadway
Suite 1200
Denver, CO 80202

OC00000071248719

Date Mailed: 10/15/2014

NOTICE OF ACCEPTANCE OF POWER OF ATTORNEY

This is in response to the Power of Attorney filed 10/03/2014.

The Power of Attorney in this application is accepted. Correspondence in this application will be mailed to the above address as provided by 37 CFR 1.33.

/mbeyene/

Office of Data Management, Application Assistance Unit (571) 272-4000, or (571) 272-4200, or 1-888-786-0101

To: flexpatents@sheridanross.com,edocket@sheridanross.com,
From: PAIR_eOfficeAction@uspto.gov
Cc: PAIR_eOfficeAction@uspto.gov
Subject: Private PAIR Correspondence Notification for Customer Number 111285

Oct 15, 2014 05:30:04 AM

Dear PAIR Customer:

Sheridan Ross P.C.
1560 Broadway
Suite 1200
Denver, CO 80202
UNITED STATES

The following USPTO patent application(s) associated with your Customer Number, 111285 , have new outgoing correspondence. This correspondence is now available for viewing in Private PAIR.

The official date of notification of the outgoing correspondence will be indicated on the form PTOL-90 accompanying the correspondence.

Disclaimer:
The list of documents shown below is provided as a courtesy and is not part of the official file wrapper. The content of the images shown in PAIR is the official record.

Application	Document	Mailroom Date	Attorney Docket No.
14253204	N570	10/15/2014	6583-561

To view your correspondence online or update your email addresses, please visit us anytime at https://sportal.uspto.gov/secure/myportal/privatepair.

If you have any questions, please email the Electronic Business Center (EBC) at EBC@uspto.gov with 'e-Office Action' on the subject line or call 1-866-217-9197 during the following hours:

Monday - Friday 6:00 a.m. to 12:00 a.m.

Thank you for prompt attention to this notice,

UNITED STATES PATENT AND TRADEMARK OFFICE

PATENT APPLICATION INFORMATION RETRIEVAL SYSTEM

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
14/253,204	04/15/2014	Christopher P. Ricci	6583-561

CONFIRMATION NO. 7690

111285
Sheridan Ross P.C.
1560 Broadway
Suite 1200
Denver, CO 80202

PUBLICATION NOTICE

OC000000071382315

Title:CUSTOMIZATION OF VEHICLE CONTROLS AND SETTINGS BASED ON USER PROFILE DATA

Publication No.US-2014-0309892-A1
Publication Date:10/16/2014

NOTICE OF PUBLICATION OF APPLICATION

The above-identified application will be electronically published as a patent application publication pursuant to 37 CFR 1.211, et seq. The patent application publication number and publication date are set forth above.

The publication may be accessed through the USPTO's publically available Searchable Databases via the Internet at www.uspto.gov. The direct link to access the publication is currently http://www.uspto.gov/patft/.

The publication process established by the Office does not provide for mailing a copy of the publication to applicant. A copy of the publication may be obtained from the Office upon payment of the appropriate fee set forth in 37 CFR 1.19(a)(1). Orders for copies of patent application publications are handled by the USPTO's Office of Public Records. The Office of Public Records can be reached by telephone at (703) 308-9726 or (800) 972-6382, by facsimile at (703) 305-8759, by mail addressed to the United States Patent and Trademark Office, Office of Public Records, Alexandria, VA 22313-1450 or via the Internet.

In addition, information on the status of the application, including the mailing date of Office actions and the dates of receipt of correspondence filed in the Office, may also be accessed via the Internet through the Patent Electronic Business Center at www.uspto.gov using the public side of the Patent Application Information and Retrieval (PAIR) system. The direct link to access this status information is currently http://pair.uspto.gov/. Prior to publication, such status information is confidential and may only be obtained by applicant using the private side of PAIR.

Further assistance in electronically accessing the publication, or about PAIR, is available by calling the Patent Electronic Business Center at 1-866-217-9197.

Office of Data Managment, Application Assistance Unit (571) 272-4000, or (571) 272-4200, or 1-888-786-0101

To: flexpatents@sheridanross.com,edocket@sheridanross.com,
From: PAIR_eOfficeAction@uspto.gov
Cc: PAIR_eOfficeAction@uspto.gov
Subject: Private PAIR Correspondence Notification for Customer Number 111285

Oct 17, 2014 05:23:14 AM

Dear PAIR Customer:

Sheridan Ross P.C.
1560 Broadway
Suite 1200
Denver, CO 80202
UNITED STATES

The following USPTO patent application(s) associated with your Customer Number, 111285 , have new outgoing correspondence. This correspondence is now available for viewing in Private PAIR.

The official date of notification of the outgoing correspondence will be indicated on the form PTOL-90 accompanying the correspondence.

Disclaimer:
The list of documents shown below is provided as a courtesy and is not part of the official file wrapper. The content of the images shown in PAIR is the official record.

Application	Document	Mailroom Date	Attorney Docket No.
14253204	NTC.PUB	10/16/2014	6583-561

To view your correspondence online or update your email addresses, please visit us anytime at https://sportal.uspto.gov/secure/myportal/privatepair.

If you have any questions, please email the Electronic Business Center (EBC) at EBC@uspto.gov with 'e-Office Action' on the subject line or call 1-866-217-9197 during the following hours:

Monday - Friday 6:00 a.m. to 12:00 a.m.

Thank you for prompt attention to this notice,

UNITED STATES PATENT AND TRADEMARK OFFICE

PATENT APPLICATION INFORMATION RETRIEVAL SYSTEM

Substitute for form 1449/PTO				Complete if Known	
INFORMATION DISCLOSURE STATEMENT BY APPLICANT				Application Number	14/253,204
				Filing Date	April 15, 2014
(Use as many sheets as necessary)				First Named Inventor	Christopher P. Ricci
				Art Unit	3663
				Examiner Name	DUNN, ALEX C
Sheet	1	of	8	Attorney Docket Number	6583-561

U.S. PATENT DOCUMENTS					
Examiner Initials*	Cite No.[1]	Document Number Number-kind Code[2] (if known)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
	1	4754255	06/28/1988	Sanders et al.	
	2	5296840	03/22/1994	Gieffers	
	3	5529138	06/25/1996	Shaw et al.	
	4	5825283	10/20/1998	Camhi	
	5	6356838	03/12/2002	Paul	
	6	6557752	05/06/2003	Yacoob	
	7	6563910	05/13/2003	Menard et al.	
	8	6675081	01/06/2004	Shuman et al.	
	9	7295904	11/13/2007	Kanevsky et al.	
	10	7526539	04/28/2009	Hsu	
	11	7667618	02/23/2010	Chitor et al.	
	12	8233919	07/31/2012	Haag et al.	
	13	8862299	11/16/2012	Ricci	
	14	8442758	05/14/2013	Rovik et al.	
	15	8521410	08/27/2013	Mizuno et al.	
	16	8543330	09/24/2013	Taylor et al.	
	17	8552886	10/08/2013	Bensoussan	
	18	8634984	01/21/2014	Sumizawa	
	19	8793034	07/29/2014	Ricci	
	20	8793065	07/29/2014	Seltzer et al.	
	21	8798918	08/05/2014	Onishi et al.	
	22	8818725	08/26/2014	Ricci	
	23	8825277	09/02/2014	McClellan et al.	
	24	8825362	09/02/2014	Kirsch	
	25	8825382	09/02/2014	Liu	
	26	8831826	09/09/2014	Ricci	
	27	8838095	09/16/2014	Jouin	
	28	2002/0026278	02/28/2002	Feldman et al.	
	29	2002/0103622	08/01/2002	Burge	
	30	2003/0065432	04/03/2003	Shuman et al.	
	31	2003/0204290	10/30/2003	Sadler et al.	
	32	2004/0093155	05/13/2004	Simonds et al.	

Examiner Signature		Date Considered	

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. [1] Applicant's unique citation designation number (optional). [2] See Kinds Codes of USPTO Patent Documents at www.uspto.gov or MPEP 901.04. [3] Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). [4] For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. [5] Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. [6] Applicant is to place a check mark here if English language Translation is attached.

Substitute for form 1449/PTO				Complete if Known	
INFORMATION DISCLOSURE STATEMENT BY APPLICANT				Application Number	14/253,204
				Filing Date	April 15, 2014
				First Named Inventor	Christopher P. Ricci
(Use as many sheets as necessary)				Art Unit	3663
				Examiner Name	DUNN, ALEX C
Sheet	2	of	8	Attorney Docket Number	6583-561

	33	2004/0153356	08/05/2004	Lockwood et al.	
	34	2004/0204837	10/14/2004	Singleton	
	35	2004/0217850	11/04/2004	Perttunen et al.	
	36	2004/0225557	11/11/2004	Phelan et al.	
	37	2005/0065716	03/24/2005	Timko et al.	
	38	2005/0261815	11/24/2005	Cowelchuk et al.	
	39	2005/0283284	12/22/2005	Grenier et al.	
	40	2006/0036358	02/16/2006	Hale et al.	
	41	2006/0058948	03/16/2006	Blass et al.	
	42	2007/0192486	08/16/2007	Wilson et al.	
	43	2008/0033635	02/07/2008	Obradovich et al.	
	44	2008/0086455	04/10/2008	Meisels et al.	
	45	2008/0104227	05/01/2008	Birnie et al.	
	46	2008/0129475	06/05/2008	Breed et al.	
	47	2008/0161986	07/03/2008	Breed	
	48	2009/0125174	05/14/2009	Delean	
	49	2009/0157312	06/18/2009	Black et al.	
	50	2009/0222200	09/03/2009	Link et al.	
	51	2009/0284359	11/19/2009	Huang et al.	
	52	2010/0036560	02/11/2010	Wright et al.	
	53	2010/0087987	04/08/2010	Huang et al.	
	54	2010/0087984	04/08/2010	Joseph	
	55	2010/0125387	05/20/2010	Sehyun et al.	
	56	2010/0125811	05/20/2010	Moore et al.	
	57	2010/0136944	06/03/2010	Taylor et al.	
	58	2010/0137037	06/03/2010	Basir	
	59	2010/0145700	06/10/2010	Kennewick et al.	
	60	2010/0222939	09/02/2010	Namburu et al.	
	61	2010/0235891	09/16/2010	Oglesbee et al.	
	62	2010/0274410	10/28/2010	Tsien et al.	
	63	2010/0289643	11/18/2010	Trundle et al.	
	64	2010/0306309	12/02/2010	Santori et al.	
	65	2010/0321151	12/23/2010	Matsuura et al.	
	66	2011/0077808	03/31/2011	Hyde et al.	
	67	2011/0090078	04/21/2011	Kim et al.	
	68	2011/0093438	04/21/2011	Poulsen	

Examiner Signature		Date Considered	

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. [2] Applicant's unique citation designation number (optional). [3] See Kinds Codes of USPTO Patent Documents at www.uspto.gov or MPEP 901.04. [4] Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). [5] For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. [6] Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. [7] Applicant is to place a check mark here if English language Translation is attached.

Substitute for form 1449/PTO				Complete if Known	
INFORMATION DISCLOSURE STATEMENT BY APPLICANT				Application Number	14/253,204
				Filing Date	April 15, 2014
(Use as many sheets as necessary)				First Named Inventor	Christopher P. Ricci
				Art Unit	3663
				Examiner Name	DUNN, ALEX C
Sheet	3	of	8	Attorney Docket Number	6583-561

	69	2011/0184642	07/28/2011	Rotz et al.	
	70	2011/0257973	10/20/2011	Chutorash et al.	
	71	2011/0291926	12/01/2011	Gokturk et al.	
	72	2011/0309953	12/22/2011	Petite et al.	
	73	2012/0053793	03/01/2012	Sala et al.	
	74	2012/0105613	05/03/2012	Weng et al.	
	75	2012/0197523	08/02/2012	Kirsch	
	76	2012/0254763	10/04/2012	Protopapas et al.	
	77	2012/0254804	10/04/2012	Shema et al.	
	78	2012/0289253	11/15/2012	Haag et al.	
	79	2012/0316720	12/13/2012	Hyde et al.	
	80	2013/0079964	03/28/2013	Sukkarie et al.	
	81	2013/0083805	04/04/2013	Lu et al.	
	82	2013/0099915	04/25/2013	Prasad et al.	
	83	2013/0116882	05/09/2013	Link et al.	
	84	2013/0134730	05/30/2013	Ricci	
	85	2013/0135118	05/30/2013	Ricci	
	86	2013/0138591	05/30/2013	Ricci	
	87	2013/0138714	05/30/2013	Ricci	
	88	2013/0141247	06/06/2013	Ricci	
	89	2013/0141252	06/06/2013	Ricci	
	90	20130143495;	06/06/2013	Ricci	
	91	2013/0143546	06/06/2013	Ricci	
	92	2013/0143601	06/06/2013	Ricci	
	93	2013/0144459	06/06/2013	Ricci	
	94	2013/0144460	06/06/2013	Ricci	
	95	2013/0144461	06/06/2013	Ricci	
	96	2013/0144463	06/06/2013	Ricci et al.	
	97	2013/0144470	06/06/2013	Ricci	
	98	2013/0144486	06/06/2013	Ricci	
	99	2013/0144520	06/06/2013	Ricci	
	100	2013/0144657	06/06/2013	Ricci	
	101	2013/0145065	06/06/2013	Ricci	
	102	2013/0145279	06/06/2013	Ricci	
	103	2013/0145297	06/06/2013	Ricci et al.	
	104	2013/0145360	06/06/2013	Ricci	

Examiner Signature		Date Considered	

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. [2] Applicant's unique citation designation number (optional). [3] See Kinds Codes of USPTO Patent Documents at www.uspto.gov or MPEP 901.04. [4] Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). [5] For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. [6] Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. [7] Applicant is to place a check mark here if English language Translation is attached.

Substitute for form 1449/PTO				Complete if Known	
INFORMATION DISCLOSURE STATEMENT BY APPLICANT				Application Number	14/253,204
				Filing Date	April 15, 2014
				First Named Inventor	Christopher P. Ricci
(Use as many sheets as necessary)				Art Unit	3663
				Examiner Name	DUNN, ALEX C
Sheet	4	of	8	Attorney Docket Number	6583-561

	105	2013/0145401	06/06/2013	Ricci	
	106	2013/0145482	06/06/2013	Ricci et al.	
	107	2013/0147638	06/13/2013	Ricci	
	108	2013/0151065	06/13/2013	Ricci	
	109	2013/0151088	06/13/2013	Ricci	
	110	2013/0152003	06/13/2013	Ricci et al.	
	111	2013/0154298	06/20/2013	Ricci	
	112	2013/0158821	06/20/2013	Ricci	
	113	2013/0166097	06/27/2013	Ricci	
	114	2013/0167159	06/27/2013	Ricci et al.	
	115	2013/0218445	08/22/2013	Basir	
	116	2013/0219039	08/22/2013	Ricci	
	117	2013/0231784	09/05/2013	Rovik et al.	
	118	2013/0241720	09/19/2013	Ricci et al.	
	119	2013/0245882	09/19/2013	Ricci	
	120	2013/0282946	10/24/2013	Ricci	
	121	2013/0293364	11/07/2013	Ricci et al.	
	122	2013/0293452	11/07/2013	Ricci et al.	
	123	2013/0295913	11/07/2013	Matthews et al.	
	124	2013/0338914	12/19/2013	Weiss	
	125	2014/0169621	06/19/2014	Burr	
	126	2014/0220966	08/07/2014	Muetzel et al.	
	127	2014/0278071	09/18/2014	San Filippo et al.	
	128	2014/0306799	10/16/2014	Ricci	
	129	2014/0306814	10/16/2014	Ricci	
	130	2014/0306817	10/16/2014	Ricci	
	131	2014/0306826	10/16/2014	Ricci	
	132	2014/0306833	10/16/2014	Ricci	
	133	2014/0306834	10/16/2014	Ricci	
	134	2014/0306835	10/16/2014	Ricci	
	135	2014/0307655	10/16/2014	Ricci	
	136	2014/0307724	10/16/2014	Ricci	
	137	2014/0308902	10/16/2014	Ricci	
	138	2014/0309789	10/16/2014	Ricci	
	139	2014/0309790	10/16/2014	Ricci	
	140	2014/0309804	10/16/2014	Ricci	

Examiner Signature		Date Considered	

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. [2] Applicant's unique citation designation number (optional). [3] See Kinds Codes of USPTO Patent Documents at www.uspto.gov or MPEP 901.04. [4] Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). [5] For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. [6] Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. [7] Applicant is to place a check mark here if English language Translation is attached.

Substitute for form 1449/PTO				Complete if Known	
INFORMATION DISCLOSURE STATEMENT BY APPLICANT				Application Number	14/253,204
				Filing Date	April 15, 2014
				First Named Inventor	Christopher P. Ricci
(Use as many sheets as necessary)				Art Unit	3663
				Examiner Name	DUNN, ALEX C
Sheet	5	of	8	Attorney Docket Number	6583-561

	141	2014/0309805	10/16/2014	Ricci	
	142	2014/0309806	10/16/2014	Ricci	
	143	2014/0309813	10/16/2014	Ricci	
	144	2014/0309814	10/16/2014	Ricci et al.	
	145	2014/0309815	10/16/2014	Ricci et al.	
	146	2014/0309838	10/16/2014	Ricci	
	147	2014/0309839	10/16/2014	Ricci et al.	
	148	2014/0309847	10/16/2014	Ricci	
	149	2014/0309849	10/16/2014	Ricci	
	150	2014/0309852	10/16/2014	Ricci	
	151	2014/0309853	10/16/2014	Ricci	
	152	2014/0309862	10/16/2014	Ricci	
	153	2014/0309863	10/16/2014	Ricci	
	154	2014/0309864	10/16/2014	Ricci	
	155	2014/0309865	10/16/2014	Ricci	
	156	2014/0309866	10/16/2014	Ricci	
	157	2014/0309867	10/16/2014	Ricci	
	158	2014/0309868	10/16/2014	Ricci	
	159	2014/0309869	10/16/2014	Ricci	
	160	2014/0309870	10/16/2014	Ricci et al.	
	161	2014/0309871	10/16/2014	Ricci	
	162	2014/0309872	10/16/2014	Ricci	
	163	2014/0309873	10/16/2014	Ricci	
	164	2014/0309874	10/16/2014	Ricci	
	165	2014/0309875	10/16/2014	Ricci	
	166	2014/0309876	10/16/2014	Ricci	
	167	2014/0309877	10/16/2014	Ricci	
	168	2014/0309878	10/16/2014	Ricci	
	169	2014/0309879	10/16/2014	Ricci	
	170	2014/0309880	10/16/2014	Ricci	
	171	2014/0309885	10/16/2014	Ricci	
	172	2014/0309886	10/16/2014	Ricci	
	173	2014/0309891	10/16/2014	Ricci	
	174	2014/0309893	10/16/2014	Ricci	
	175	2014/0309913	10/16/2014	Ricci et al.	
	176	2014/0309919	10/16/2014	Ricci	

Examiner Signature		Date Considered	

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. [2] Applicant's unique citation designation number (optional). [3] See Kinds Codes of USPTO Patent Documents at www.uspto.gov or MPEP 901.04. [4] Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). [5] For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. [6] Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. [7] Applicant is to place a check mark here if English language Translation is attached.

Substitute for form 1449/PTO				Complete if Known	
INFORMATION DISCLOSURE STATEMENT BY APPLICANT				Application Number	14/253,204
				Filing Date	April 15, 2014
(Use as many sheets as necessary)				First Named Inventor	Christopher P. Ricci
				Art Unit	3663
				Examiner Name	DUNN, ALEX C
Sheet	6	of	8	Attorney Docket Number	6583-561

	177	2014/0309920	10/16/2014	Ricci	
	178	2014/0309921	10/16/2014	Ricci et al.	
	179	2014/0309922	10/16/2014	Ricci	
	180	2014/0309923	10/16/2014	Ricci	
	181	2014/0309927	10/16/2014	Ricci	
	182	2014/0309929	10/16/2014	Ricci	
	183	2014/0309930	10/16/2014	Ricci	
	184	2014/0309934	10/16/2014	Ricci	
	185	2014/0309935	10/16/2014	Ricci	
	186	2014/0309982	10/16/2014	Ricci	
	187	2014/0310031	10/16/2014	Ricci	
	188	2014/0310075	10/16/2014	Ricci	
	189	2014/0310103	10/16/2014	Ricci	
	190	2014/0310186	10/16/2014	Ricci	
	191	2014/0310277	10/16/2014	Ricci	
	192	2014/0310379	10/16/2014	Ricci et al.	
	193	2014/0310594	10/16/2014	Ricci et al.	
	194	2014/0310610	10/16/2014	Ricci	
	195	2014/0310702	10/16/2014	Ricci et al.	
	196	2014/0310739	10/16/2014	Ricci et al.	
	197	2014/0310788	10/16/2014	Ricci	

UNPUBLISHED U.S. PATENT DOCUMENTS

Examiner Initials*	Cite No.[1]	Document Number Number-kind Code[2] (if known)	Filing Date MM-DD-YYYY	Name of Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
	198	14/543535	11/17/2014	Ricci	

FOREIGN PATENT DOCUMENTS

Examiner Initials*	Cite No.[1]	Foreign Patent Document Country Code[3]; Number[4]; Kind Code[5] *(if known)*	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear	T[6]
	199	EP 1909069	12/08/2010	HARMAN BECKER AUTOMOTIVE SYSTEMS GMBH		

Examiner Signature		Date Considered	

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. [1] Applicant's unique citation designation number (optional). [2] See Kinds Codes of USPTO Patent Documents at www.uspto.gov or MPEP 901.04. [3] Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). [4] For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. [5] Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. [6] Applicant is to place a check mark here if English language Translation is attached.

Substitute for form 1449/PTO				Complete if Known	
INFORMATION DISCLOSURE STATEMENT BY APPLICANT				Application Number	14/253,204
				Filing Date	April 15, 2014
				First Named Inventor	Christopher P. Ricci
(Use as many sheets as necessary)				Art Unit	3663
				Examiner Name	DUNN, ALEX C
Sheet	7	of	8	Attorney Docket Number	6583-561

	200	WO 2012/102879	08/02/2012	HONDA MOTOR CO., LTD.		

NON-PATENT LITERATURE DOCUMENTS		
Examiner Initials*	Cite No.[1]	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.
	201	"Accessibility A guide for Businesses and Organizations," Microsoft, 2011, 53 pages
	202	"Accessibility Guide for Educators," Microsoft, 2014, 1 page [retrieved from www.microsoft.com/enable/education/]
	203	"Guide for Individuals with Language and Communication Impairments," Microsoft, 2014, 9 pages [retrieved from www.microsoft.com/enable/guides/language.aspx]
	204	"Guide for Individuals with Vision Impairments," Microsoft, 2014, 8 pages [retrieved from www.microsoft/com/enable/guides/vision.aspx]
	205	"Guide for Individuals with Age-related Impairments," Microsoft, 2014, 1 page [retrieved from www.icrosoft.com/enable/aging]
	206	"Guide for Individuals with Learning Impairments," Microsoft, 2014, 1 page [retrieved from www.microsoft.com/enable/guides/learning.aspx]
	207	"Guide for Individuals with Dexterity and Mobility Impairments," Microsoft, 2014, 6 pages [retrieved from www.microsoft.com/enable/guides/dexterity.aspx]
	208	"Guide for Individuals with Hearing Impairments," Microsoft, 2014, 5 pages [retrieved from www.microsoft.com/enable/guides/hearing.aspx]
	209	BENNETT "Meet Samsung's Version of Apple AirPlay," CNET.com, Oct. 10, 2012, 11 pages [retrieved from the internet on Aug. 14, 2014 from www.cnet.com/products/samsung-allshare-cast-hub-eadt10jdegsta/]
	210	International Search Report and Written Opinion for International (PCT) Patent Application No. PCT/US2014/034092, mailed Aug. 22, 2014 (Attorney's Ref. No. 6583-543-PCT) 8 pages
	211	International Search Report and Written Opinion for International (PCT) Patent Application No. PCT/US2014/034099, mailed Aug. 25, 2014 (Attorney's Ref. No. 6583-544-PCT) 8 pages
	212	International Search Report and Written Opinion for International (PCT) Patent Application No. PCT/US2014/034087, mailed Aug. 22, 2014 (Attorney's Ref. No. 6583-547-PCT) 7 pages
	213	International Search Report and Written Opinion for International (PCT) Patent Application No. PCT/US14/34232, mailed Sep. 15, 2014 (Attorney's Ref. No. 6583-550-PCT) 8 pages
	214	International Search Report and Written Opinion for International (PCT) Patent Application No. PCT/US14/34098, mailed Sep. 15, 2014 (Attorney's Ref. No. 6583-556-PCT) 10 pages
	215	International Search Report and Written Opinion for International (PCT) Patent Application No. PCT/US14/34108, mailed Sep. 15, 2014 (Attorney's Ref. No. 6583-559-PCT) 7 pages

Examiner Signature		Date Considered	

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. [1] Applicant's unique citation designation number (optional). [2] See Kinds Codes of USPTO Patent Documents at www.uspto.gov or MPEP 901.04. [3] Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). [4] For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. [5] Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. [6] Applicant is to place a check mark here if English language Translation is attached.

Substitute for form 1449/PTO				Complete if Known	
INFORMATION DISCLOSURE STATEMENT BY APPLICANT				Application Number	14/253,204
				Filing Date	April 15, 2014
				First Named Inventor	Christopher P. Ricci
(Use as many sheets as necessary)				Art Unit	3663
				Examiner Name	DUNN, ALEX C
Sheet	8	of	8	Attorney Docket Number	6583-561

	216	International Search Report and Written Opinion for International (PCT) Patent Application No. PCT/US2014/034101, mailed Aug. 22, 2014 (Attorney's Ref. No. 6583-562-PCT) 7 pages
	217	International Search Report and Written Opinion for International (PCT) Patent Application No. PCT/US2014/034103, mailed Sep. 03, 2014 (Attorney's Ref. No. 6583-565-PCT) 7 pages
	218	International Search Report and Written Opinion for International (PCT) Patent Application No. PCT/US14/34114, mailed Sep. 15, 2014 (Attorney's Ref. No. 6583-567-PCT) 9 pages
	219	International Search Report and Written Opinion for International (PCT) Patent Application No. PCT/US14/34125, mailed Sep. 15, 2014 (Attorney's Ref. No. 6583-569-PCT) 8 pages
	220	International Search Report and Written Opinion for International (PCT) Patent Application No. PCT/US14/34254, mailed Sep. 15, 2014 (Attorney's Ref. No. 6583-574-PCT) 10 pages
	221	Official Action for U.S. Patent Application No. 14/253,729, mailed Nov. 19, 2014 (Attorney's Ref. No. 6583-555) 8 pages
	222	Official Action for U.S. Patent Application No. 14,253,405, mailed Nov. 18, 2014 (Attorney's Ref. No. 6583-567) 6 pages
	223	Official Action for U.S. Patent Application No. 14/253,838, mailed Nov. 20, 2014 (Attorney's Ref. No. 6583-574) 31 pages
	224	Official Action for U.S. Patent Application No. 14/253,506, mailed Nov. 14, 2014 (Attorney's Ref. No. 6583-637) 9 pages
	225	Background of the Invention for the above-captioned application (previously provided)

Examiner Signature		Date Considered	

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. [2] Applicant's unique citation designation number (optional). [3] See Kinds Codes of USPTO Patent Documents at www.uspto.gov or MPEP 901.04. [4] Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). [5] For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. [6] Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. [7] Applicant is to place a check mark here if English language Translation is attached.

Electronic Acknowledgement Receipt

EFS ID:	20801830
Application Number:	14253204
International Application Number:	
Confirmation Number:	7690
Title of Invention:	CUSTOMIZATION OF VEHICLE CONTROLS AND SETTINGS BASED ON USER PROFILE DATA
First Named Inventor/Applicant Name:	Christopher P. Ricci
Customer Number:	111285
Filer:	Douglas W. Swartz/Jeffrey Polatis
Filer Authorized By:	Douglas W. Swartz
Attorney Docket Number:	6583-561
Receipt Date:	25-NOV-2014
Filing Date:	15-APR-2014
Time Stamp:	17:35:13
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Foreign Reference	EP1909069.pdf	2044562 781d06c1a4e6334c7f66af350c8dacc3c35a a579	no	16

Warnings:	
Information:	

2	Foreign Reference	WO2012102879.pdf	3942340 d375e109ca4ffecba0558d4a0fdb861e21302e36	no	44
Warnings:					
Information:					
3	Non Patent Literature	Accessibility_A_Guide_for_Businesses_and_Organizations.pdf	5355496 91a7005eaa867f07b005eb6f10b434a3c0f7cfb6	no	53
Warnings:					
Information:					
4	Non Patent Literature	Accessibility_Guide_for_Educators_MICROSOFT.pdf	67687 68d0902596eff64adbf779b2f6b1b3adae8e6b62	no	1
Warnings:					
Information:					
5	Non Patent Literature	Guide_for_Individuals_with_Language.pdf	701718 4ee7b0bced7fe634d6b2391770bcef631f354c25	no	9
Warnings:					
Information:					
6	Non Patent Literature	Guide_for_Individuals_with_Vision_Impairments_MICROSOFT.pdf	643328 9cedd79078b39fc6a0049d7b47e16d2d40e24559	no	8
Warnings:					
Information:					
7	Non Patent Literature	Guide_for_Individuals_with_Age-related_Impairments.pdf	95074 34bed5ebd7b2ba857ac54d1931b51e176aa64392	no	1
Warnings:					
Information:					
8	Non Patent Literature	Guide_for_Individuals_with_Learning_Impairments.pdf	95110 87bb01129715594cdfa70649344b7f700fcd23ab	no	1
Warnings:					
Information:					
9	Non Patent Literature	Guide_for_Individuals_with_Dexterity.pdf	447478 84e76c7928df2c2988c6d84c8bb79f67a12bc329	no	6
Warnings:					
Information:					
10	Non Patent Literature	Guide_for_Individuals_with_Hearing_Impairments.pdf	327104 562a3cab2a59ccff724019b3b1e87b9ae8f42496	no	5
Warnings:					
Information:					

11	Non Patent Literature	BENNETT_Meet_Samsungs_version_of_Apple_AirPlay.pdf	1726734 aba9ea14d326939f3d13e4812557bf2e0684d798	no	11
Warnings:					
Information:					
12	Non Patent Literature	6583-543-PCT_ISR-WO_08-22-2014.pdf	522451 c980287fdbf6a04ad3cd6f0844851c5a18a28bf7	no	8
Warnings:					
Information:					
13	Non Patent Literature	6583-544-PCT_ISR-WO_08-25-2014.pdf	505476 6f6319ba798f010e47ead6a78d9de5651a9c263b	no	8
Warnings:					
Information:					
14	Non Patent Literature	6583-547-PCT_ISR-WO_08-22-2014.pdf	418551 7dc680a9c5304503f61922b5ee364f0cf5c27a49	no	7
Warnings:					
Information:					
15	Non Patent Literature	6583-550-PCT_ISR-WO_09-15-2014.pdf	455781 decda73efb70977ba18441c204f69854629675cf	no	8
Warnings:					
Information:					
16	Non Patent Literature	6583-556-PCT_ISR-WO_09-15-2014.pdf	665957 94f777a93754a377d183363a35618e538fdb8fc3	no	10
Warnings:					
Information:					
17	Non Patent Literature	6583-559-PCT_ISR-WO_09-15-2014.pdf	388076 ea0d88cc261ababaa60f52bbd3cf61b210a64526	no	7
Warnings:					
Information:					
18	Non Patent Literature	6583-562-PCT_ISR-WO_08-22-2014.pdf	380861 cb30a47c080c4d632403b41cbd2e261dc75decd5	no	7
Warnings:					
Information:					
19	Non Patent Literature	6583-565-PCT_ISR-WO_09-03-2014.pdf	382402 9d079a1348215a1d106bd42b8a2497e5c703675a	no	7
Warnings:					
Information:					

20	Non Patent Literature	6583-567-PCT_ISR-WO_09-15-2014.pdf	452280 be64f4a6d655b5e8df9da7ee724d68f733518b51	no	9
Warnings:					
Information:					
21	Non Patent Literature	6583-569-PCT_ISR-WO_09-15-2014.pdf	371482 9b44ca266cac61450a5e3c53007047f1b957ca59	no	8
Warnings:					
Information:					
22	Non Patent Literature	6583-574-PCT_ISR-WO_09-15-2014.pdf	445430 ef216de63c145d622861e9ed973379edce034226	no	10
Warnings:					
Information:					
23	Non Patent Literature	6583-555_OA_11-19-2014.pdf	282317 077e8ca3eb12a2b41a915f3afd67b956f507c705	no	8
Warnings:					
Information:					
24	Non Patent Literature	6583-567_OA_11-18-2014.pdf	211404 da370eb4d35caa41d2071cbf69ea4180cc48c599	no	6
Warnings:					
Information:					
25	Non Patent Literature	6583-574_OA_11-20-2014.pdf	1097919 2e54233e988c8f19e4b96f632ad0458fda05f744	no	31
Warnings:					
Information:					
26	Non Patent Literature	6583-637_OA_11-14-2014.pdf	301467 422c84eb2f08c652de2b32a6f237d2208e0e54dd	no	9
Warnings:					
Information:					
27		6583-561_IDS_01.pdf	627489 3fa17b411ff53ad9d4e13849172da90328377fcf	yes	13

Multipart Description/PDF files in .zip description

Document Description	Start	End
Transmittal Letter	1	5
Information Disclosure Statement (IDS) Form (SB08)	6	13

Warnings:	
Information:	
Total Files Size (in bytes):	22955974

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111

If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

(19) Europäisches Patentamt
European Patent Office
Office européen des brevets

(11) EP 1 909 069 B1

(12) EUROPEAN PATENT SPECIFICATION

(45) Date of publication and mention of the grant of the patent:
08.12.2010 Bulletin 2010/49

(51) Int Cl.:
G01C 21/36 *(2006.01)* ***G06Q 10/00*** *(2006.01)*
G08G 1/0968 *(2006.01)*

(21) Application number: **06020734.7**

(22) Date of filing: **02.10.2006**

(54) Intelligent destination setting for navigation systems

Intelligente Zieleinstellung für Navigationssysteme

Paramétrage de destination intelligent pour systèmes de navigation

(84) Designated Contracting States:
AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HU IE IS IT LI LT LU LV MC NL PL PT RO SE SI SK TR

(43) Date of publication of application:
09.04.2008 Bulletin 2008/15

(73) Proprietor: **Harman Becker Automotive Systems GmbH**
76307 Karlsbad (DE)

(72) Inventors:
- **Bauer, Lee**
  Farmington Hills
  MI 48331 (US)
- **Hennecke, Marcus**
  89075 Ulm (DE)
- **Hamerich, Stefan**
  89073 Ulm (DE)

(74) Representative: **Grünecker, Kinkeldey,**
Stockmair & Schwanhäusser
Anwaltssozietät
Leopoldstrasse 4
80802 München (DE)

(56) References cited:
EP-A- 1 178 286
EP-A2- 0 684 592
WO-A-02/42718
DE-A1- 10 134 108
US-A1- 2002 030 698

Note: Within nine months of the publication of the mention of the grant of the European patent in the European Patent Bulletin, any person may give notice to the European Patent Office of opposition to that patent, in accordance with the Implementing Regulations. Notice of opposition shall not be deemed to have been filed until the opposition fee has been paid. (Art. 99(1) European Patent Convention).

Printed by Jouve, 75001 PARIS (FR)

EP 1 909 069 B1

Description

Field of Invention

[0001] The present invention relates to vehicle navigation systems. In particular, the invention relates to an automatic input of the destination for route guidance by the navigation system.

Background of the Invention

[0002] The use of navigation systems in vehicles becomes increasingly prevalent. Usually on board navigation computer systems analyze the combined data provided by GPS (Global Positioning System), motion sensors as ABS wheel sensors as well as a digital map and thereby determine the actual position and velocity of a vehicle with increasing preciseness.

[0003] Known navigation systems typically use electronic maps to represent cartographic features, as streets, buildings and rivers, and make use of a medium such as a compact disk, a digital video disc or a hard disk to store the data that relates to the cartographic features. After map matching the actual position of the user is indicated in the digital map. By acoustic and/or visualized information the user is guided to the predetermined destination.

[0004] The input of the destination, e.g., an address, by a user is still a relatively time-consuming and rather cumbersome process. For example, the user has to scroll through large lists of possible destinations. Even if the navigation system is provided with a speech input, selection of the desired destination is time-consuming due to the need for working through different levels of data organization and also error-prone due to the possibility of faulty speech recognition.

[0005] On the other hand, nowadays a great variety of possible destinations are electronically stored in mobile devices as, e.g., smartphones and Personal Digital Assistants (PDA), in form of entries in address books or vCards that are input and stored in the mobile devices. Recently, PDAs have been developed that are provided with navigation function. It possible to connect a PDA operating as a navigation aid with a vehicle information/navigation system and to have the route guidance carried out by the navigation module of the PDA. The multimodal dialog system called SmartKom, for example, addresses the problem of connecting a mobile device to a vehicle navigation system and also to continue route guidance that previously has been carried out by the vehicle navigation system by means of the mobile device.

[0006] Such solutions, however, demand for the implementation of navigation software in the mobile devices (e.g., PDAs or smartphones). In particular, the input of the desired destination is not sufficiently facilitated or improved by such recent developments.

[0007] Documents US 2002/0030698A1, DE10134-108A1, WO 02/42718A1, EP 1178286A2, and EP 0684592 disclose methods for inputting destinations from a mobile organiser to a navigation device.

[0008] Therefore, there is a need for a more convenient intelligent input of destinations in vehicle navigation systems.

Description of the Invention

[0009] The above-mentioned drawbacks of the art are solved by the method for entering (inputting) a destination for route guidance in a vehicle navigation system according to claim 1.

[0010] If a location stored in the mobile electronic device is selected as the destination, the location is fed into the vehicle navigation system and selected as the destination. Storing a location and feeding it into the vehicle navigation system means storing and feeding/inputting of data related to / identifying a physical location, e.g., the name of an address or geographical coordinates or arbitrary coordinates corresponding to a physical location etc.

[0011] The vehicle in which the vehicle navigation system is installed by any motor vehicle, e.g., an automobile, a motorcycle, a boat, an airplane, etc.

[0012] The mobile electronic device can, e.g., be a Personal Digital Assistant (PDA) or a smartphone (PDA phone) both comprising a Personal Information Manager including a scheduler module (appointment calendar) and an address book. The mobile electronic device can be an electronic organizer and, in particular, it may be a Palm Top or a BlackBerry. The address book and the scheduler module, which comprises data representing scheduled appointments, may advantageously be synchronized with the vehicle navigation system, i.e. with the corresponding data stored in a database of the navigation system. Synchronization can be achieved by standard synchronization software as, e.g., HotSync or ActiveSync.

[0013] The connection between the mobile electronic device and the vehicle navigation system can be performed wirelessly, e.g., via a Bluetooth, an infrared link (as IrDA), Wireless Local Area Network (WLAN) or by wire, e.g., using a USB connection.

[0014] The inventive method allows for a simple, reliable and fast input of a destination for route guidance in the vehicle navigation system. No manual input, e.g., by a touch screen or keyboard, and no spelling of a destination name in the case of a navigation system equipped with a speech control are necessary any longer. Moreover, the functionality of some electronic Personal Information Manager can be integrated in the navigation system providing synergetic effects with respect to the scheduling of tasks and guidance to the locations associated with appointments.

[0015] If, e.g., an appointment is associated with a location (meeting someone somewhere), the associated location can be fed into the vehicle navigation system. The navigation system can localize an address given by

a city name and a street name/number by means of stored geographical data that includes, e.g., geographical coordinates. According to another example, an appointment may be a demand for refueling the vehicle. In this case, the destination selected on the basis of the scheduled appointment can be a gas station the geographic position of which is stored in the navigation system (i.e. a location database of the navigation system). In particular, the gas station of a number of stored gas stations that is closest to the actual position of the vehicle can be selected as a destination for route guidance.

[0016] In particular, the scheduled appointment can be associated with a person whose address is stored in the mobile electronic device (e.g., in an electronic address book of a PDA or a smartphone) or the vehicle navigation system and it is this address that can represent the location that is associated with the scheduled appointment. For example, the scheduler module may include an entry indicating an appointment with a particular person. Then, the address may be looked-up by means of a relational database including data relating the name of the person to a vCard (or other kind of data including the address of the respective person) also stored in the mobile electronic device. The data that is necessary for locating the address in a digital map and for calculating a route to the destination are provided by the vehicle navigation system that usually comprises a GPS receiver and a database for storing digital map data.

[0017] According to the inventive method it is automatically determined whether a scheduled appointment stored in the scheduler module of the mobile electronic device and associated with a location stored in the mobile electronic device or in the vehicle navigation system is coming up within a predetermined time interval and if it is determined that such a scheduled appointment is coming up within the predetermined time interval, i.e. the appointment is scheduled for some future point of time within some predetermined time range, the associated location is selected as the destination for route guidance.

[0018] The predetermined time interval may comprise any point of time in the future. The method may also comprise checking whether there was an appointment scheduled at some time before the connection of the mobile electronic device to the vehicle navigation system has been established and informing the user about such an appointment if it is detected.

[0019] Either automatically or on demand by a user in response to a prompt given by the vehicle navigation system the associated location is selected as the destination and/or a route to the destination is calculated.

[0020] Thus, it is possible that a destination is automatically chosen without a need for any operation by the user (e.g., the driver of the vehicle). The destination is automatically chosen in response to information about appointments stored in the mobile electronic device which not only assists the driver in entering the next destination for a travel but also in remembering important appointments.

[0021] However, it might be preferred to have the navigation system output a prompt, e.g., a synthetic speech output or a text display on a display device asking for acknowledgement of the selected destination as well as calculation of a route to the selected destination. In this case calculation of a route the user might not be interested in can be avoided and he can faster initiate route calculation to an alternative destination. If more than one scheduled appointment is found within the predetermined time interval, the user may particularly skip the temporarily next appointment to have, e.g., a location associated with the following appointment selected as the destination for route guidance.

[0022] In one embodiment a location stored in the mobile electronic device or a location stored in the vehicle navigation system is selected as the destination for route guidance based on the at least one scheduled appointment in response to a speech input by a user. In this case, the address book and the scheduler module of the mobile electronic device may preferably be synchronized with the vehicle navigation system, i.e. with the corresponding data stored in a database of the navigation system, and the user may initiate selection of a destination for route guidance by a verbal command. Automatic entering of an appropriate destination and/or calculation of a route to the destination can, thus, be carried out when a user is ready for driving to a location of a next scheduled appointment stored in his PDA or smartphone, etc.

[0023] In particular, the user may simply utter a name of a person associated with an upcoming appointment and, subsequently, the associated location that might be looked-up in an address book or a vCard is automatically selected as the destination for route guidance.

[0024] The speech input may alternatively represent some predetermined keyword. After recognition of the keyword uttered by a user the selection of a location stored in the mobile electronic device or a location stored in the vehicle navigation system as the destination for route guidance can be performed.

[0025] According to the method all scheduled appointments stored in the scheduler module of the mobile electronic device and associated with locations stored in the mobile electronic device or the vehicle navigation system that are coming up within the predetermined time interval are determined automatically and subsequently all or some of the locations that are associated with the scheduled appointments stored in the scheduler module of the mobile electronic device or the vehicle navigation system that are determined to come up within the predetermined time interval are selected as destinations for route guidance.

[0026] Those locations stored in the mobile electronic device and associated with upcoming appointments are fed into the vehicle navigation system and selected as destinations. A list of all destinations might be displayed to the user, whereby he is informed about the entire set of appointments within the predetermined time interval that may, e.g., represent the whole present day.

[0027] Again, automatically or on demand by a user in response to a prompt given by the vehicle navigation system (e.g., an acoustic or optical message) the associated locations are selected as the destinations and a route to some or all of the destinations may be calculated. In particular, irrespective of the actual temporal order of the scheduled appointments an optimal route connecting all or some of the destinations is calculated. The optimal route may be, e.g., the shortest or the fastest route. The fastest route might be determined with respect to the category of streets (highways, major streets, etc.) and/or may be determined taking into account the actual traffic situation. After calculation of the optimum route the user is asked whether he wants to be guided the optimum route or a route connecting destinations corresponding to locations associated with appointments in temporal order.

[0028] In one embodiment of the inventive method it is estimated whether a selected destination cannot be reached within a predetermined time interval (that may be identical to the above-mentioned predetermined time interval) or until the point of time of the appointment associated with the location that is selected as the destination, and if it is estimated that the selected destination cannot be reached within the predetermined time interval or until the point of time of the appointment associated with the location that is selected as the destination, an event is generated, e.g., a warning is prompted or a message is displayed or announced. The message may offer establishment of a telephone connection to a person associated with the scheduled appointment. The telephone number may, e.g., be looked-up from a vCard of a person associated with the appointment that is stored in the mobile electronic device.

[0029] The user is informed about an appointment he cannot keep in due time and he, thus, can take appropriate measures. A typical measure would be to make a telephone call to the person he cannot meet in time. This embodiment of the inventive method efficiently assists the user in dealing with such a situation.

[0030] The information, that a meeting cannot be kept in time can be made available immediately after entering the destination or even during the travel on the grounds of real-time traffic information e.g. from traffic announcements or Traffic Message Channel (TMC) messages. The TMC is typically digitally coded using the FM Radio Data System (FM-RDS) on conventional FM radio broadcasts. It can also be transmitted on Digital Audio Broadcasting or satellite radio. Each traffic incident can be sent as a TMC message. One message consists of an event code and a location code in addition to time details.

[0031] In order to solve the above-mentioned drawbacks it is also provided a vehicle navigation system configured for route guidance to a destination, according to claim 9.

[0032] The inventive vehicle navigation system is particularly useful as a navigation system installed in an automobile.

[0033] Herein, it is to be understood that the expression "the control unit is configured to do .." covers the meaning that the control unit causes a separate logical or physical means to do something, e.g., to read data (locations, appointments) from the mobile electronic device.

[0034] It is also provided a vehicle navigation system as mentioned above that further comprises a database storing at least one location and wherein the control means is configured to read a location stored in the mobile electronic device or in the database based on the at least one read scheduled appointment and to select the read location as the destination for route guidance.

[0035] The control means of the vehicle navigation system is configured to automatically determine whether a scheduled appointment stored in the scheduler module of the mobile electronic device and associated with a location stored in the mobile electronic device or in the database is coming up within a predetermined time interval and to read the associated location, if it is determined that such a scheduled appointment is coming up within the predetermined time interval. The scheduled appointment can, in particular, be associated with a person whose address is stored in the mobile electronic device or in the vehicle navigation system and represents the location that is associated with the scheduled appointment.

[0036] The vehicle navigation system further comprises a route calculation means and the control means is configured to automatically read the locations associated with the scheduled appointments and to cause the route calculation means to calculate a route to the destination.

[0037] The vehicle navigation system according to the present invention further comprises

an input means, e.g., a speech input or a keyboard or a touch screen,

an output means, e.g., a speech output or a display device, as well as

a route calculation means, and

the control means is configured to instruct the output means to output a prompt to a user and to read the associated location and/or to cause the route calculation means to calculate a route to the destination in response to an input by the user that is input by the input means.

[0038] The control means is configured to

automatically determine all scheduled appointments stored in the scheduler module of the mobile electronic device and associated with stored locations that are coming up within the predetermined time interval;

read all or some of the locations associated with the scheduled appointments stored in the scheduler module of the mobile electronic device that are determined to come up within the predetermined time interval; and

select all or some of the read locations as destinations.

[0039] In this case the vehicle navigation system further comprises a route calculation means and the control means is configured to automatically read the associated locations and to cause the route calculation means to

calculate a route to the destinations.

[0040] In particular, the route calculation means is configured to calculate an optimal route, in particular, the shortest or the fastest route, to all or some of the destinations irrespective of the temporal order of the appointments.

[0041] According to a further embodiment the control means in one of the above-described examples of the inventive vehicle navigation system is configured to

estimate whether a selected destination cannot be reached within the predetermined time interval or until the point of time of the appointment associated with the location that is selected as the destination; and to

generate an event, in particular a warning or a message offering establishment of a telephone connection to a person associated with the appointment associated with the location that is selected as the destination, if it is estimated that the selected destination cannot be reached within the predetermined time interval or until the point of time of the appointment associated with the location that is selected as the destination.

[0042] In this case the control means may also be configured to estimate whether the selected destination cannot be reached within the predetermined time interval or until the point of time of the appointment associated with the location that is selected as the destination on the basis of traffic information, in particular, Traffic Message Channel messages, received by the navigation system.

[0043] Additional features and advantages of the present invention will be described with reference to the drawings. In the description, reference is made to the accompanying figures that are meant to illustrate preferred embodiments of the invention. It is understood that such embodiments do not represent the full scope of the invention and are not taken to limit the scope of protection that is exclusively defined by the appended claims.

[0044] Figure 1 illustrates an embodiment of the herein disclosed method for entering a destination in a vehicle navigation system comprising the steps of synchronization of an address book and a scheduler module of a PDA with a vehicle navigation system and determining an upcoming appointment from the entries of the scheduler module.

[0045] Figure 2 illustrates another embodiment of the herein disclosed method for entering a destination in a vehicle navigation system wherein an address found in the address book of a smartphone is used to select a destination for route guidance.

[0046] Figure 3 illustrates an embodiment similar to the one of Figure 3 but considering a case in which an upcoming appointment cannot be kept.

[0047] Figure 4 illustrates an embodiment of the herein disclosed method for entering a destination in a vehicle navigation system wherein a number of appointments stored in a PDA are detected by a vehicle navigation system and an optimum route to all of the detected appointments is automatically calculated.

[0048] Figure 1 shows basic steps of an embodiment of the method for entering a destination for route guidance in a vehicle navigation system according to the present invention. According to this embodiment a Personal Digital Assistant (PDA) is connected to a vehicle navigation system 1 by a person entering a vehicle and carrying the PDA. The connection can be established wirelessly, e.g., by means of a Bluetooth link, a WLAN link or by an infrared connection.

[0049] After connection of the PDA and the vehicle navigation system an address book and a scheduler module comprising scheduled appointments are automatically synchronized with the corresponding database of the navigation system 2. Therefore, the navigation system learns about one or more scheduled appointments that have been entered in the PDA by the user, e.g., the driver of the vehicle in which the vehicle navigation system is installed.

[0050] Next, the navigation system checks whether there is some upcoming appointment within a predetermined time interval that is associated with some location 3. The predetermined interval may, e.g., represent the actual day of connection of the PDA to the vehicle navigation system. The user might also be enabled to choose a suitable time interval by manual or verbal input facilitated by a manual or speech input means of the navigation system. According to the present example an appointment is determined that is associated with a location that is stored in the PDA. The location is given by an address including a city name and a street name and street number. The address can be part of the stored appointment entry or may be related to the appointment entry. The appointment entry can, e.g., include a name of a person to be met and the name can be related to an entry in an address book stored in the PDA.

[0051] The location associated with the determined upcoming appointment is selected as a destination for route guidance by the vehicle navigation system 4. Geographical data stored in a database of the navigation system is used for localization of the destination. The destination can, thus, be indicated on a digital map shown to the user /driver. The selection of the destination may be performed automatically without interaction with the user. It may be preferred that the user is asked by the navigation system whether the associated location shall be used as a destination for route guidance. The human-machine interaction can, in principle, be performed by means of a display device, a touch screen, push buttons, a speech input/output etc.

[0052] Once the location associated with the upcoming appointment is selected as the destination, a route from the present location to the destination, preferably the shortest or fastest route, is calculated 5 by the vehicle navigation system. The route can be indicated on a digital map. Again, the user may be prompted to initiate calculation of the route to the destination or alternatively route calculation is performed without further human-machine interaction. Optical and/or acoustical route guidance can subsequently be performed by the navigation system

based on the calculated route to the selected destination.

[0053] Figure 2 illustrates steps of another embodiment of the inventive method disclosed herein. A user enters 1 the "text meeting with Mr. X" in an appropriate place of an appointment calendar representing date and time, say, August 1, 11 am, of a meeting. The appointment calendar is part of a Personal Information Manager of a smartphone. Assume that the user enters his vehicle equipped with the navigation system of the present invention on August 1 at 9 am. He connects the smartphone to the vehicle navigation system 11. The navigation system automatically reads the appointment calendar and determines the upcoming appointment with Mr. X 12. The navigation system also automatically looks-up the address of Mr. X in an address book 13. The address book may be also stored in the smartphone. It is also considered that the address may be stored in a database of the navigation system.

[0054] After having determined the address of Mr. X, the navigation system is, in principle, ready for calculating a route to the address and to perform route guidance. In the present example, the navigation system prompts a message asking the user whether he wants to be guided to the address of Mr. X 14. In some detail, the navigation system may announce a message with the content that an appointment with Mr. X is scheduled for 11 am and may subsequently ask whether or not to perform route guidance to this address. Steps 13 and 14 can be carried out in reversed order.

[0055] The navigation system may prompt the message immediately after the appointment is detected or when an estimated time for travel to the location that is associated with the appointment is comparable to the time interval from the present time to the time of the appointment.

[0056] The user may approve that he wants to be guided to the address of Mr. X by means of a speech input, a keyboard a touch panel or any other input means known in the art of vehicle navigation systems 15. For example, he may utter a keyword to approve the selected destination for route guidance, i.e., the address of Mr. X.

[0057] In an alternative embodiment, the user is prompted to input manually or by speech input the destination after an upcoming appointment is detected in step 12. In any case, after the destination was selected the route to the destination, i.e. the address of Nr. X, is calculated 16 and route guidance to the destination can be started.

[0058] With reference to Figure 3 a case is described in which a detected upcoming appointment cannot be kept, since the traveling time from the present position would be too long to arrive at the location associated with the appointment in time. As in Figure 2 a meeting with Mr. X is entered in the smartphone 20, the smartphone is connected to the vehicle navigation system 21 and an upcoming appointment is automatically determined 22 by the vehicle navigation system after the connection has been established.

[0059] The location associated with the appointment, i.e. in the present example the address of Mr. X, is looked-up from an address book or a vCard stored in the smartphone. By means of geographical data stored in a database of the vehicle navigation system the distance from the present location of the vehicle and the address of Mr. X is estimated 23. Based on the estimated distance the traveling time to the address of Mr. X is estimated 24. This estimation may take into account any available traffic information provided, e.g., by some radio station.

[0060] Assume that the navigation system determines that the meeting with Mr. X cannot be kept, since the estimated traveling time is too long. In this case, a warning is prompted to the user / driver 25. For example, a synthesized speech output can be provided: "Meeting with Mr. X cannot be kept". Then, establishment of a telephone connection with Mr. X is offered by the vehicle navigation system 26. The corresponding telephone number can be looked up from the address book or vCard stored in the smartphone or in a database of the vehicle navigation system.

[0061] If the user agrees, a telephone connection is established. After the telephone conversation with Mr. X the navigation system may offer to delete the mentioned appointment or to postpone it to a later time/date.

[0062] The step of estimating the traveling time to the destination 24 can be performed continuously during the travel taken into account the actual traffic by real time traffic information, e.g. from radio traffic announcements or TMC messages. If during the travel the navigation system is informed about a traffic jam on the route to the destination, the system may prompt the warning that the appointment cannot be kept 25.

[0063] Figure 4 illustrates another aspect of the present invention. A PDA is wirelessly connected to a vehicle navigation system 30. Of course any other mobile electronic device including some kind of a Personal Information Manager can be used in this example (as in the examples above). The connection may be established via a Bluetooth link or a WLAN link, for example. The address book and the scheduler module of the PDA are automatically synchronized 31 with the corresponding database of the navigation system.

[0064] By synchronization of the scheduler module the navigation system detects 32 a number of appointments stored in the PDA. The appointments are usually stored and managed in temporal order in scheduler module. Assume that four appointments are stored, in the order 1, 2, 3, and 4, in the PDA for the present day. As in the previous examples the navigation system may automatically or on demand by the user select a location associated with an appointment, preferably, with that appointment that comes up next in time, as the destination for route guidance and may calculate the route to the destination automatically or on demand.

[0065] In the present example, the navigation system prompts the user, e.g., a commercial traveler, to acknowledge calculation of an optimum route to all locations as-

sociated with the four appointments 33. In response to a positive input by the user the navigation system, i.e. a route calculation means incorporated in the navigation system, calculates 34 an optimum route connecting the locations associated with the four appointments. In particular, each of the appointments may be linked to an address and the address can be related to geographical data stored in a database of the navigation system. The optimum route may be the shortest or fastest route from the present position to all of the locations. Assume that it turns out, however, that for an optimum route the appointments should be kept in some order different from the temporal one stored in the PDA, say, 1, 3, 2, 4. Consequently, calculation of the optimum route includes reordering of the appointments 34 in accordance with the optimum route.

[0066] Next, the navigation system informs the user about the optimal route, in particular, about the fact that the optimal route differs from a route connecting the locations associated with the appointments in temporal order and prompts the user to decide whether he wants to follow the optimal route or not 35.

[0067] If the user wants to be guided along the optimal route the navigation system offers the user to establish a telephone connection to one or more persons involved in appointments that cannot be kept in time when the optimal route is followed 36. This is possible, if the stored appointments are associated with persons whose telephone numbers are found in an address book or a vCard, etc. stored in the PDA or in a database of the navigation system. If, on the other hand, the user prefers to keep the four appointments in temporal order, the navigation system calculates 37 a route including the locations associated with the appointments that are, thus, selected as destinations for route guidance corresponding to the temporal order of the appointments (i.e., 1, 2, 3 and 4).

Claims

1. Method for entering a destination for route guidance in a vehicle navigation system, comprising
providing a mobile electronic device storing locations and comprising a scheduler module storing scheduled appointments;
connecting the mobile electronic device to the vehicle navigation system; and automatically determining all scheduled appointments stored in the scheduler module of the mobile electronic device and associated with locations stored in the mobile electronic device or the vehicle navigation system that are coming up within the predetermined time interval;
selecting all or some of the locations associated with the scheduled appointments stored in the scheduler module of the mobile electronic device or the vehicle navigation system that are determined to come up within the predetermined time interval as destinations based on the scheduled appointments;
characterised by
automatically or on demand by a user in response to a prompt given by the vehicle navigation system calculating the optimal route to at least some of the destinations irrespective of the temporal order of the appointments;
after calculation of the optimal route prompting the user to decide on whether he wants to be guided either

a) the optimal route; or
b) a route connecting destinations corresponding to locations associated with scheduled appointments in temporal order.

2. The method according to claim 1, wherein at least one of the scheduled appointments is associated with a person whose address is stored in the mobile electronic device or in the vehicle navigation system and represents the location that is associated with the scheduled appointment.

3. The method according to one of the preceding claims, further comprising
estimating whether a selected destination cannot be reached within a predetermined time interval or until the point of time of the appointment associated with the location that is selected as the destination; and
generating an event, if it is estimated that the selected destination cannot be reached within the predetermined time interval or until the point of time of the appointment associated with the location that is selected as the destination.

4. The method according to claim 3, wherein the estimating whether the selected destination cannot be reached within the predetermined time interval or until the point of time of the appointment associated with the location that is selected as the destination is based on traffic information, in particular, Traffic Message Channel messages, received by the navigation system.

5. The method according to claim 3 or 4, wherein the generated event is a warning prompted to a user or a message offering establishment of a telephone connection to a person associated with the appointment associated with the location that is selected as the destination that cannot be reached within the predetermined time interval or until the point of time of the appointment.

6. The method according to one of the preceding claims, wherein the mobile electronic device comprises an address book and comprising the step of synchronizing the scheduler module and the address book with the vehicle navigation system.

7. The method according to one of the preceding claims, wherein the mobile electronic device is connected to the vehicle navigation system by wire or wirelessly, in particular, by a Bluetooth link or a WLAN link.

8. The method according to one of the preceding claims, wherein the mobile electronic device is a Personal Digital Assistant or a smartphone or an electronic organizer.

9. Vehicle navigation system configured for route guidance to a destination, comprising
a connection unit configured for connection to a mobile electronic device storing at least one location and comprising a scheduler module storing at least one scheduled appointment;
a database storing at least one location;
a control means configured to
automatically determine all scheduled appointments stored in the scheduler module of the mobile electronic device and associated with stored locations that are coming up within the predetermined time interval;
read all or some of the locations associated with the scheduled appointments stored in the scheduler module of the mobile electronic device that are determined to come up within the predetermined time interval; and
select all or some of the read locations as destinations;
characterised by
a route calculation means configured to calculate the optimal route to all or some of the destinations irrespective of the temporal order of the appointments and to calculate a route connecting destinations corresponding to locations associated with scheduled appointments in temporal order;
an input means;
an output means configured to output a prompt; and wherein
the control means is configured to instruct the output means to
output a prompt to a user and to read the associated location and to cause the route calculation means to calculate the optimal route to the destination in response to an input by the user that is input by the input means; and
output a prompt to the user to decide on whether he wants to be guided either

a) the optimal route; or
b) the route connecting destinations corresponding to locations associated with scheduled appointments in temporal order.

10. The vehicle navigation system according to claim 9, wherein the control means is configured to estimate whether a selected destination cannot be reached within a predetermined time interval or until the point of time of the appointment associated with the location that is selected as the destination; and to generate an event, in particular a warning or a message offering establishment of a telephone connection to a person associated with the appointment associated with the location that is selected as the destination, if it is estimated that the selected destination cannot be reached within the predetermined time interval or until the point of time of the appointment associated with the location that is selected as the destination.

11. The vehicle navigation system according to claim 10, wherein the control means is configured to estimate whether the selected destination cannot be reached within the predetermined time interval or until the point of time of the appointment associated with the location that is selected as the destination on the basis of traffic information, in particular, Traffic Message Channel messages, received by the navigation system.

Patentansprüche

1. Verfahren zum Eingeben eines Ziels zur Routenführung in ein Fahrzeugnavigationssystem, umfassend
Bereitstellen einer mobilen elektronischen Einrichtung, die Orte speichert und ein Planermodul umfasst, das geplante Verabredungen speichert;
Verbinden der mobilen elektronischen Einrichtung mit dem Fahrzeugnavigationssystem; und
automatisches Bestimmen sämtlicher geplanter Verabredungen, die in dem Planermodul der mobilen elektronischen Einrichtung gespeichert und mit Orten assoziiert sind, die in der mobilen elektronischen Einrichtung oder in dem Fahrzeugnavigationssystem gespeichert sind und die innerhalb eines vorbestimmten Zeitintervalls fällig werden;
auf der Grundlage der geplanten Verabredungen Auswählen sämtlicher oder einiger der Orte, die mit den geplanten Verabredungen, die in dem Planermodul der mobilen elektronischen Einrichtung oder in dem Fahrzeugnavigationssystem gespeichert sind, assoziiert sind, und von denen bestimmt wird, dass sie innerhalb des vorbestimmten Zeitintervalls fällig werden, als Ziele;
gekennzeichnet durch
automatisches oder auf einen Befehl eines Nutzers in Reaktion auf eine Eingabeanforderung, die von dem Fahrzeugnavigationssystem ausgegeben wird, erfolgendes Berechnen der optimalen Route zu zumindest einigen der Ziele ohne Berücksichtigung der zeitlichen Reihenfolge der Verabredungen;
Auffordern des Nutzers nach der Berechnung der optimalen Route, darüber zu entscheiden, ob er ent-

weder

a) die optimale Route; oder
b) eine Route, die Ziele entsprechend Orten verbindet, die mit geplanten Verabredungen in zeitlicher Reihenfolge assoziiert sind,

geführt werden will.

2. Das Verfahren gemäß Anspruch 1, in dem zumindest eine der geplanten Verabredungen mit einer Person assoziiert ist, deren Adresse in der mobilen elektronischen Einrichtung oder in dem Fahrzeugnavigationssystem gespeichert ist und den Ort darstellt, der mit der geplanten Verabredung assoziiert ist.

3. Das Verfahren gemäß einem der vorhergehenden Ansprüche, das weiterhin umfasst
Abschätzen, ob ein ausgewähltes Ziel innerhalb eines vorbestimmten Zeitintervalls oder bis zu dem Zeitpunkt der Verabredung, die mit dem Ort assoziiert ist, der als das Ziel ausgewählt worden ist, nicht erreicht werden kann; und
Erzeugen eines Ereignisses, wenn abgeschätzt wird, dass das ausgewählte Ziel nicht innerhalb des vorbestimmten Zeitintervalls oder bis zu dem Zeitpunkt der Verabredung, die mit dem Ort assoziiert ist, der als das Ziel ausgewählt worden ist, erreicht werden kann.

4. Das Verfahren gemäß Anspruch 3, in dem das Abschätzen, ob das ausgewählte Ziel innerhalb des vorbestimmten Zeitintervalls oder bis zu dem Zeitpunkt der Verabredung, die mit dem Ort assoziiert ist, der als Ziel ausgewählt worden ist, nicht erreicht werden kann, auf der Grundlage von Verkehrsinformationen, insbesondere Nachrichten von einem Verkehrsnachrichtenkanal, die von dem Fahrzeugnavigationssystem empfangen werden.

5. Das Verfahren gemäß Anspruch 3 oder 4, in dem das erzeugte Ereignis eine Warnung, die an eine Nutzer ausgegeben wird, oder eine Nachricht ist, die den Aufbau einer Telefonverbindung mit einer Person anbietet, die mit der Verabredung, die mit dem Ort assoziiert ist, der als Ziel ausgewählt worden ist, der nicht innerhalb des vorbestimmten Zeitintervalls oder bis zu dem Zeitpunkt der Verabredung erreicht werden kann, assoziiert ist.

6. Das Verfahren gemäß einem der vorhergehenden Ansprüche, in dem die mobile elektronische Einrichtung ein Adressbuch umfasst und den Schritt des Synchronisierens des Planermoduls und des Adressbuchs mit dem Fahrzeugnavigationssystem umfassend.

7. Das Verfahren gemäß einem der vorhergehenden Ansprüche, in dem die mobile elektronische Einrichtung über Draht oder Funk, insbesondere eine Bluetooth-Verbindung oder eine WLAN-Verbindung, mit dem Fahrzeugnavigationssystem verbunden ist.

8. Das Verfahren gemäß einem der vorhergehenden Ansprüche, in dem die mobile elektronische Einrichtung ein Personal Digital Assistant oder ein Smartphone oder ein elektronischer Organizer ist.

9. Fahrzeugnavigationssystem, das zur Routenführung zu einem Ziel ausgebildet ist, umfassend
eine Verbindungseinheit, die für eine Verbindung mit einer mobilen elektronischen Einrichtung, die zumindest einen Ort speichert und ein Planermodul umfasst, das zumindest eine geplante Verabredung speichert, ausgebildet ist;
eine Datenbank, die zumindest einen Ort speichert;
eine Steuereinrichtung, die dazu ausgebildet ist,
automatisch sämtliche geplante Verabredungen zu bestimmen, die in dem Planermodul der mobilen elektronischen Einrichtung gespeichert und mit den gespeicherten Orten assoziiert sind, die innerhalb eines vorbestimmten Zeitintervalls fällig werden;
Auslesen sämtlicher oder einiger der Orte, die mit den geplanten Verabredungen assoziiert sind, die in dem Planermodul der mobilen elektronischen Einrichtung gespeichert sind und von denen bestimmt wird, dass sie innerhalb des vorbestimmten Zeitintervalls fällig werden;
Auswählen sämtlicher oder einiger der ausgelesenen Orte als Ziele;
gekennzeichnet durch
eine Routenberechnungseinrichtung, die dazu ausgebildet ist, die optimale Route zu sämtlichen oder einigen der Ziele ohne Berücksichtigung der zeitlichen Reihenfolge der Verabredungen zu berechnen und eine Route zu berechnen, die Ziele entsprechend Orten verbindet, die mit den geplanten Verabredungen in zeitlicher Reihenfolge assoziiert sind;
eine Eingabeeinrichtung;
eine Ausgabeeinrichtung, die dazu ausgebildet ist, eine Anforderung auszugeben;
und in der
die Steuereinrichtung dazu ausgebildet ist, die Ausgabeeinrichtung dazu anzuweisen
eine Anforderung an einen Nutzer auszugeben und den assoziierten Ort auszulesen und die Routenberechnungseinrichtung dazu zu veranlassen, die optimale Route zu dem Ziel in Reaktion auf eine Eingabe **durch** den Nutzer, die über die Eingabeeinrichtung eingegeben wird, zu berechnen; und
eine Aufforderung an den Nutzer, zu entscheiden, ob er entweder

a) die optimale Route; oder
b) eine Route, die Ziele entsprechend Orten ver-

bindet, die mit geplanten Verabredungen in zeitlicher Reihenfolge assoziiert sind,

geführt werden will, auszugeben.

10. Das Fahrzeugnavigationssystem gemäß Anspruch 9, in dem die Steuereinrichtung dazu ausgebildet ist, abzuschätzen, ob ein ausgewähltes Ziel innerhalb eines vorbestimmten Zeitintervalls oder bis zu dem Zeitpunkt der Verabredung, die mit dem Ort assoziiert ist, der als das Ziel ausgewählt worden ist, nicht erreicht werden kann; und
ein Ereignis, insbesondere eine Warnung oder eine Nachricht, die den Aufbau einer Telefonverbindung mit einer Person anbietet, die mit der Verabredung, die mit dem Ort assoziiert ist, der als Ziel ausgewählt worden ist, assoziiert ist, zu erzeugen, wenn abgeschätzt wird, dass das ausgewählte Ziel nicht innerhalb des vorbestimmten Zeitintervalls oder bis zu dem Zeitpunkt der Verabredung, die mit dem Ort assoziiert ist, der als das Ziel ausgewählt worden ist, erreicht werden kann.

11. Das Fahrzeugnavigationssystem gemäß Anspruch 10, in dem die Steuereinrichtung dazu ausgebildet ist, auf der Grundlage von Verkehrsinformationen, insbesondere Nachrichten von einem Verkehrsnachrichtenkanal, die von dem Fahrzeugnavigationssystem empfangen werden, abzuschätzen, ob das ausgewählte Ziel innerhalb des vorbestimmten Zeitintervalls oder bis zu dem Zeitpunkt der Verabredung, die mit dem Ort assoziiert ist, der als Ziel ausgewählt worden ist, nicht erreicht werden kann.

Revendications

1. Procédé d'introduction d'une destination de guidage routier dans un système de navigation pour véhicule, comprenant
la mise à disposition d'un dispositif électronique mobile stockant des emplacements et comprenant un module d'ordonnancement qui enregistre des rendez-vous planifiés ;
la connexion du dispositif électronique mobile au système de navigation pour véhicule ; et
la détermination automatique de tous les rendez-vous planifiés stockés dans le module d'ordonnancement du dispositif électronique mobile et associés à des emplacements stockés dans le dispositif électronique mobile ou dans le système de navigation pour véhicule qui apparaissent dans l'intervalle de temps prédéterminé ;
la sélection, en tout ou en partie, des emplacements associés aux rendez-vous planifiés stockés dans le module d'ordonnancement du dispositif électronique mobile ou dans le système de navigation pour véhicule et qui sont déterminés pour apparaître dans l'intervalle de temps prédéterminé comme destinations, sur la base des rendez-vous planifiés ;
caractérisé par
de manière automatique ou sur demande d'un utilisateur, en réponse à une invite fournie par le système de navigation pour véhicule, le calcul de l'itinéraire optimal à au moins une partie des destinations, indépendamment de l'ordre chronologique des rendez-vous ;
une fois l'itinéraire optimal calculé, l'envoi d'une invite à l'utilisateur pour décider s'il veut être guidé selon soit

a) l'itinéraire optimal ; soit
b) un itinéraire reliant des destinations correspondant à des emplacements associés à des rendez-vous planifiés en ordre chronologique.

2. Procédé selon la revendication 1, dans lequel au moins un des rendez-vous planifiés est associé à une personne dont l'adresse est stockée dans le dispositif électronique mobile ou dans le système de navigation pour véhicule et représente l'emplacement associé au rendez-vous planifié.

3. Procédé selon l'une des revendications précédentes, comprenant en outre
l'estimation du fait qu'une destination sélectionnée peut être atteinte ou non dans un intervalle de temps prédéterminé ou avant le moment fixé du rendez-vous associé à l'emplacement sélectionné comme destination ; et
la génération d'un événement, s'il est estimé que la destination sélectionnée ne peut pas être atteinte dans l'intervalle de temps prédéterminé ou avant le moment fixé du rendez-vous associé à l'emplacement sélectionné comme destination.

4. Procédé selon la revendication 3, dans lequel l'estimation du fait que la destination sélectionnée peut être atteinte ou non dans l'intervalle de temps prédéterminé ou avant le moment fixé du rendez-vous associé à l'emplacement sélectionné comme destination est basée sur des informations de trafic, et en particulier sur des messages TMC, soit Traffic Message Channel, reçus par le système de navigation.

5. Procédé selon la revendication 3 ou 4, dans lequel l'événement généré est un avertissement envoyé comme invite à l'utilisateur ou un message offrant l'établissement d'une connexion téléphonique avec une personne associée au rendez-vous associé à l'emplacement sélectionné comme la destination qui ne peut pas être atteinte dans l'intervalle de temps prédéterminé ou avant le moment fixé du rendez-vous.

6. Procédé selon l'une des revendications précéden-

tes, dans lequel le dispositif électronique mobile comporte un carnet d'adresses et comprenant l'étape consistant à synchroniser le module d'ordonnancement et le carnet d'adresses avec le système de navigation pour véhicule.

7. Procédé selon l'une des revendications précédentes, dans lequel le dispositif électronique mobile est connecté au système de navigation pour véhicule par fil ou sans fil, en particulier par une liaison Bluetooth ou WLAN.

8. Procédé selon l'une des revendications précédentes, dans lequel le dispositif électronique mobile est soit un assistant numérique personnel ou PDA - Personal Digital Assistant, soit un téléphone intelligent ou smartphone, soit un agenda électronique.

9. Système de navigation pour véhicule configuré pour le guidage routier vers une destination, comprenant une unité de connexion configurée pour la connexion à un dispositif électronique mobile stockant au moins un emplacement et comprenant un module d'ordonnancement stockant au moins un rendez-vous planifié ;
une base de données stockant au moins un emplacement ;
un moyen de contrôle configuré pour
déterminer automatiquement tous les rendez-vous planifiés stockés dans le module d'ordonnancement du dispositif électronique mobile et associés à des emplacements stockés qui apparaissent dans l'intervalle de temps prédéterminé ;
lire, en tout ou en partie, les emplacements associés aux rendez-vous planifiés stockés dans le module d'ordonnancement du dispositif électronique mobile, qui sont déterminés pour apparaître dans l'intervalle de temps prédéterminé ; et
sélectionner, en tout ou en partie, les emplacements lus comme destinations ;
caractérisé par
un moyen de calcul d'itinéraire configuré pour calculer l'itinéraire optimal aux destinations en tout ou en partie, indépendamment de l'ordre chronologique des rendez-vous, et pour calculer un itinéraire reliant des destinations correspondant aux emplacements associés aux rendez-vous planifiés en ordre chronologique ;
un moyen d'introduction ;
un moyen de sortie configuré pour sortir une invite ;
et dans lequel
le moyen de contrôle est configuré pour commander le moyen de sortie de façon à
sortir une invite pour un utilisateur, à lire l'emplacement associé et à faire exécuter, par le moyen de calcul d'itinéraire, le calcul de l'itinéraire optimal vers la destination en réponse à une entrée de l'utilisateur introduite par le moyen d'introduction ; et
sortir une invite pour l'utilisateur de manière à ce qu'il décide s'il veut ou non être guidé selon soit

a) l'itinéraire optimal ; soit
b) l'itinéraire connectant des destinations correspondant aux emplacements associés aux rendez-vous planifiés en ordre chronologique.

10. Système de navigation pour véhicule selon la revendication 9, dans lequel le moyen de contrôle est configuré pour
estimer si une destination sélectionnée peut ou non être atteinte dans un intervalle de temps prédéterminé ou avant le moment fixé du rendez-vous associé à l'emplacement sélectionné comme destination ; et pour
générer un événement, en particulier un avertissement ou un message proposant l'établissement d'une liaison téléphonique avec une personne associée au rendez-vous associé à l'emplacement sélectionné comme destination, s'il est estimé que la destination sélectionnée ne peut pas être atteinte dans l'intervalle de temps prédéterminé ou avant le moment fixé du rendez-vous associé à l'emplacement sélectionné comme destination.

11. Système de navigation pour véhicule selon la revendication 10, dans lequel le moyen de contrôle est configuré pour estimer si la destination sélectionnée peut ou non être atteinte dans l'intervalle de temps prédéterminé ou avant le moment fixé du rendez-vous associé à l'emplacement sélectionné comme destination sur la base d'informations de trafic, et en particulier sur des messages TMC reçus par le système de navigation.

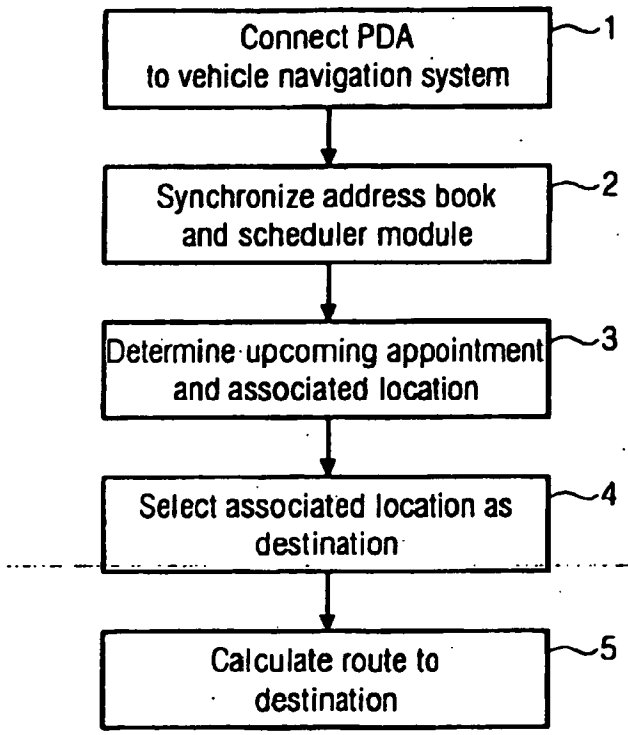

Connect PDA to vehicle navigation system
1
Synchronize address book and scheduler module
2
Determine upcoming appointment and associated location
3
Select associated location as destination
4
Calculate route to destination
5

FIG. 1

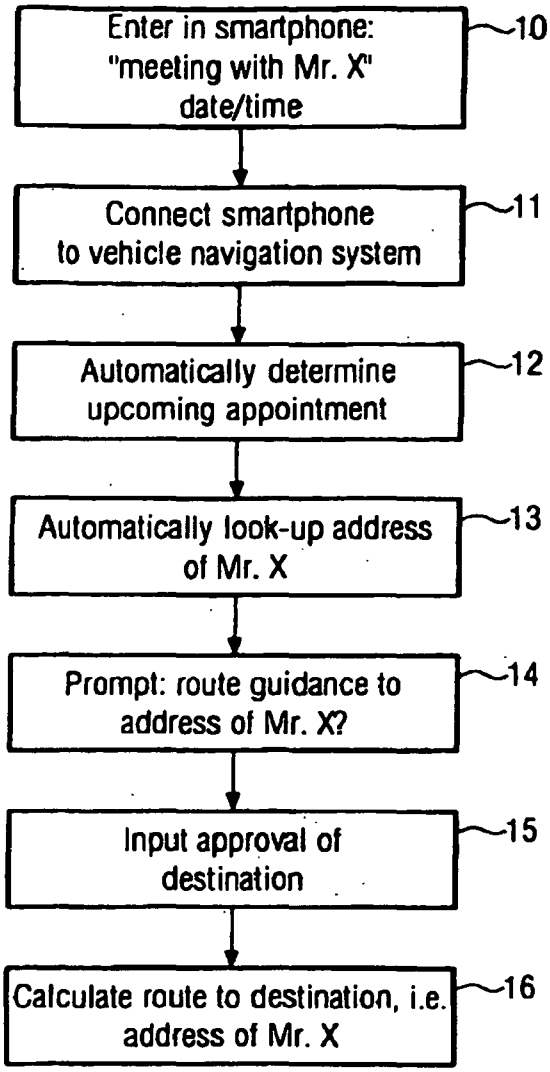

Enter in smartphone: "meeting with Mr. X" date/time
10
Connect smartphone to vehicle navigation system
11
Automatically determine upcoming appointment
12
Automatically look-up address of Mr. X
13
Prompt: route guidance to address of Mr. X?
14
Input approval of destination
15
Calculate route to destination, i.e. address of Mr. X
16

FIG. 2

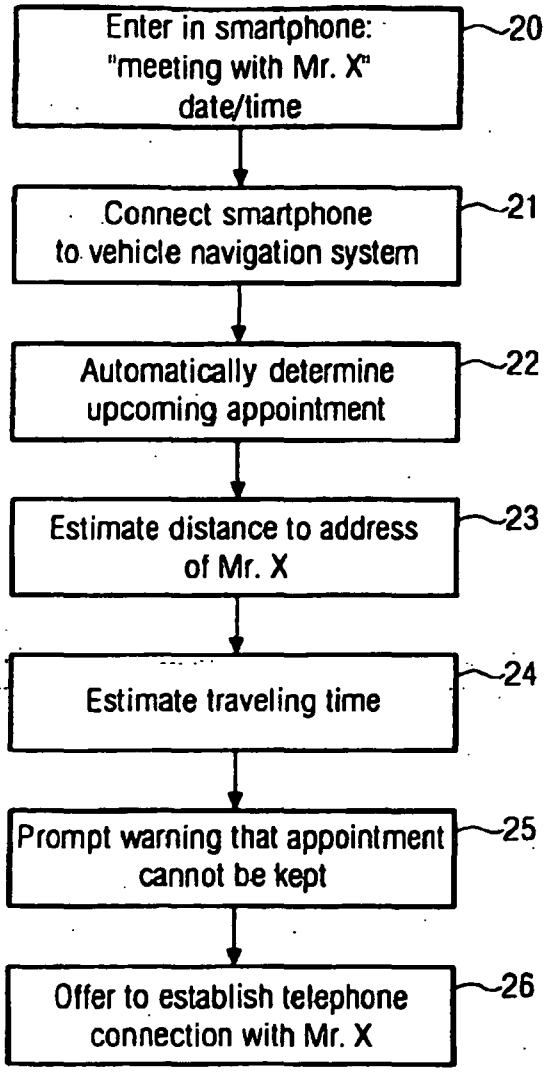

Enter in smartphone: "meeting with Mr. X" date/time
20
Connect smartphone to vehicle navigation system
21
Automatically determine upcoming appointment
22
Estimate distance to address of Mr. X
23
Estimate traveling time
24
Prompt warning that appointment cannot be kept
25
Offer to establish telephone connection with Mr. X
26

FIG. 3

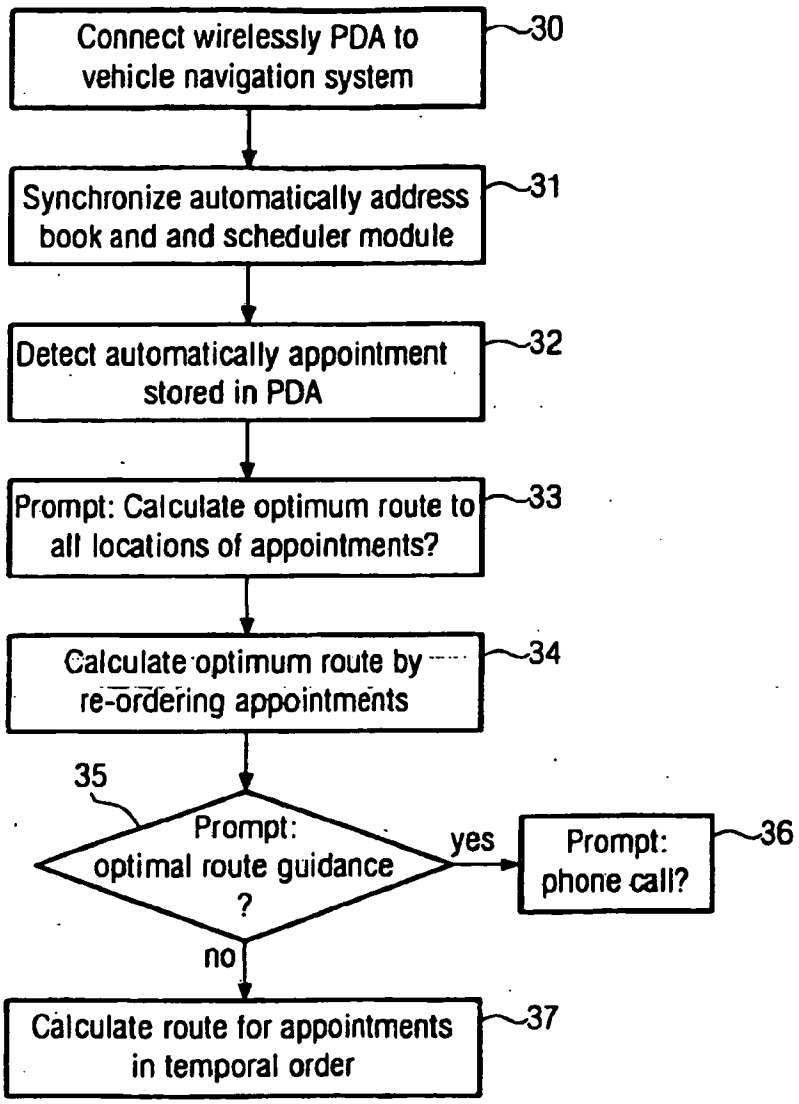

Connect wirelessly PDA to vehicle navigation system
30
Synchronize automatically address book and and scheduler module
31
Detect automatically appointment stored in PDA
32
Prompt: Calculate optimum route to all locations of appointments?
33
Calculate optimum route by re-ordering appointments
34
35
Prompt: optimal route guidance ?
yes
Prompt: phone call?
36
no
Calculate route for appointments in temporal order
37

FIG. 4

REFERENCES CITED IN THE DESCRIPTION

This list of references cited by the applicant is for the reader's convenience only. It does not form part of the European patent document. Even though great care has been taken in compiling the references, errors or omissions cannot be excluded and the EPO disclaims all liability in this regard.

Patent documents cited in the description

- US 20020030698 A1 **[0007]**
- DE 10134108 A1 **[0007]**
- WO 0242718 A1 **[0007]**
- EP 1178286 A2 **[0007]**
- EP 0684592 A **[0007]**

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization
International Bureau

(43) International Publication Date
2 August 2012 (02.08.2012)

WIPO | PCT

(10) International Publication Number
WO 2012/102879 A1

(51) International Patent Classification:
G06Q 50/00 (2012.01)

(21) International Application Number:
PCT/US2012/021314

(22) International Filing Date:
13 January 2012 (13.01.2012)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
13/015,204 27 January 2011 (27.01.2011) US

(71) Applicant *(for all designated States except US)*: **HONDA MOTOR CO., LTD.** [JP/JP]; 2-1-1 Minami Aoyama, Minato-ku, Tokyo, 107-8556 (JP).

(72) Inventor; and

(75) Inventor/Applicant *(for US only)*: **KIRSCH, David, M.** [US/US]; C/o Honda Patents & Technologies North America, LLC, 21001 State Route 739, Raymond, OH 43067-9705 (US).

(74) Agents: **MCNELIS, John T.** et al.; Fenwick & West LLP, Silicon Valley Center, 801 California Street, Mountain View, CA 94041 (US).

(81) Designated States *(unless otherwise indicated, for every kind of national protection available)*: AE, AG, AL, AM, AO, AT, AU, AZ, BA, BB, BG, BH, BR, BW, BY, BZ, CA, CH, CL, CN, CO, CR, CU, CZ, DE, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LT, LU, LY, MA, MD, ME, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PE, PG, PH, PL, PT, QA, RO, RS, RU, RW, SC, SD, SE, SG, SK, SL, SM, ST, SV, SY, TH, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW.

(84) Designated States *(unless otherwise indicated, for every kind of regional protection available)*: ARIPO (BW, GH, GM, KE, LR, LS, MW, MZ, NA, RW, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AL, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HR, HU, IE, IS, IT, LT, LU, LV, MC, MK, MT, NL, NO, PL, PT, RO, RS, SE, SI, SK, SM, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Published:

— *with international search report (Art. 21(3))*

(54) **Title**: CALENDAR SHARING FOR THE VEHICLE ENVIRONMENT USING A CONNECTED CELL PHONE

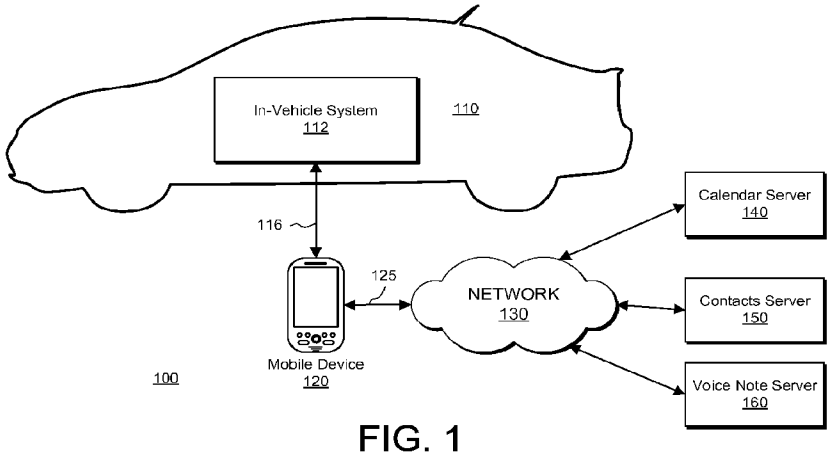


FIG. 1

(57) **Abstract**: A mobile device communicates with an in- vehicle system to provide a network-based calendar and related features for viewing and/or editing within a vehicle. The mobile device executes a specialized application that retrieves calendar data from one or more calendar sources in a native calendar format, and converts the calendar data to a customized vehicle format designed specifically for convenient transfer and viewing within the vehicle. The user may record spoken voice notes that can be processed to automatically create new calendar entries. An alert feature schedules visual and/or audio alerts to notify the user in advance of scheduled calendar events. When a scheduled calendar event time is reached, the in- vehicle system may automatically place a call to an event invitee or generating a route to an event destination.

WO 2012/102879 A1

CALENDAR SHARING FOR THE VEHICLE ENVIRONMENT USING A CONNECTED CELL PHONE

BACKGROUND OF THE INVENTION

1. Field of the Invention

[0001] The present invention relates to in-vehicle electronics and, more specifically, to displaying calendar information within a vehicle.

2. Description of the Related Arts

[0002] The personal electronic calendar has been represented in many forms on many devices, and its use has become increasingly widespread. The prevalence of internet connected devices such as mobile phones and connected computers has allowed for "cloud-based" calendars to become practical. In this architecture, various devices can access a cloud-based calendar and synchronize calendar data. Thus, the user can easily view, add, and edit calendar information from any connected node of the network. If a calendar item is changed at one node, the rest of the connected nodes will automatically update so that the calendar always provides current information.

[0003] Despite the widespread use of electronic calendars, current calendar systems do not provide any convenient mechanism for accessing the electronic calendar from within an automotive vehicle environment. While drivers may bring their portable devices into the car, usability problems and new safety laws make this usage undesirable. Particularly, in the automotive environment, the driver's primary focus should be on piloting the vehicle. The small screen of mobile devices and the attention required to operate them prevents a driver from being able to drive safely while accessing calendar data.

[0004] Some modern vehicles come equipped with dashboard computer systems that can provide direct access to electronic calendars. However, such systems require that the vehicle have internet connectivity, which is usually available only at considerable extra cost to the vehicle owner. Furthermore, even when an in-vehicle system is equipped with internet connectivity, current systems only provide access to calendar information that is intended for viewing on a computer screen or mobile

device, rather than on an in-vehicle display. Such conventional calendar interfaces typically include complicated displays and interfaces that require substantial attention from the user to view and control. Such systems are therefore impractical for use by the driver whose attention must instead be occupied with safely navigating the vehicle.

SUMMARY OF THE INVENTION

A mobile device provides an electronic calendar for display within a vehicle. The mobile device receives calendar data from a calendar source (e.g., a network-based calendar server or a synchronized calendar stored internally by the mobile device) that stores the calendar data in a native calendar format specific to the calendar source. The mobile device converts the calendar data from the native calendar format to a vehicle calendar format suitable for transfer to an in-vehicle system. The mobile device then transfers the converted calendar data to an in-vehicle system using a short-range communication protocol.

In one embodiment, the mobile device receives the calendar data from two different calendar sources (e.g., two different network-based calendar servers or an internal calendar and a network-based calendar server), each storing the calendar data in different native formats. The mobile device aggregates the calendar data from the two different calendar sources into the vehicle format, and processes the calendar data to remove duplicate entries. Furthermore, the mobile device may time scale the received calendar data and/or apply filters to the calendar data to remove data types not suitable for use within the vehicle.

[0005] In one embodiment, the mobile device receives voice notes from the in-vehicle system comprising an audio recording of spoken words. The mobile device obtains dictated speech corresponding to the spoken words and processes the dictated speech to add or update calendar entries. Additionally, the mobile device may store the audio recordings for later retrieval.

[0006] An in-vehicle system displays and manages the electronic calendar within a vehicle environment. The in-vehicle system receives calendar data from the mobile device via the short-range communication protocol. The calendar data comprises a plurality of calendar entries. The in-vehicle system generates a user interface for displaying the calendar data. In one embodiment, the user interface comprises an events window for displaying a representation of scheduled calendar

events and a notifications window for displaying a representation of calendar notifications. The in-vehicle system then outputs the user interface to an in-vehicle display.

[0007] In one embodiment, the in-vehicle system correlates the calendar entries with contacts entries and/or a points-of-interest database to find potential matches. When a scheduled event time for a calendar entry is reached, the in-vehicle system may automatically take an action based on the potential matches. For example, the in-vehicle system may automatically place a call to a contact whose name at least partially matches the name of an event invitee for the calendar event. Alternatively, the in-vehicle system may generate a route to an address of a contact or a point-of-interest that at least partially matches the event location for the scheduled calendar event.

[0008] In one embodiment, the in-vehicle system processes the calendar data and stores alerts related to scheduled calendar events. When a scheduled alert time is reached, the in-vehicle system may trigger a visual and/or audio alert. A snooze function allows the user to reschedule the alert for a later time.

[0009] The features and advantages described in the specification are not all inclusive and, in particular, many additional features and advantages will be apparent to one of ordinary skill in the art in view of the drawings, specification, and claims. Moreover, it should be noted that the language used in the specification has been principally selected for readability and instructional purposes, and may not have been selected to delineate or circumscribe the inventive subject matter.

BRIEF DESCRIPTION OF THE DRAWINGS

[0010] The teachings of the embodiments of the present invention can be readily understood by considering the following detailed description in conjunction with the accompanying drawings.

[0011] Figure (FIG.) 1 illustrates a vehicle environment in accordance with an embodiment of the invention.

[0012] Figure 2 is a block diagram illustrating a mobile device in accordance with an embodiment of the invention.

[0013] Figure 3 is a block diagram illustrating an in-vehicle system in accordance with an embodiment of the invention.

[0014] Figure 4 is a flowchart illustrating a process for providing calendar data to a vehicle in accordance with an embodiment of the invention.

[0015] Figure 5 is a flowchart illustrating a process for converting calendar information in accordance with an embodiment of the invention.

[0016] Figure 6 illustrates a user interface screen for displaying calendar entries in a vehicle in accordance with an embodiment of the invention.

[0017] Figure 7A illustrates a first set of user interface screens for displaying calendar entries in a vehicle in accordance with an embodiment of the invention.

[0018] Figure 7B illustrates a second set of user interface screens for displaying calendar entries in a vehicle in accordance with an embodiment of the invention.

[0019] Figure 8 is a flowchart illustrating a process for utilizing voice notes in accordance with an embodiment of the invention.

[0020] Figure 9 is a flowchart illustrating a process for taking actions based on calendar entries in accordance with an embodiment of the invention.

[0021] Figure 10 illustrates user interface screens for taking actions based on calendar entries in accordance with an embodiment of the invention.

[0022] Figure 11 is a flowchart illustrating a process for managing calendar alerts in accordance with an embodiment of the invention.

[0023] Figure 12A illustrates a first user interface screen for managing a calendar alert in a vehicle in accordance with an embodiment of the invention.

[0024] Figure 12B illustrates a second user interface screen for managing a calendar alert in a vehicle in accordance with an embodiment of the invention.

DETAILED DESCRIPTION OF EMBODIMENTS

[0025] Embodiments are now described with reference to the figures where like reference numbers indicate identical or functionally similar elements. Also in the figures, the left most digit of each reference number corresponds to the figure in which the reference number is first used.

[0026] Reference in the specification to "one embodiment" or to "an embodiment" means that a particular feature, structure, or characteristic described in connection with the embodiments is included in at least one embodiment. The appearances of the phrase "in one embodiment" or "an embodiment" in various places in the specification are not necessarily all referring to the same embodiment.

[0027] Some portions of the detailed description that follows are presented in terms of algorithms and symbolic representations of operations on data bits within a computer memory. These algorithmic descriptions and representations are the means used by those skilled in the data processing arts to most effectively convey the substance of their work to others skilled in the art. An algorithm is here, and generally, conceived to be a self-consistent sequence of steps (instructions) leading to a desired result. The steps are those requiring physical manipulations of physical quantities. Usually, though not necessarily, these quantities take the form of electrical, magnetic or optical signals capable of being stored, transferred, combined, compared and otherwise manipulated. It is convenient at times, principally for reasons of common usage, to refer to these signals as bits, values, elements, symbols, characters, terms, numbers, or the like. Furthermore, it is also convenient at times, to refer to certain arrangements of steps requiring physical manipulations or transformation of physical quantities or representations of physical quantities as modules or code devices, without loss of generality.

[0028] However, all of these and similar terms are to be associated with the appropriate physical quantities and are merely convenient labels applied to these quantities. Unless specifically stated otherwise as apparent from the following discussion, it is appreciated that throughout the description, discussions utilizing terms such as "processing" or "computing" or "calculating" or "determining" or "displaying" or "determining" or the like, refer to the action and processes of a computer system, or similar electronic computing device (such as a specific computing machine), that manipulates and transforms data represented as physical (electronic) quantities within the computer system memories or registers or other such information storage, transmission or display devices.

[0029] Certain aspects of the embodiments include process steps and instructions described herein in the form of an algorithm. It should be noted that the process steps and instructions of the embodiments could be embodied in software, firmware or hardware, and when embodied in software, could be downloaded to reside on and be operated from different platforms used by a variety of operating systems. The embodiments can also be in a computer program product which can be executed on a computing system.

[0030] The embodiments also relates to an apparatus for performing the operations herein. This apparatus may be specially constructed for the purposes, e.g., a specific computer, or it may comprise a general-purpose computer selectively activated or reconfigured by a computer program stored in the computer. Such a computer program may be stored in a computer readable storage medium, such as, but is not limited to, any type of disk including floppy disks, optical disks, CD-ROMs, magnetic-optical disks, read-only memories (ROMs), random access memories (RAMs), EPROMs, EEPROMs, magnetic or optical cards, application specific integrated circuits (ASICs), or any type of media suitable for storing electronic instructions, and each coupled to a computer system bus. The memory/storage can be transitory or non-transitory. Memory can include any of the above and/or other devices that can store information/data/programs. Furthermore, the computers referred to in the specification may include a single processor or may be architectures employing multiple processor designs for increased computing capability.

[0031] The algorithms and displays presented herein are not inherently related to any particular computer or other apparatus. Various general-purpose systems may also be used with programs in accordance with the teachings herein, or it may prove convenient to construct more specialized apparatus to perform the method steps. The structure for a variety of these systems will appear from the description below. In addition, the embodiments are not described with reference to any particular programming language. It will be appreciated that a variety of programming languages may be used to implement the teachings of the embodiments as described herein, and any references below to specific languages are provided for disclosure of enablement and best mode.

[0032] In addition, the language used in the specification has been principally selected for readability and instructional purposes, and may not have been selected to delineate or circumscribe the inventive subject matter. Accordingly, the disclosure of the embodiments are intended to be illustrative, but not limiting, of the scope of the embodiments, which are set forth in the claims.

OVERVIEW

[0033] A system, method, and computer-readable storage medium is described for obtaining, managing, and displaying an electronic calendar within a vehicle and for carrying out various features related to the electronic calendar. An application

executing on a mobile device obtains calendar data pertaining to a user from one or more network-based calendar systems such as iCal, Google Calendar, Microsoft Outlook Calendar, and Yahoo Calendar. The application aggregates the calendar data and converts the calendar data to a vehicle format that is suitable for transfer and display within a vehicle. The mobile device then transfers the calendar information in the vehicle format to an in-vehicle display system. Unlike conventional calendar formats which are designed for viewing on computer screens or mobile device screens, the vehicle calendar format is designed specifically for viewing within a vehicle. Thus, the vehicle calendar format arranges the calendar information such that the user can view and/or edit calendar entries with minimal distraction. As a result, a driver can maintain focus on navigating the vehicle. Methods and example interfaces for processing and displaying calendar data within a vehicle are described in further detail below with respect to FIGS. 4-7.

[0034] Additional features related to the electronic calendar are also provided to improve the user's experience in the vehicle. First, the calendar system includes a "voice note" feature that allows the user to record a spoken message. The spoken message is then processed to extract particular words or phrases, and where appropriate, create a new calendar entry or address book entry based on the recorded voice note. This feature allows the user to easily add or modify calendar or address book entries with minimal distraction while navigating the vehicle. The voice note feature is described in further detail below with respect to FIG. 8.

[0035] Second, the system may be configured to process calendar data and take a particular action based on the content. For example, the system may process calendar entries and automatically configure a hands free telephone unit to place a call to an invitee of a scheduled calendar event, or configure a navigation unit to generate a route to an address of the scheduled calendar event. This relieves the user of having to manually perform such tasks, and thus further minimizes distractions to the driver. The calendar action feature is described in further detail below with respect to FIGS. 9-10.

[0036] Third, the system may be configured to process alerts associated with scheduled calendar events in order to notify users of a calendar event prior to, or concurrently with, its scheduled time. Alerts are displayed in a manner that is suitable for viewing and managing within a vehicle with minimal distraction to the driver.

The calendar alert feature is described in further detail below with respect to FIGS. 11-12.

SYSTEM ARCHITECTURE

[0037] FIG. 1 illustrates an exemplary operating environment 100 for various embodiments. The operating environment 100 includes a vehicle 110 having an in-vehicle system 112, a mobile device 120, a short-range communication link 116 for communication between the in-vehicle system 112 and the mobile device 120, a network 130, a wireless networking communication link 125 between the mobile device 120 and the network 130, and various servers (e.g., a calendar server 140, a contacts server 150, and a voice note server 160) connected to the network 120. The communication links 116, 125 described herein can directly or indirectly connect these devices.

[0038] The in-vehicle system 112 comprises a computing device that may be part of the vehicle's telematics system. An embodiment of the in-vehicle system 112 is described in further detail below with reference to FIG. 3. In general, the in-vehicle system 112 is configured to display information to the user via a display screen and accept inputs from the user to control various functions. The in-vehicle system 112 includes short-range communication technology to allow the in-vehicle system 112 to exchange information with other devices, such as the mobile device 120. This allows, for example, the in-vehicle system 112 to obtain calendar information from the mobile device, display the calendar information on the in-vehicle system 112, and provide controls that enable the user to manage various calendar features.

[0039] The short-range communication link 116 between the in-vehicle system 112 and the mobile device 120 may use a wireless short-range communication technology, such as, for example, Bluetooth® technology or WiFi technology, or a wired short-range communication technology such as, for example, Universal Serial Bus (USB). The in-vehicle system 112 and mobile device 120 may connect, or pair, with each other via the short-range communication link 116.

[0040] Examples of a mobile device 120 include a cellular phone, personal device assistant (PDA), smart phone, pocket personal computer (PC), laptop computer, smart watch, or other transportable devices having a processor and communications ability. An embodiment of the mobile device 120 is described in further detail below with reference to FIG. 2. In general, the mobile device 120 is

configured to execute one or more software applications that enable the mobile device 120 to communicate with the in-vehicle system 112 and carry out a number of different features and interactions that will be described in further detail below. For example, the mobile device 120 can manage and transfer calendar entries, calendar alerts, contacts data, and voice notes.

[0041] The mobile device 120 can also communicate over a network 130 with various servers such as a calendar server 140, a contacts server 150, and a voice note server 160. The network 130 may include a wireless communication network, for example, a cellular telephony network, as well as one or more other networks, such as the Internet, a public-switched telephone network (PSTN), a packet-switching network, a frame-relay network, a fiber-optic network, a Wifi network, a WiMAX network, a CDMA network, a GSM network, a 3G network, a 4G network, or other wireless networks.

[0042] The servers 140, 150, 160 comprise computing devices that communicate over the network 130 to carry out various functions and/or to store data accessible to other devices on the network 130. The calendar server 140 can comprise one or more network-based calendar servers such as, for example, an iCal Server, a Google Calendar Server, a Microsoft Exchange Server, or a Yahoo Calendar Server. The calendar server 140 stores, for a particular user, a set of calendar entries and provides calendar data pertaining to these entries to requesting devices on the network 130. Each calendar entry corresponds to a scheduled event (e.g., a meeting, an appointment, a reminder, etc.) schedule for a particular event time. Various other metadata may also be included with each calendar entry such as, for example, event title, event invitees, event description, event location, event end time, etc. Furthermore, one or more alerts may be associated with a calendar entry in order to remind the user of the event prior to, or concurrently with, the scheduled event time. Calendar entries may be added, modified, or removed by a user from any device on the network 130 that has direct or indirect access to the calendar server 140.

[0043] The contacts server 150 stores, for a particular user, a set of contacts entries and provides contacts data pertaining to these entries to requesting devices on the network 130. Each contact entry includes various metadata associated with persons or business such as, for example, name, address, phone number, email address, website, etc. The contacts server 150 may be part of the calendar server 140.

For example, many network-based calendar servers such as iCal Server, Google Calendar Server, Microsoft Exchange Server, and Yahoo Calendar Server include an address book feature that may act as the contacts server 150. Alternatively, the contacts server 150 may be entirely separate from the calendar server 140.

[0044] The voice note server 160 stores and processes voice notes, i.e., a spoken memo recorded by a user. For example, the voice note server 160 may perform speech-to-text conversion on voice notes received from the mobile device 120 and return dictated text to the mobile device 120. Furthermore, the voice note server 160 may store the recorded audio files and/or deliver the audio files to the user via an email or text messaging service. Furthermore, the voice note server 160 may communicate with the calendar server 140 and the contacts server 150 to associate audio files with calendar or contacts entries.

[0045] Although only one of each type of server 140, 150, 160 is illustrated for clarity, in practice, multiple servers of each type may be present on the network 130. Furthermore, two or more of the servers 140, 150, 160 may be combined in a single computing device.

[0046] In operation, the in-vehicle system 112 and mobile device 120 communicate with each other via the short-range communication link 116. The mobile device 120 stores information received from the in-vehicle system 112, and/or may provide the information to a remote processing device, such as, for example, the calendar server 140, the contacts server 150, or the voice note server 160 via the network 130. Similarly, the mobile device 120 may store information from the remote servers 140, 150, 160, and/or may provide the information to the in-vehicle system 112. The in-vehicle system 112 thus leverages the mobile device 120 to indirectly communicate via the network 130, even if the in-vehicle system 112 is not equipped to access the network 130 directly.

Mobile Device

[0047] FIG. 2 is a block diagram illustrating an embodiment of the mobile device 120. In one embodiment, the mobile device 120 comprises a memory 210 and a processor 220. Other conventional components of the mobile device 120 such as a display, input keys, microphone, and speakers are omitted for clarity of description.

[0048] The processor 220 processes data and may comprise various computing architectures. Although only a single processor 220 is shown in FIG. 2, multiple

processors may be included. The memory 210 may be a dynamic random access memory (DRAM) device, a static random access memory (SRAM) device, Flash RAM (non-volatile storage), combinations of the above, or some other memory device known in the art. The memory 210 may be used for data storage and for storing various applications that can execute on the mobile device 120. For example, the memory 210 may store iPhone™ or Android™-based applications that are available for download to the mobile device 120 via a wired or wireless system. In general, the applications include computer-executable program instructions for carrying out various functions. In operation, the instructions are loaded from the memory 210 and executed by the processor 220. In alternative embodiments, the applications can part of any of a variety of software paradigms, e.g., software as a service (SaaS), cloud computing.

[0049] In one embodiment, the memory 210 stores a vehicle connect (VC) application 212. The VC application 212 facilitates communication between the mobile device 120 and the in-vehicle system 112 and formats data for transfer to the in-vehicle system 112. The VC application 212 can communicate with the in-vehicle system 112 according to either a push or pull mechanism. Data may communicated between the mobile device 120 and the in-vehicle system 112 using, for example, a PBAP Bluetooth method or using OBEX Bluetooth protocols. The VC application 212 furthermore communicates with the various internet servers (e.g., servers 140, 150, 160) to aggregate and synchronize calendar entries and alerts, contact information, and/or voice note information.

[0050] In addition to the handling transfer of data, the VC application 212 may also manage the connection timings for access to both the network 130 and the in-vehicle system 112. For example, the VC application 212 may control the refresh timing for updating calendar and/or contacts information. In one embodiment, the VC application 212 may obtain data updates from the servers 140, 150, 160 and store them to the mobile device 120 even when the application 212 is not connected to the vehicle 110. Then, the VC application 212 can transfer these pre-acquired updates to the in-vehicle system 112 at a later time. This would allow, for example, the VC application 212 to acquire the updates whenever it is within coverage range of the network 130 (even if the mobile device 120 is not connected to the vehicle 110), and transfer the updates to the in-vehicle system 112 at a later time. When receiving data

from the servers 140, 150, 160, the VC application 212 can apply filters to the data and cache the data prior to sending the information to the in-vehicle system 112. In this manner, collection and processing tasks performed by the VC application 212 may alleviate the processing requirements of the in-vehicle system 112. Furthermore, the in-vehicle system 112 need not have any direct access to the network 130.

[0051] The VC application 212 may also process data received from in-vehicle system 112. For example, the VC application 212 may receive changes to calendar or contacts data made by a user using the in-vehicle system 112, or may receive voice notes from the in-vehicle system 112 for processing. The VC application 212 compares and processes calendar and contacts modifications in order to provide calendar updates back to the calendar server 140 and provide contacts updates to the contacts server 150.

[0052] In one embodiment, the VC application 212 comprises a calendar module 214, a contacts module 216, and a voice note module 218. The calendar module 214 communicates with the calendar server 140 to obtain calendar data and transmit calendar updates back to the server 140. The calendar module 214 communicates using an Application Programming Interface (API) specific to the calendar server 140 (e.g., a CalDAV protocol or an MS Exchange protocol). The calendar module 214 may also include a calendar application that executes on the mobile device, which may include its own native calendar format. The calendar module 214 processes the calendar data to aggregate the data and convert the data from its native format specific to the calendar server 140 to a vehicle format suitable for transfer and display in the vehicle. Furthermore, the calendar module 214 communicates with the in-vehicle system 112 to transmit the formatted calendar data and receive updates.

[0053] The contacts module 216 communicates with the contacts server 150 via an API to obtain contacts data from the contacts server 150. The contacts module 216 processes and/or aggregates contacts data to convert it from its native format to a vehicle format and transmit the contacts data to the vehicle. The contacts module 216 may also receive updates from the in-vehicle system 112 and relay these updates to the contacts server 150.

[0054] The voice note module 218 receives recorded voice notes from the in-vehicle system 112 and transmits them to the voice note server 160. The voice note

module 218 also receives dictated text from the voice note server 160 corresponding to the processed audio. The voice note module 218 may further process the dictated text to extract keywords or phrases and use these to create or modify calendar or contacts entries. The voice note feature is discussed in further detail below with respect to FIG. 8.

In-Vehicle System

[0055] FIG. 3 is a block diagram illustrating an embodiment of the in-vehicle system 112. In one embodiment, the in-vehicle system 112 comprises a memory 310, a processor 340, a navigation unit 350, and a telephone unit 360. Other conventional components of the in-vehicle system 112 such as a display, clock, input keys, microphone, speakers, and short-range communication unit are omitted for clarity of description.

[0056] The memory 310 stores a mobile connect (MC) application 320. The MC application 320 interfaces with the VC application 212 on the mobile device 120 using the short range communication link 116. The MC application 320 can push or pull data exchanged with the mobile device 120. Generally, data received by the MC application 212 has already been processed on the mobile device 120, thus reducing the amount of processing performed by the in-vehicle system 112. Upon receiving data, the MC application 212 stores the data (e.g., in an ASCII XML file) and accesses it as needed. The MC application 320 may receive refresh requests from a user and transmit these requests to the mobile device 120. Furthermore, the MC application 320 may receive data inputs from the user (e.g., to add, delete, or modify a calendar entry, a contacts entry, or a voice note), and transfer these updates back to the mobile device 120.

[0057] The MC application 320 generates a user interface that enables interaction between the user and the in-vehicle system 112. For example, the user interface may provide various displays, menus, controls, and other conventional user interface features. In one embodiment, the user interface displays data in a predefined format. In this embodiment, the display format is not entirely determined by the data received, but rather by a "skin" associated with the user interface. If the skin changes, the appearance changes. For example, a skin may specify display attributes such as font, font color, font size, background color, etc. Furthermore, various skins may

cause different types of data to be included or excluded from display, or displayed in a different format.

[0058] The MC application 320 interacts with various databases including a calendar database 332, a contacts database 334, and an alert database 336. The calendar database 332 and contacts database 334 store calendar entries and contacts entries respectively received by the in-vehicle system 112 from the mobile device 120, or inputted or modified by the user using the in-vehicle system 112. In one embodiment, calendar and contacts entries are stored according to a data schema (e.g., an ASCII XML format) that includes various fields related to different aspects of the event. For example, a calendar data schema for each calendar entry may include the following fields: event date, event start time, event stop time, event title, event location, event description, event people, and event notification time. A contacts data schema for each contacts entry may include fields corresponding to contact name, contact address, contact phone number, contact fax number, and contact email address. One or more of the metadata fields may be blank if the data is unknown or inapplicable for the particular entry. For example, some calendar entries may omit an "event location" if the entry merely corresponds to a reminder rather than an appointment or meeting (e.g., Mom's birthday).

[0059] The MC application 320 may process calendar entries to create and manage alerts based on the event notification time and store the alerts to the alert database 336. Using the alert database 336, the MC application 320 may monitor the current time and trigger an alert when the current time matches an alert time for a scheduled alert. The notification time may be prior to the event time (e.g., to provide a reminder), or may correlate directly to the event time of a calendar entry.

[0060] In one embodiment, the MC application 320 processes entries in the calendar database 332 and contacts database 334 to compare and cross correlate entries. For example, the MC application 320 may locate matching metadata between calendar and contacts entries. This would allow, for example, the MC application 320 to automatically determine a phone number or address of an event invitee (e.g., by finding a match between the event person field of a calendar entry and the contact name field of a contacts entry). The MC application 320 could then take an action based on this match, such as placing a call to the invitee using a hands-free telephone unit 360 or generating a route to the address using the navigation unit 350. The MC

application 320 may additional correlate calendar or contacts entries with points of interest (POIs) in a POI database 352 that may be included as part of the in-vehicle navigation unit 350. A processing for generating actions based on calendar events is described in more detail below with respect to FIGs. 9-10.

OPERATION AND USE

In-Vehicle Electronic Calendar

[0061] FIG. 4 illustrates an embodiment of a process for providing an electronic calendar for use within a vehicle environment 100. Various steps of the process are illustrated as being performed by the calendar server 140, the mobile device 120, and the in-vehicle system 112. In alternative embodiments, steps may be performed by different entities, or more than one entity may collectively carry out the described step.

[0062] Transfer of the calendar data to the in-vehicle system 112 is generally initiated when the mobile device 120 detects 402 a refresh trigger event. The refresh trigger event may be a manual refresh request initiated by a user, or the refresh trigger event may occur automatically when specified refresh conditions are met. For example, in one embodiment, the mobile device 120 is configured to provide a calendar refresh to the in-vehicle system 112 after a fixed amount of time has elapsed since the last refresh (e.g., every 10 minutes). In another embodiment, the refresh trigger event comprises receipt of a signal from the in-vehicle system 112 initiated by, for example, ignition of the vehicle 110 or another detectable event.

[0063] Upon detecting the refresh trigger event, the mobile device 120 requests 404 calendar information from the calendar server 140 according to a specified date range using the appropriate calendar API. Alternatively, the mobile device 120 may request the calendar information from a different calendar source, or load the information from an internally stored calendar. The request may include requests to multiple calendar servers 140 utilizing different calendar systems (e.g., iCal, MS Outlook Calendar, Google Calendar, Yahoo Calendar, etc.). The specified date range is typically substantially smaller the full range of dates stored by the calendar server 140. For example, the calendar server 140 may store calendar entries for many years before and after the current date, but the mobile device 120 may request calendar data for only the next 30 days. The requested date range may comprise a greater timeframe than the timeframe that the in-vehicle system 112 is configured to display.

This would allow, for example, the mobile device 120 and/or the in-vehicle system 112 to cache the extra data until it is needed. Furthermore, this allows the in-vehicle system 112 to display "upcoming events" to the user that occur outside the standard date range of the in-vehicle calendar display, or to schedule an alert in advance of the actual event.

[0064] The calendar server 140 receives 406 the request and provides 408 the requested calendar information to the mobile device 120. The mobile device 120 receives 410 the requested calendar information from the server 140, and converts 412 the received calendar information from the calendar server format to the vehicle calendar format. A process for converting 412 the calendar information to the vehicle format is described in further detail below with reference to FIG. 5. The converted calendar information is then transferred 414 to the in-vehicle system 112. The in-vehicle system 112 receives 416 the calendar information and updates 418 the in-vehicle display accordingly.

[0065] FIG. 5 illustrates an embodiment of a process performed by the mobile device 120 (e.g., using the calendar module 214 of the VC application 212) for converting 412 the calendar information from the calendar server format to the vehicle format (or from an internally stored calendar format to the vehicle format). The mobile device 120 identifies 502 the native calendar format(s) of the received calendar information. For example, the mobile device 120 may receive calendar information in one or more of a CalDAV format, an MS Exchange format, a Google calendar format, or another standard calendar format, or may use a format native to a calendar application that executes on the mobile device 120. The mobile device 120 then applies 504 conversion rules to the calendar information received in each of the native formats to convert all the calendar data to a common format (e.g., an ASCII XML format) such that calendar data from different calendar systems can be compared and aggregated. The mobile device 120 then aggregates 506 the calendar data to identify and remove duplicate entries. Duplicate entries may be detected by comparing metadata fields and finding matches. For example, duplicate entries may be detected if two entries have the same event start time and the same event title, event people, or event location. The mobile device 120 modifies 508 the calendar data according to predefined time frame rules. For example, the mobile device 120 may receive calendar data covering a first time frame (e.g., 30 days), but scale the

data to cover only a second shorter time frame (e.g., 7 days). The mobile device 120 then processes and filters 510 the data for transfer to the in-vehicle system 112. Processing and filtering may include removing certain data types that are not suitable for display in the vehicle such as, for example, hyperlinks, unusually characters, and attachment artifacts. This step may also include processing the data into a uniform data type and container size. For example, in one embodiment, calendar entries are converted to an ASCII format for transfer to the in-vehicle system 112. In one embodiment, processing and filtering may also include characterizing calendar entries as either "events" or "notifications." Events may include, for example, meetings, appointments, or activities. Typically, calendar entries are characterized as an event if the entry specifies a set time period (e.g., between a time *x* and a time *y*, where time *x* is before time *y*). In contrast, an entry may be characterized as a notification if the entry does not specify a non-zero time period. For example, the calendar entry may indicate a start time and end time that are the same, or may not indicate any start time or end time. These types of entries may be created, for example, for all day events or as reminders about birthdays, holidays, items on a to-do list, etc. that do not specify a specific non-zero time window. In alternative embodiments, the characterization of entries as "events" or "notifications" may be performed by either the mobile device 120 or the in-vehicle system 112. In other alternative embodiments, different or additional criteria may be used for characterizing calendar entries as notifications or events.

[0066] FIG. 6 is an example of a calendar interface screen 600 for displaying calendar information within a vehicle. In the illustrated embodiment, the calendar interface screen 600 includes a notifications window 605 and an events window 610. The events window 610 comprises an ordered lists of upcoming calendar events (e.g., event N, event N+1, event N+2, etc), typically listed chronologically. The notifications window 605 provides a list of notifications. Notifications and events typically remain on display until cleared by the user, or may be configured to clear automatically after a specified time period. In one embodiment, both the notifications window 605 and the events window 610 include a "more" function that, when selected, cause the display to show additional events and /or notifications beyond those presently displayed.

[0067] FIG. 7A-B illustrate specific examples of a calendar user interface and operation of the "more" function described above. FIG. 7A illustrates a user interface screen 702 showing a set of notifications and a set of events. The "..." below the list of events indicates that there are more events for the day following the events presently appearing in the events window. If the user selects the "more" function (designated by "..."), the display is updated to show the user interface screen 704. Interface screen 704 shows the additional events for the day (e.g., 4:30 PM Follow up Call, 7:30 PM Dinner with wife). Furthermore, the "..." above the list of events in interface screen 704 indicates that there are more events for the day prior to the events appearing in the events window. If the user selects the more function in user interface screen 704, the display returns to user interface screen 702.

[0068] FIG. 7B illustrates a user interface screen 706 showing another set of notifications and a set of events. The "..." below the list of notifications indicates that there are more notifications for the day following than those presently appearing in the events window. If the user selects the "more" function (designated by "..."), the display is updated to show user interface screen 708. Interface screen 708 shows the additional notifications for the day (e.g., Donna's Birthday). Furthermore, the "..." above the list of notifications in interface screen 708 indicates that there are additional notifications for the day prior to those appearing in the notifications window. If the user selects the more function in user interface screen 708, the display returns to user interface screen 706.

Voice Note Function

[0069] In one embodiment, a voice note feature allows a user to record a voice memo from within the vehicle 110. For example, the user may want to set a reminder for a newly scheduled appointment, document a new phone number or address, or record other important information for later retrieval. Beneficially, the driver can use the voice note function with minimal distraction and can therefore maintain his focus on navigating the vehicle.

[0070] FIG. 8 illustrates an exemplary process for processing a voice note in the vehicle environment. Various steps of the process are illustrated as being performed by the voice note server 160, the mobile device 120, and the in-vehicle system 112. In alternative embodiments, steps may be performed by different entities, or more than one entity may collectively carry out the described step.

[0071] The in-vehicle system 112 detects and records 802 audio corresponding to a spoken voice note. In one embodiment, the user selects a voice note feature on the in-vehicle system 112 by, for example, manually selecting a menu option or providing a predefined voice command. The in-vehicle system 112 then prompts the user to speak and records the audio. In some embodiments, the in-vehicle system 112 divides the prompts into multiple parts to provide additional clarity. For example, for a calendar voice note, the in-vehicle 112 system may separately prompt the user to provide the event time, the event people, the event title, etc. according to the various metadata fields used for calendar entries. For a contacts voice note, the in-vehicle system 112 may separately prompt the user for the contact name, the contact address, the contact phone number, the contact email address, etc. according to the various metadata fields used for contacts entries. In other embodiments, the in-vehicle system 112 does not provide any prompt, but instead automatically begins recording when it detects the user speaking. In one embodiment, rather than the in-vehicle system 112 providing specific prompts for different metadata fields, the user may speak predefined tag words in order to separate different fields of the entry. For example, the user may speak the prompt "time" prior to speaking the time of the event, so that the system recognizes that the subsequent speech is a time entry and correlate the speech to the appropriate metadata fields. In another mode of operation, a user can edit a current calendar or contacts entry. For example, the user may select the entry to edit using menus on the in-vehicle system 112, or may use predefined voice commands to identify an entry. The user may then edit various fields using further voice commands.

[0072] Once the voice note is recorded to the in-vehicle system 112, the in-vehicle system 112 transfers 804 the recorded audio to the mobile device 120. The mobile device 120 receives 806 the voice note recording and uploads 808 the voice note recording to the voice note server 160 for processing. The voice note server 160 receives 801 the voice note and performs 812 speech-to-text conversion to convert the audio recording to text. The speech-to-text conversion may be achieved using conventional dictation software. The voice note server 160 then delivers 814 the dictated text back to the mobile device 120. Optionally, the voice note server 160 may also deliver 816 the audio file to the user via various services such as, for example, Short Message Service (SMS) or email, or the voice note server 160 may

store the audio recording in association with a calendar entry or contacts entry of the user. Alternatively, the voice note server 160 may instead deliver a hyperlink to the user from which the audio file can be downloaded or streamed. This provides the user with the original sound file should the dictation not be available later on, or in case the dictation is not accurate.

[0073] The mobile device 120 receives the dictated text from the voice note server 160 and extracts 818 useful data from the dictated text. In this step, the mobile device 120 processes the dictated text to locate text relevant to a calendar entry and/or a contacts entry. For example, for a calendar voice note, the text may be searched for an event time, the participating parties, subject of the event, or other relevant fields. For a contacts voice note, the text may be searched for a contact name, a phone number, an address, or an email address, or other relevant fields. The data extraction can be simplified if the dictated text includes appropriate field tags separating the text into the various data fields.

[0074] The mobile device 120 then updates 820 the entries (e.g., calendar or contacts) according to the extracted text. These updates are then provided 822 to the vehicle in the manner described above. The in-vehicle system 112 receives 824 the updated calendar or contacts entries and updates 826 the display as appropriate.

[0075] The voice note feature thus allows a user to add or edit calendar or contacts entries within the vehicle 110 with little distraction. Furthermore, the feature maintains the original recorded speech and can provide to the user in case the dictation is not satisfactory.

Calendar Actions

[0076] Calendar entries generally identify an event's invitees and/or a location of the event. Commonly, the user will want to contact the invitees shortly before the scheduled event time, find an address of an invitee where the event may be held, or find a different address of the event referenced in the calendar entry. Thus, in one embodiment, the in-vehicle system 112 includes a feature for performing an action based on calendar metadata at the scheduled time of the event or at the scheduled notification time prior to the event. For example, the in-vehicle system 112 can dial a phone number of an invitee using the hands-free telephone unit 360. Additionally, the in-vehicle system 112 can input the address to the navigation unit 350 in order to generate a route to the meeting location.

[0077] In order to determine the desired action, the in-vehicle system 112 performs a comparison and cross-linking of information between the calendar database 332 and the contacts database 334. Optionally, the in-vehicle system 112 may also correlate calendar and contacts data with POIs stored in the POI database 352 of the navigation unit 350. By automatically performing this cross-correlation of data, the user is relieved of manually performing this task and can therefore better focus on safely driving the vehicle.

[0078] FIG. 9 illustrates one embodiment of a process performed by the in-vehicle system 112 (e.g., using the MC application 320) for generating an action based on a calendar entry. The in-vehicle system 112 reads 902 the calendar data for a calendar entry. The in-vehicle system 112 then searches 904 the contacts database 334 and the POI database for possible matches to terms in the calendar entry. Matching weights are then assigned 906 to the matches based on the strength of the match. Various types of matching and ranking metrics may be used. For example, in one embodiment, a fuzzy search method is used that applies weights based on a similarity between text fields. Then, the matching metric is compared to a threshold, and entries above the threshold are accepted as matches.

[0079] The in-vehicle system 112 prompts 908 the user to select to call a contact or route to a destination. If the user selects 910 to call a contact, the in-vehicle system 112 displays 912 a list of potential contact matches ordered according to the matching weights (e.g., beginning with the strongest match). The user may then select a contact to call, and the telephone system 360 places the call 914 to the selected contact. In one embodiment, the list of matches may be limited those exceeding a minimum matching weight. Furthermore, if only one contact exceeds the minimum matching weight, the in-vehicle system 112 may automatically call the contact without first displaying the list.

[0080] Alternatively, if the user selects 916 to generate a route, the in-vehicle system display 918 a list of potential location matches ordered according to the matching weights (e.g., beginning with the strongest match). The location matches may either be an address associated with a matching contact from the contacts database 334 or a POI (or address of a POI) from the POI database 352. The user may then select an address or POI, and the navigation unit 350 generates 920 a route to the selected destination. In one embodiment, the list of matches may be limited

those exceeding a minimum matching weight. Furthermore, if only one destination exceeds the minimum matching weight, the in-vehicle system 112 may automatically configure the navigation unit 350 to generate a route to the destination without first displaying the list.

[0081] In one embodiment, steps 902-908 are pre-processing steps that occur in advance of the scheduled event time. For example, steps 902-908 may be performed whenever calendar updates are received from the mobile device 120. Then steps 910-920 occur when a scheduled event time is reached, or a scheduled notification time prior to the event time. Alternatively, the in-vehicle system 112 may perform all steps (including steps 902-908) for each calendar entry as the calendar events occur rather than pre-processing them in advance. In yet another embodiment, one or more of the steps 902-920 may instead be performed by the mobile device 120.

[0082] FIG. 10 illustrates examples of user interface screens that the in-vehicle system 112 may display while executing the process described above. Interface screen 1002 comprises a display screen associated with a calendar entry. This calendar entry may be displayed, for example, when the user selects to view the entry from a list of calendar entries, or the entry may be displayed automatically when the notification time or event time is reached. The interface screen 1002 includes a route option 1004 and a call option 1006. If the user selects the call option 1006, interface screen 1008 is displayed. Interface screen 1008 shows a list of contacts (e.g., name and phone number) matching at least a portion of the calendar data. Here, items (1) and (2) in interface screen 1008 are displayed in bold indicating that those contacts are exact matches with the calendar metadata. If the user instead selects the route option 1004, interface screen 1010 is displayed. Interface screen 1010 shows a list of destinations (e.g., name and addresses) matching at least a portion of the calendar data. Items (1) and (2) in interface screen 1010 are displayed in bold indicating that they are those destinations are exact matches with the calendar metadata.

Calendar Alerts

[0083] The in-vehicle system 112 may include a calendar alert feature that provides visual alerts and/or audible alarms to notify the user about calendar events. Alerts are useful, for example, to remind the user of an upcoming event or the need to perform some action (e.g., an item on a "to-do list"). In one embodiment, calendar alerts are generated by the in-vehicle system 112 from calendar data stored in the

vehicle's calendar database 332. Alternatively, the alerts may be generated by the mobile device 120 and transmitted to the vehicle system 112 as they occur. Unlike conventional calendar alerts which are designed for display on computer screens or mobile devices, the in-vehicle system 112 instead generates calendar alerts specifically designed for the vehicle environment. As a result, the alerts can be viewed and managed by the driver with minimal distraction.

[0084] FIG. 11 illustrates an embodiment of a process for providing in-vehicle alerts based on calendar entries. The in-vehicle system 112 processes 1102 calendar entries in the calendar database 332 to add alerts to the alert database 336. Each entry in the alert database 336 may include various metadata fields that include information related to the alert such as, for example, alert time, alert message, alert audio, and alert action. The alert time field indicates the time (e.g., day, hour, minute) at which the alert will be triggered. Alert times can be extracted from the notification time included with calendar entry. For example, an alert may be set to trigger 15 minutes before an event time, 30 minutes before an event time, 24 hours before an event time, or another fixed time period. Alternatively, the alert may be set to trigger at the same time as the event time for the calendar entry. The alert message field indicates a message that will be displayed when the alert is triggered. This may correspond to information in the related calendar entry, or may be an entirely different message. The alert audio field identifies an audible alert, if any, that will be played when the alert triggers. The user may choose the alert audio when setting the alert from one of a stored set of possible audible alerts, or a default alert audio may be used. The alert action field identifies an action to be taken when the alert is triggered such as, for example, dialing a particular phone number, generating a route to a particular destination, or loading a particular website.

[0085] The in-vehicle system 112 continuously monitors 1106 the current time to determine when the current time matches an alert time in one of the stored alerts in the alert database 336. If the current time does not match any alert time, the in-vehicle system 112 continues monitoring 1106. If an alert is triggered 1108 (i.e., when the current time matches an alert time), the in-vehicle system 112 displays 1110 a visual alert (which may include the alert message) and activates 1112 an audible alert (which may include the selected alert audio). When an alert is activated, the user may have the option of selecting a snooze function. The snooze function allows the

user to delay the alert for a predefined time period (i.e., a "snooze time"). The snooze time may be a default value (e.g., 10 minutes) or the in-vehicle system 112 may present the user the option of selecting a desired snooze time. If the snooze function is not activated at step 1114, the alert is completed and the alert is removed 1116 from the alert database 336. If the snooze function is active at step 1114, the display is updated 1118 to indicate that the alert has been "snoozed." The in-vehicle system 112 then updates 1120 the alert time for the snoozed alert according to the snooze time (e.g., by adding the snooze time to the previously configured alert time). The in-vehicle system 112 then continues to monitor 1106 alerts. This includes monitoring for when the current time matches the updated alert time of a snoozed alert.

[0086] FIGS. 12A and 12B illustrate examples of user interface screens displayed by the in-vehicle system 112 when carrying out the alert process described above. FIG. 12A illustrates an example of an interface screen 1204 that is displayed when an alert is triggered. A notification window 1202 includes information from the calendar entry including the time and subject of the scheduled event (in this example, "9:30AM: Meet with John to discuss new interface"). The notification window 1202 also indicates an estimated time until the scheduled event (in this example, less than 50 minutes). The notification window 1202 includes a snooze button 1206, that when selected, activates the snooze function described above. Furthermore, the notification window 1202 includes route button 1208 and call button 1210 that when selected, causes the in-vehicle system 112 to take the selected action as described above. Additionally, the notification window 1202 includes an icon 1212 and a Multiple Information Display (MID) bar 1204. In one embodiment, the notification window 1202 automatically pops up on the display screen when the alert is triggered. The icon 1212 can comprise any icon designated by the in-vehicle system 1212 or by the notification parameters. For example, in the case of an alert for a meeting, the icon 1212 could symbolize a meeting. In the case of an alert for a person's birthday, the icon 1212 could be a picture of the person. The MID bar 1204 typically displays information for various gauges such as odometer information and other related item. In one embodiment, the MID bar 1204 may be displayed on any of the display screens so that the information is continuously available to the user.

[0087] FIG. 12B illustrates an example of an interface screen that is displayed when the user selects the snooze function. A notification bar 1222 is displayed

indicating that a previous alert has been snoozed. In one embodiment, the notification bar 1222 could instead display the next scheduled event as a convenient reminder to the user. While the alert is snoozed, the user can view other screens in the "any screen" window 1224 (e.g., audio control screen, navigations screen, etc.) In one embodiment, when the snooze function is activated, the any screen window 1224 automatically returns to the screen previously displayed prior to activation of the alert. The MID bar 1226 is also displayed as described above.

[0088] The features described herein thus allow a user to view and manage an electronic calendar and related functions within a vehicle 110. Beneficially, by utilizing a mobile device 120 connected to the vehicle 110, the in-vehicle system 112 itself need not be equipped with direct internet connectivity, and much of the data processing can be performed by the VC application 212 on the mobile device 120 rather than by the in-vehicle system 112. This therefore reduces the cost of the vehicle 110 to buyers, and allows current vehicle owners to simply download an application to their mobile device 120 without having to install a new in-vehicle system 112. Furthermore, because the calendar data and related features are specifically formatted for use in a vehicle, a driver can safely view and manage the electronic calendar with minimal distraction.

[0089] Upon reading this disclosure, those of skill in the art will appreciate still additional alternative designs for calendar sharing in the vehicle environment using a connected phone, having the features described herein. Thus, while particular embodiments and applications of the present invention have been illustrated and described, it is to be understood that the invention is not limited to the precise construction and components disclosed herein and that various modifications, changes and variations which will be apparent to those skilled in the art may be made in the arrangement, operation and details of the method and apparatus of the present invention disclosed herein without departing from the spirit and scope of the invention as defined in the appended claims.

WHAT IS CLAIMED IS:

1. A method for providing an electronic calendar for display within a vehicle, the method comprising:

receiving, by a mobile device, first calendar data from a first calendar source the first calendar source storing the first calendar data in a first native calendar format specific to the first calendar source;

converting the first calendar data formatted in the first native calendar format to a vehicle calendar format suitable for transfer to an in-vehicle system; and

transferring, using a short-range communication protocol, the converted calendar data from the mobile device to the in-vehicle system.

2. The method of claim 1, further comprising:

receiving, by the mobile device, calendar data from a second calendar source the second calendar source storing the calendar data in a second native calendar format specific to the second calendar source, the second native calendar format different than the first native calendar format;

converting the second calendar data formatted in the second native calendar format to the vehicle calendar format suitable for transfer to the in-vehicle system; and

aggregating the first and second calendar data to remove duplicate calendar entries.

3. The method of claim 2, wherein the first calendar source comprises a first network-based calendar server and the second calendar source comprises a second network-based calendar server.

4. The method of claim 2, wherein the first calendar source comprises a first network-based calendar server and the second calendar source comprises a calendar application executable by the mobile device.

5. The method of claim 1, further comprising:

scaling the first calendar data to extract calendar entries falling within a predefined time range, the predefined time range smaller than a time range of the first calendar data received in the first native calendar format.

6. The method of claim 1, further comprising;

filtering the first calendar data to remove at least one of hyperlinks, special characters, and attachments from calendar entries.

7. The method of claim 1, further comprising:

receiving, from the in-vehicle system, updated calendar data reflecting a change to a calendar entry made using the in-vehicle system, the updated calendar data in the vehicle calendar format;

converting the updated calendar data in the vehicle calendar format to the first native calendar format; and

providing the updated calendar data to the first calendar source in the first native calendar format.

8. The method of claim 1, further comprising:

detecting a refresh trigger event; and

responsive to the detecting the refresh trigger event, requesting a refresh of the first calendar data from the first calendar source.

9. The method of claim 8, wherein detecting the refresh trigger event comprises receiving a signal from the in-vehicle system indicating vehicle ignition.

10. The method of claim 8, wherein detecting the refresh trigger event comprises detecting that a predefined time period has elapsed since a last refresh.

11. The method of claim 1, further comprising:

receiving a voice note from the in-vehicle system, the voice note comprising an audio recording of spoken words;

obtaining dictated text comprising a speech-to-text conversion of the spoken words;

creating a new calendar entry scheduling an event described in the dictated text; and

transferring the new calendar entry to the in-vehicle system.

12. The method of claim 10, wherein obtaining the dictated text comprises:

uploading the voice note to a voice note server for processing; and

receiving the dictated text from the voice note server.

13. A computer-readable storage medium storing instructions executable by a processor, the instructions when executed cause the processor to perform steps including:

receiving first calendar data from a first calendar source the first calendar source storing the first calendar data in a first native calendar format specific to the first calendar source;

converting the first calendar data formatted in the first native calendar format to a vehicle calendar format suitable for transfer to an in-vehicle system; and

transferring, using a short-range communication protocol, the converted calendar data from the mobile device to the in-vehicle system.

14. The computer-readable storage medium of claim 13, wherein the instruction when executed further cause the processor to perform steps including:

receiving calendar data from a second calendar source the second calendar source storing the calendar data in a second native calendar format specific to the second calendar source, the second native calendar format different than the first native calendar format;

converting the second calendar data formatted in the second native calendar format to the vehicle calendar format suitable for transfer to the in-vehicle system; and

aggregating the first and second calendar data to remove duplicate calendar entries.

15. A method for managing an electronic calendar within a vehicle environment, the method comprising:

receiving, by an in-vehicle computing system, calendar data comprising a plurality of calendar entries, the calendar data received from a mobile device via a short-range communication protocol;

generating a user interface for displaying the calendar data, the user interface comprising an events window for displaying a representation of scheduled calendar events, and a notifications window for displaying a representation of calendar notifications; and

outputting the user interface to a in-vehicle display.

16. The method of claim 15, wherein the calendar events comprise calendar entries having a non-zero time period and wherein the calendar notifications comprise calendar entries without a non-zero time period.

17. The method of claim 15, wherein the user interface further comprises:

a more events function that when selected by a user updates the user interface to display additional events scheduled before or after the scheduled calendar events in the events window;

18. The method of claim 15, wherein the user interface further comprises:

a more notifications function that when selected by a user updates the user interface to display additional notifications scheduled before or after the scheduled calendar notifications in the notifications window.

19. The method of claim 15, further comprising:

correlating the calendar entries with contacts entries to locate potential matches between metadata of the calendar entries and metadata of the contacts entries; and

responsive to reaching a scheduled time for a calendar entry, initiating an action using the potential matches.

20. The method of claim 19, wherein initiating the action comprises:

displaying a list of contact entries that include a contact name matching at least a portion of an event invitee in the calendar entry or a contact address matching at least a portion of the event location in the calendar entry.

21. The method of claim 20, further comprising:

responsive to a receiving a selection of one of the list of contact entries, placing a telephone call using a telephone number associated with the selected contact entry.

22. The method of claim 20, further comprising:

responsive to a receiving a selection of one of the list of contact entries, generating a navigation route to an address associated with the selected contact entry.

23. The method of claim 19, wherein initiating the action comprises:

displaying a list of point of interest that match at least a portion of an event location in the calendar entry; and

responsive to a receiving a selection of one of the list of points of interest, generating a navigation route to an address associated with the selected point of interest.

24. The method of claim 15, further comprising:

storing to an alert database one more scheduled calendar alerts, each calendar alert associated with a calendar entry and comprising a scheduled alert time;

determining when a current time matches the scheduled alert time;

responsive to the current time matching the scheduled alert time, triggering an alert.

25. The method of claim 24, wherein triggering the alert comprises at least one of:

displaying a visual message on the vehicle display; and

activating and audible alert.

26. The method of claim 24, further comprising:

receiving a snooze request for the triggered alert;

updating the alert time by adding a predefined snooze time to the alert time; and

storing the updated alert time to the alert database.

27. A system for managing an electronic calendar within a vehicle environment, the system comprising:

a short-range communication device for receiving calendar data comprising a plurality of calendar entries from a mobile device via a short-range communication protocol; and

an in-vehicle display for displaying a user interface showing the received calendar data, the user interface comprising an events window displaying a representation of scheduled calendar events, and a notifications window displaying a representation of calendar notifications.

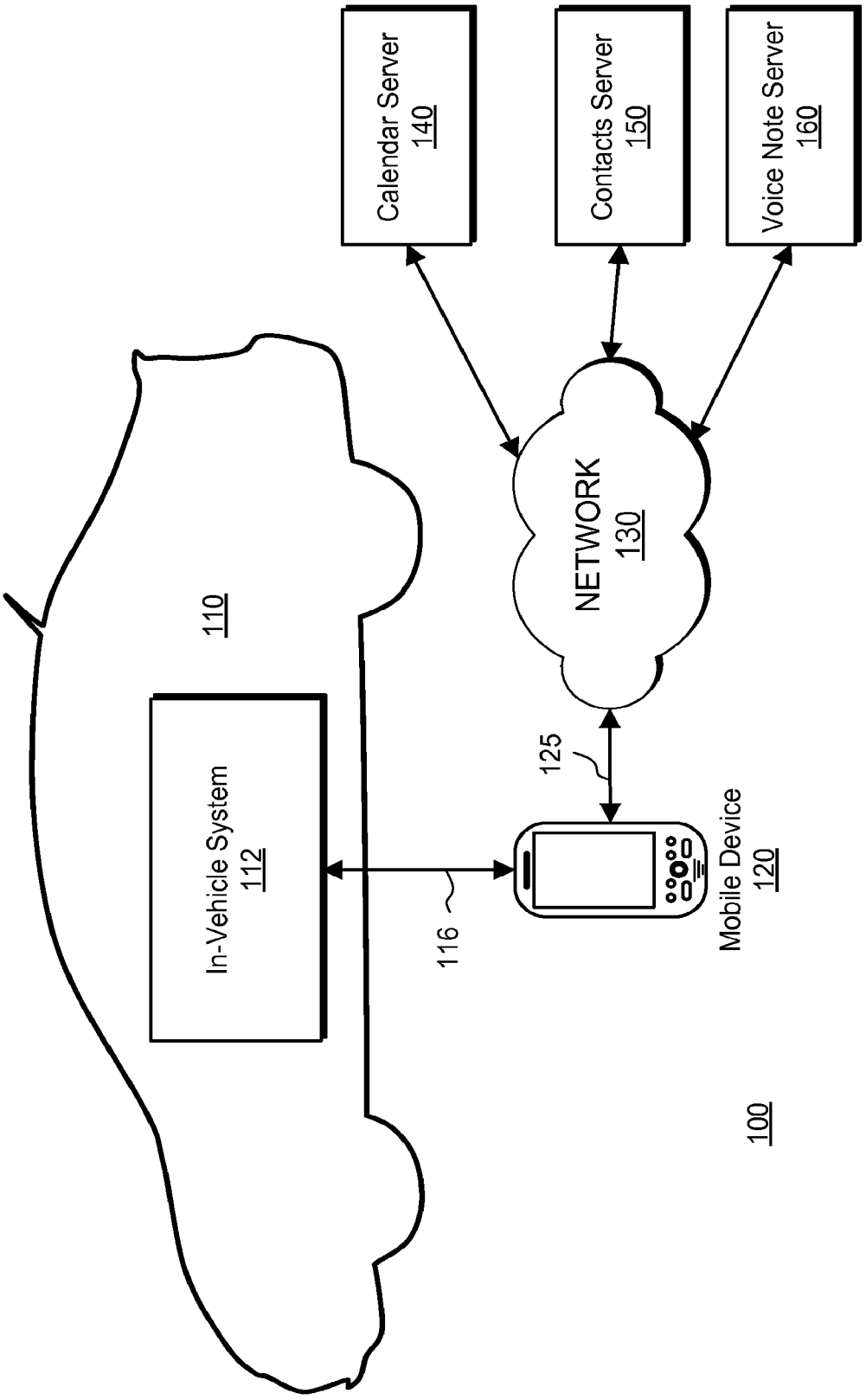

Calendar Server
140
Contacts Server
150
Voice Note Server
160
NETWORK
130
110
In-Vehicle System
112
125
116
Mobile Device
120
100

FIG. 1

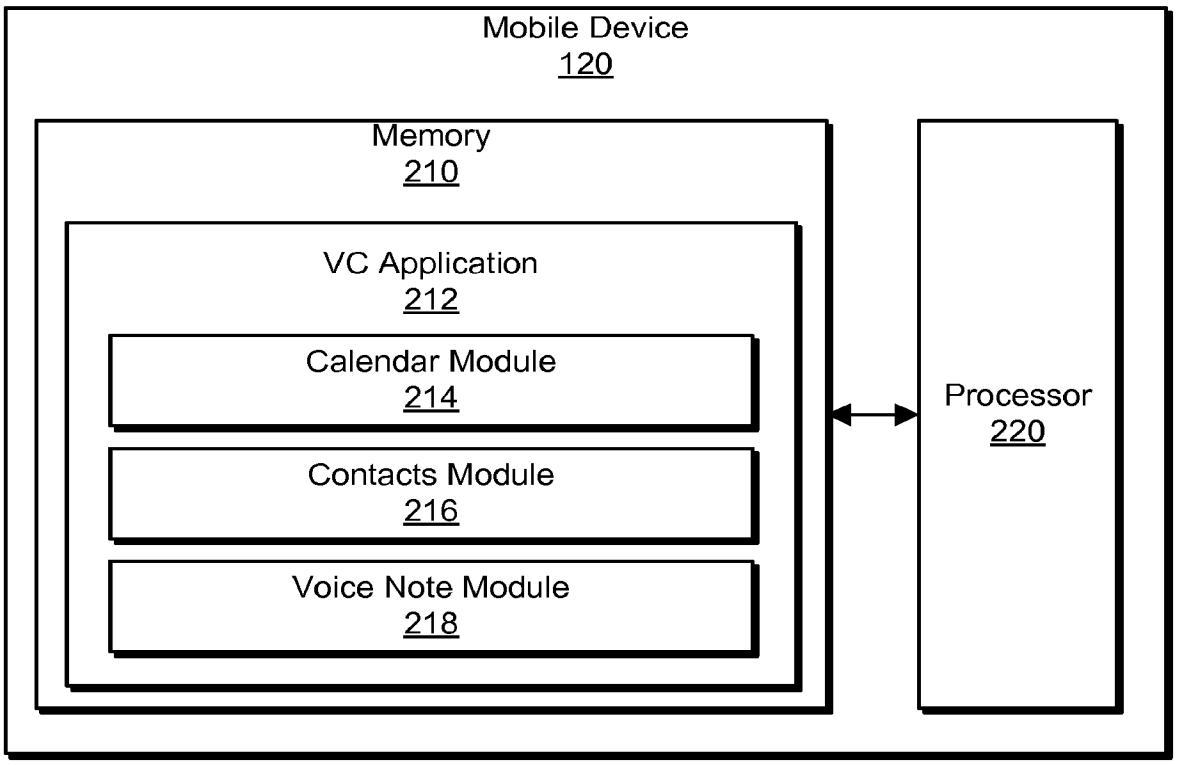

Mobile Device
120
Memory
210
VC Application
212
Calendar Module
214
Contacts Module
216
Voice Note Module
218
Processor
220

FIG. 2

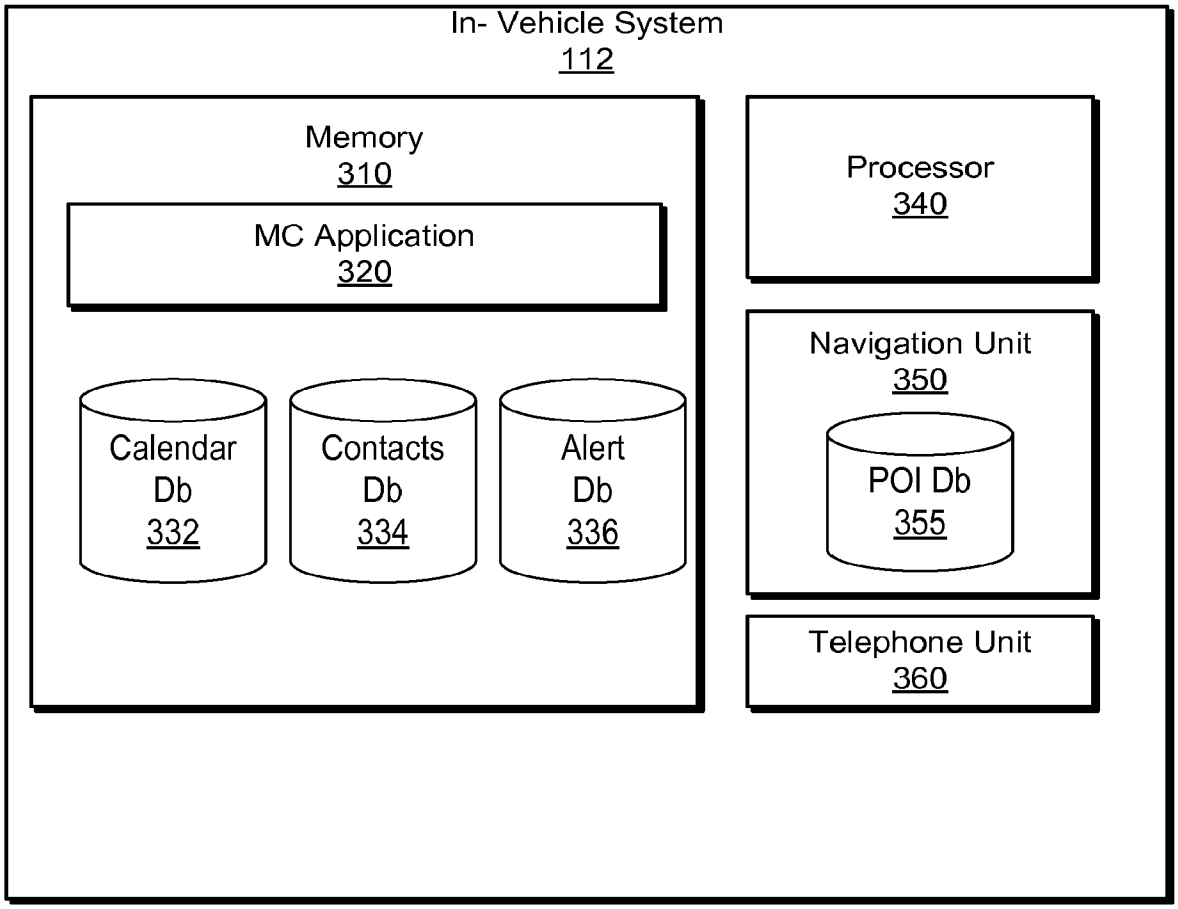

In- Vehicle System
112
Memory
310
MC Application
320
Calendar
Db
332
Contacts
Db
334
Alert
Db
336
Processor
340
Navigation Unit
350
POI Db
355
Telephone Unit
360

FIG. 3

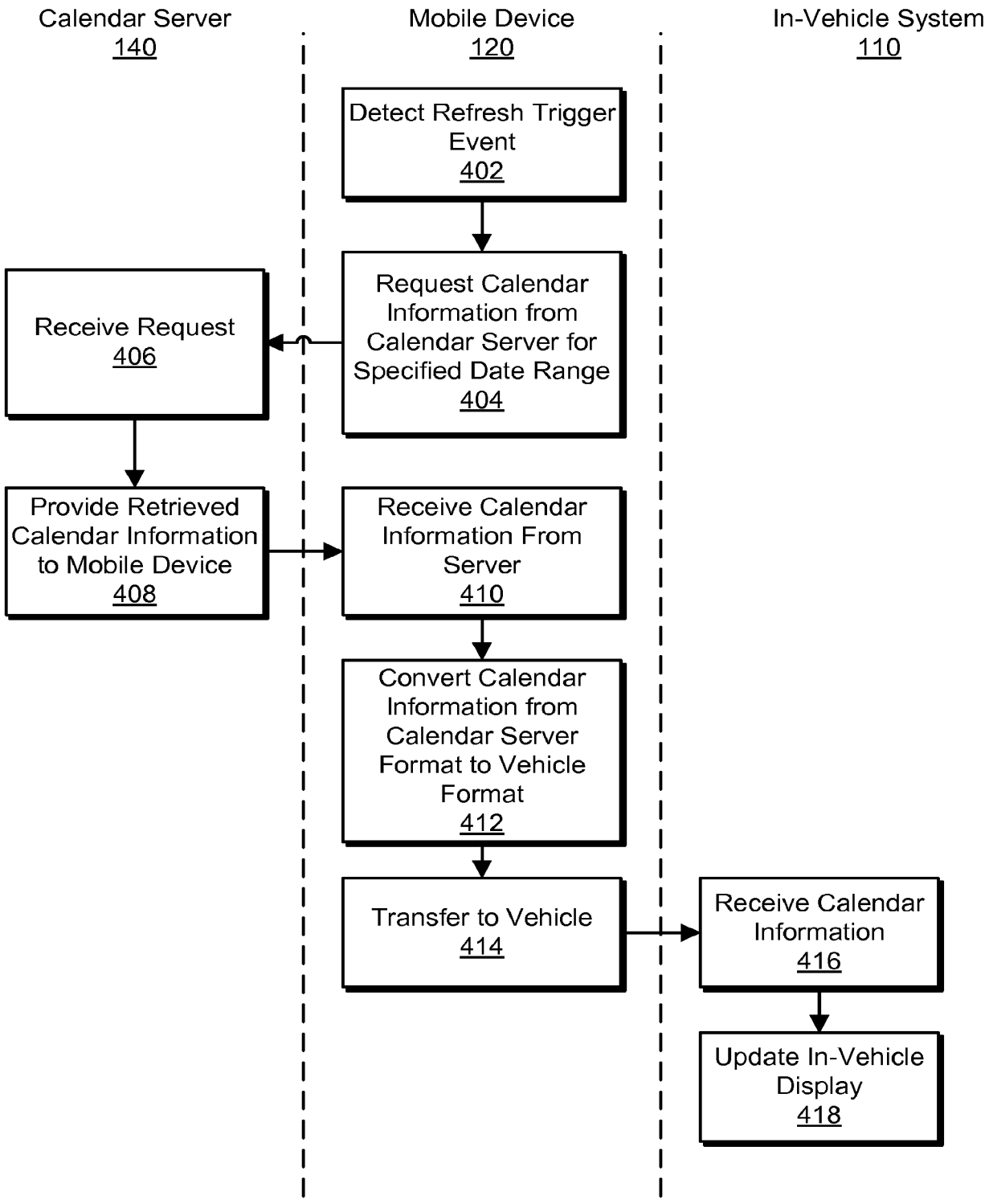

Calendar Server
140
Mobile Device
120
In-Vehicle System
110
Detect Refresh Trigger Event
402
Request Calendar Information from Calendar Server for Specified Date Range
404
Receive Request
406
Provide Retrieved Calendar Information to Mobile Device
408
Receive Calendar Information From Server
410
Convert Calendar Information from Calendar Server Format to Vehicle Format
412
Transfer to Vehicle
414
Receive Calendar Information
416
Update In-Vehicle Display
418

FIG. 4

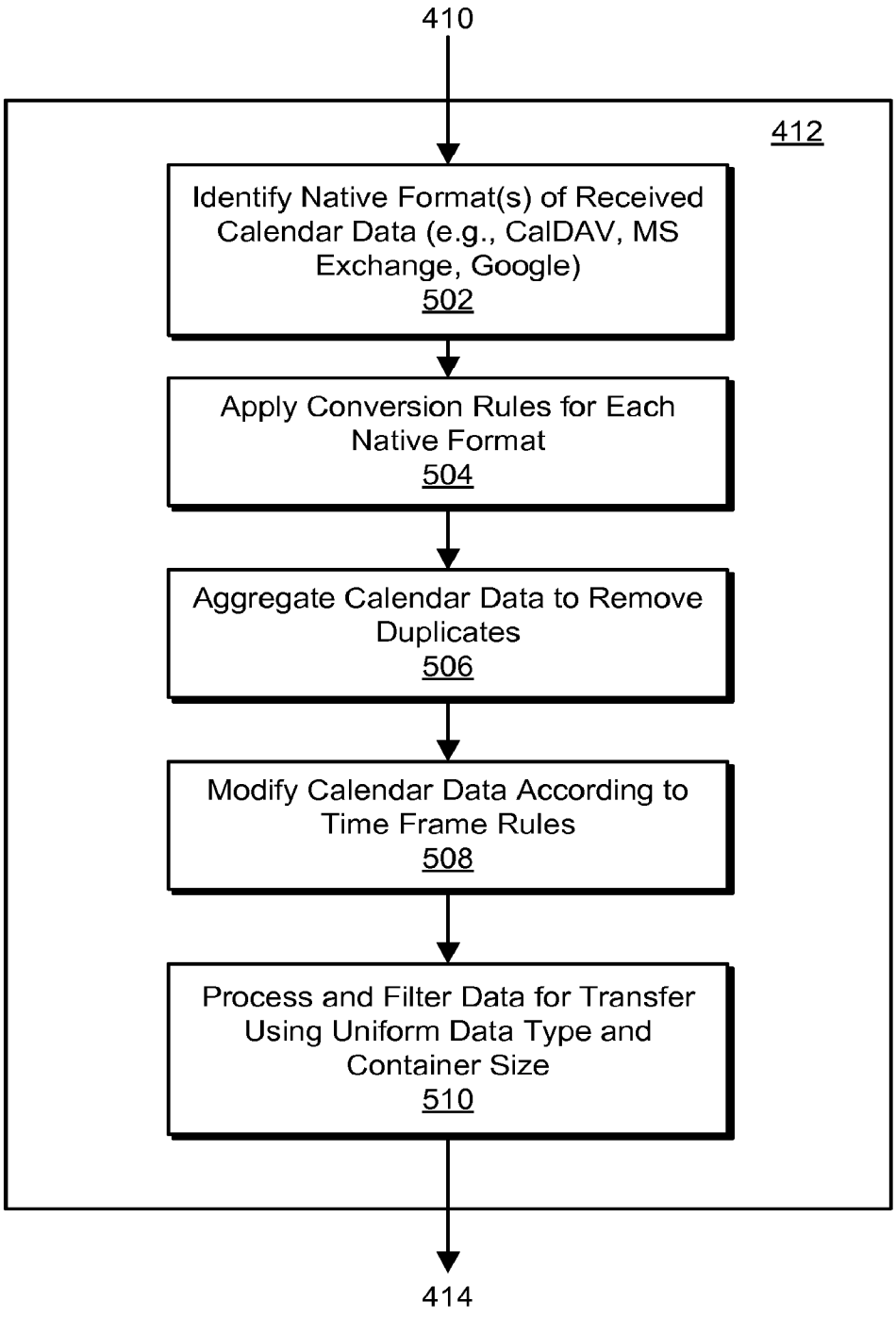

410
412
Identify Native Format(s) of Received Calendar Data (e.g., CalDAV, MS Exchange, Google)
502
Apply Conversion Rules for Each Native Format
504
Aggregate Calendar Data to Remove Duplicates
506
Modify Calendar Data According to Time Frame Rules
508
Process and Filter Data for Transfer Using Uniform Data Type and Container Size
510
414

FIG. 5

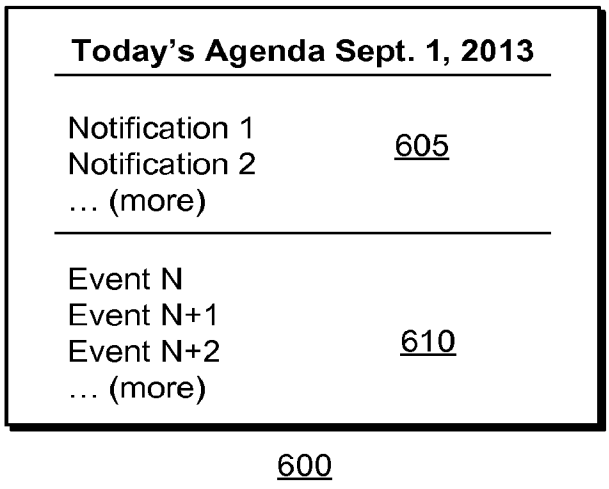

Today's Agenda Sept. 1, 2013
Notification 1
Notification 2
… (more)
605
Event N
Event N+1
Event N+2
… (more)
610
600

FIG. 6

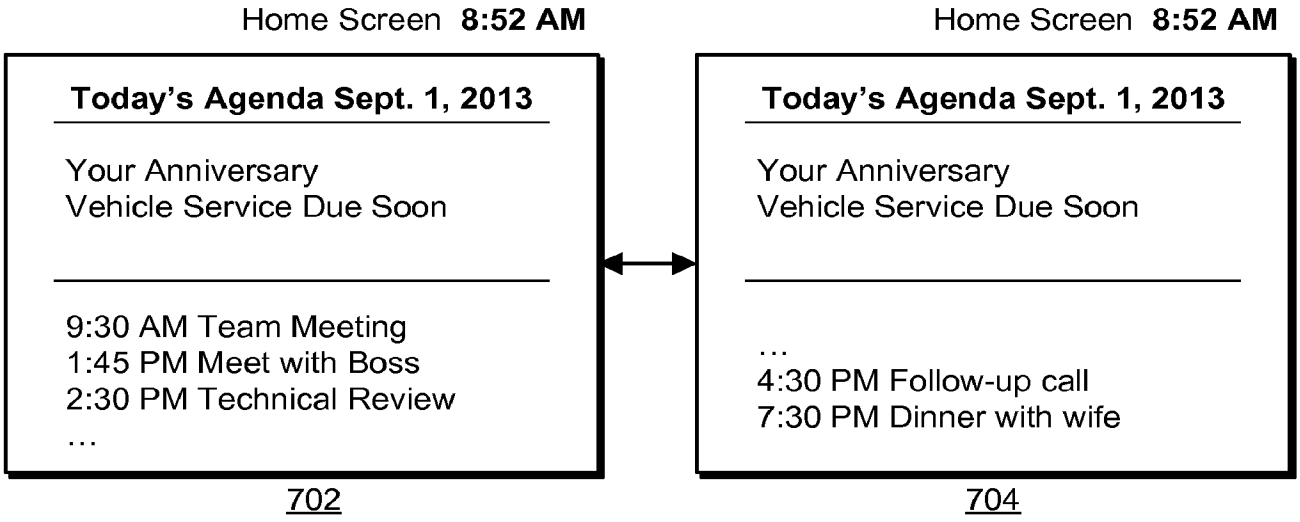

Home Screen 8:52 AM
Today's Agenda Sept. 1, 2013
Your Anniversary
Vehicle Service Due Soon
9:30 AM Team Meeting
1:45 PM Meet with Boss
2:30 PM Technical Review
…
702
Home Screen 8:52 AM
Today's Agenda Sept. 1, 2013
Your Anniversary
Vehicle Service Due Soon
…
4:30 PM Follow-up call
7:30 PM Dinner with wife
704

FIG. 7A

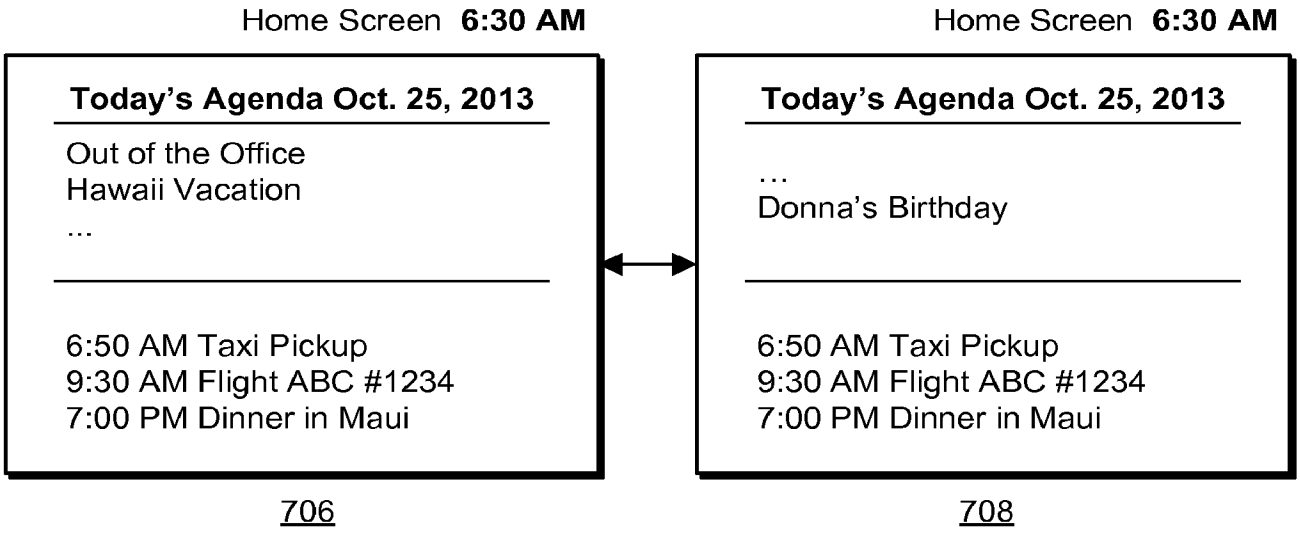

Home Screen 6:30 AM
Today's Agenda Oct. 25, 2013
Out of the Office
Hawaii Vacation
...
6:50 AM Taxi Pickup
9:30 AM Flight ABC #1234
7:00 PM Dinner in Maui
706
Home Screen 6:30 AM
Today's Agenda Oct. 25, 2013
…
Donna's Birthday
6:50 AM Taxi Pickup
9:30 AM Flight ABC #1234
7:00 PM Dinner in Maui
708

FIG. 7B

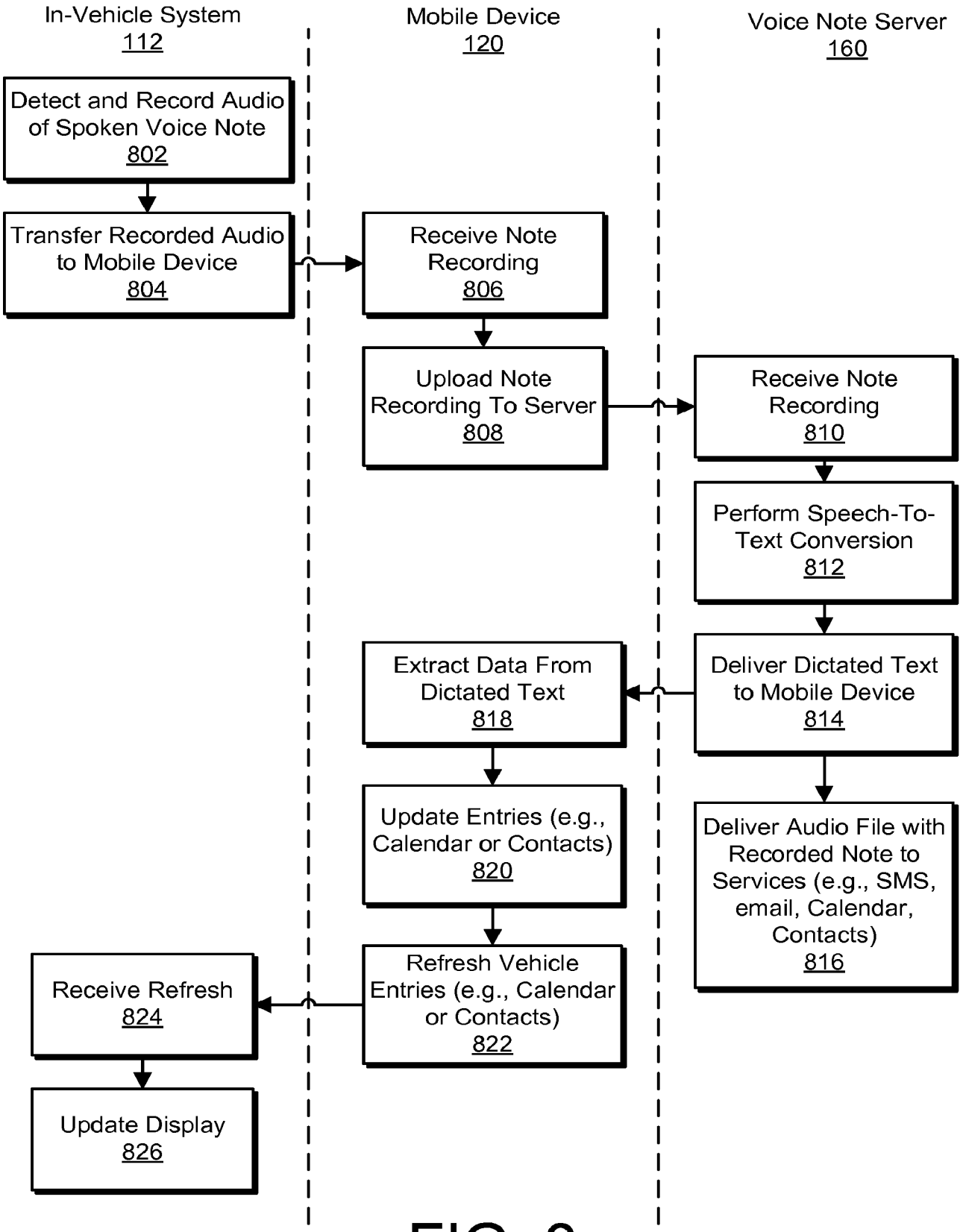

In-Vehicle System
112
Mobile Device
120
Voice Note Server
160
Detect and Record Audio of Spoken Voice Note
802
Transfer Recorded Audio to Mobile Device
804
Receive Note Recording
806
Upload Note Recording To Server
808
Receive Note Recording
810
Perform Speech-To-Text Conversion
812
Deliver Dictated Text to Mobile Device
814
Deliver Audio File with Recorded Note to Services (e.g., SMS, email, Calendar, Contacts)
816
Extract Data From Dictated Text
818
Update Entries (e.g., Calendar or Contacts)
820
Refresh Vehicle Entries (e.g., Calendar or Contacts)
822
Receive Refresh
824
Update Display
826

FIG. 8

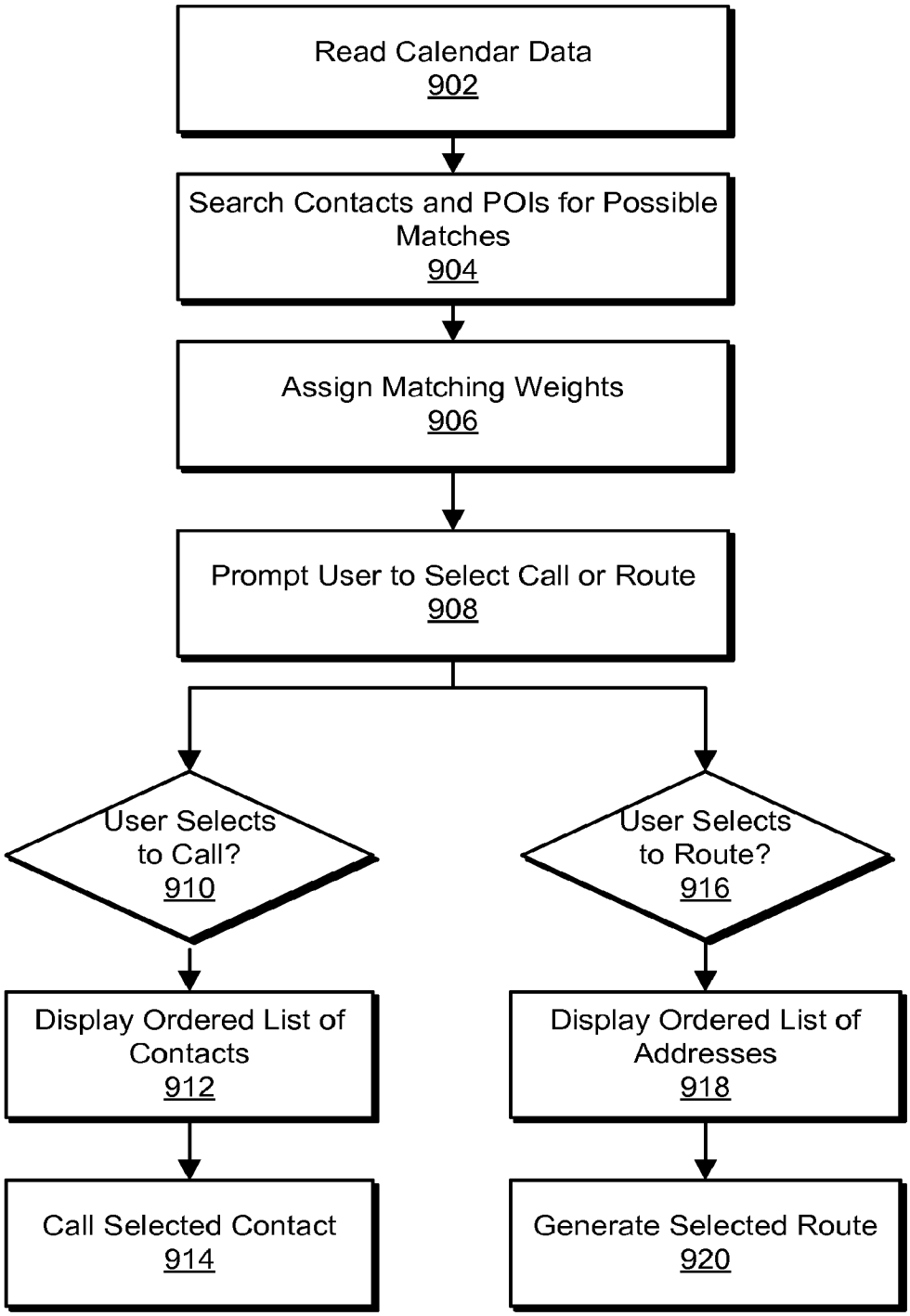

Read Calendar Data
902
Search Contacts and POIs for Possible Matches
904
Assign Matching Weights
906
Prompt User to Select Call or Route
908
User Selects to Call?
910
User Selects to Route?
916
Display Ordered List of Contacts
912
Display Ordered List of Addresses
918
Call Selected Contact
914
Generate Selected Route
920

FIG. 9

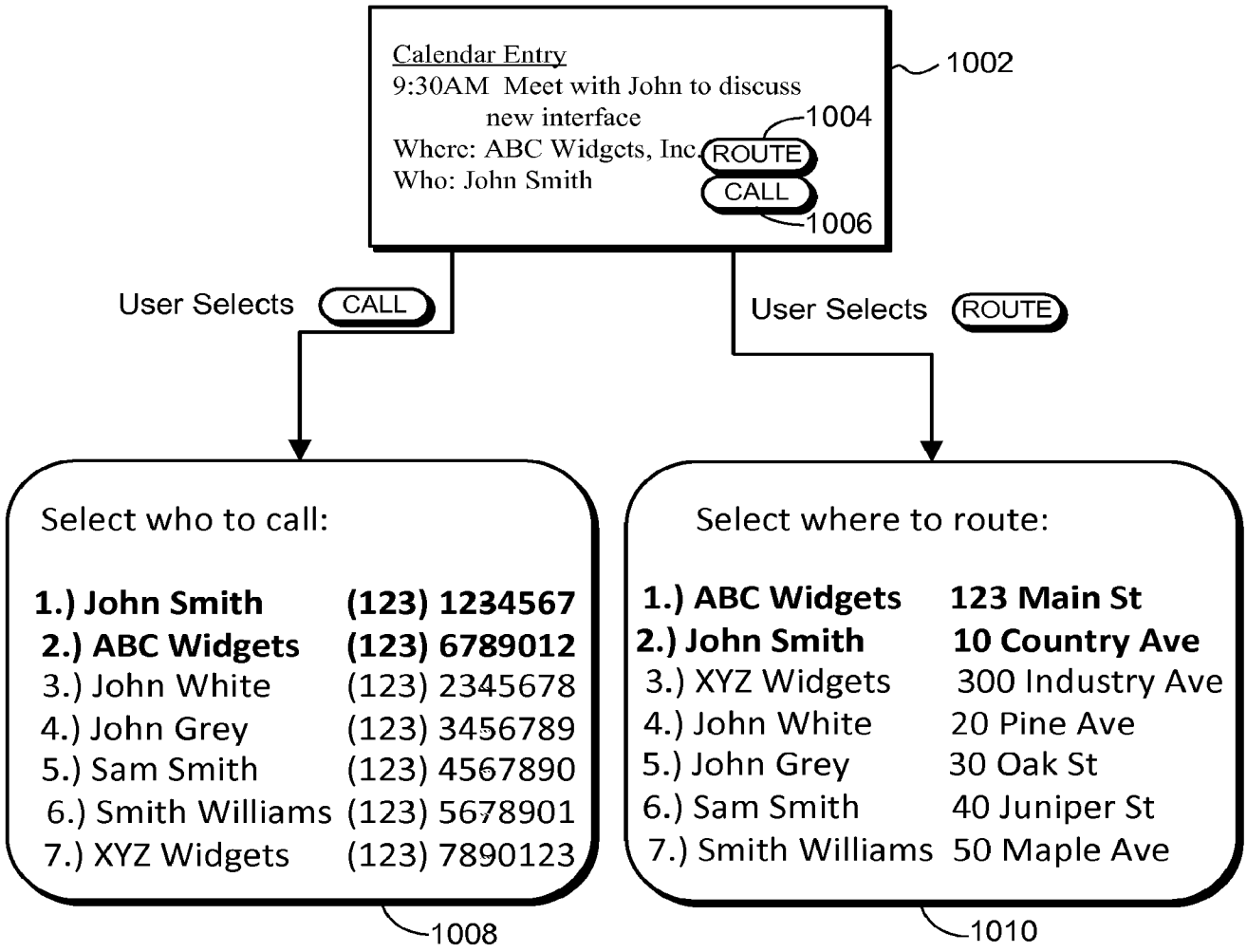

Calendar Entry
9:30AM Meet with John to discuss new interface
Where: ABC Widgets, Inc.
Who: John Smith
ROUTE
CALL
1002
1004
1006
User Selects CALL
User Selects ROUTE
Select who to call:
1.) John Smith (123) 1234567
2.) ABC Widgets (123) 6789012
3.) John White (123) 2345678
4.) John Grey (123) 3456789
5.) Sam Smith (123) 4567890
6.) Smith Williams (123) 5678901
7.) XYZ Widgets (123) 7890123
1008
Select where to route:
1.) ABC Widgets 123 Main St
2.) John Smith 10 Country Ave
3.) XYZ Widgets 300 Industry Ave
4.) John White 20 Pine Ave
5.) John Grey 30 Oak St
6.) Sam Smith 40 Juniper St
7.) Smith Williams 50 Maple Ave
1010

FIG. 10

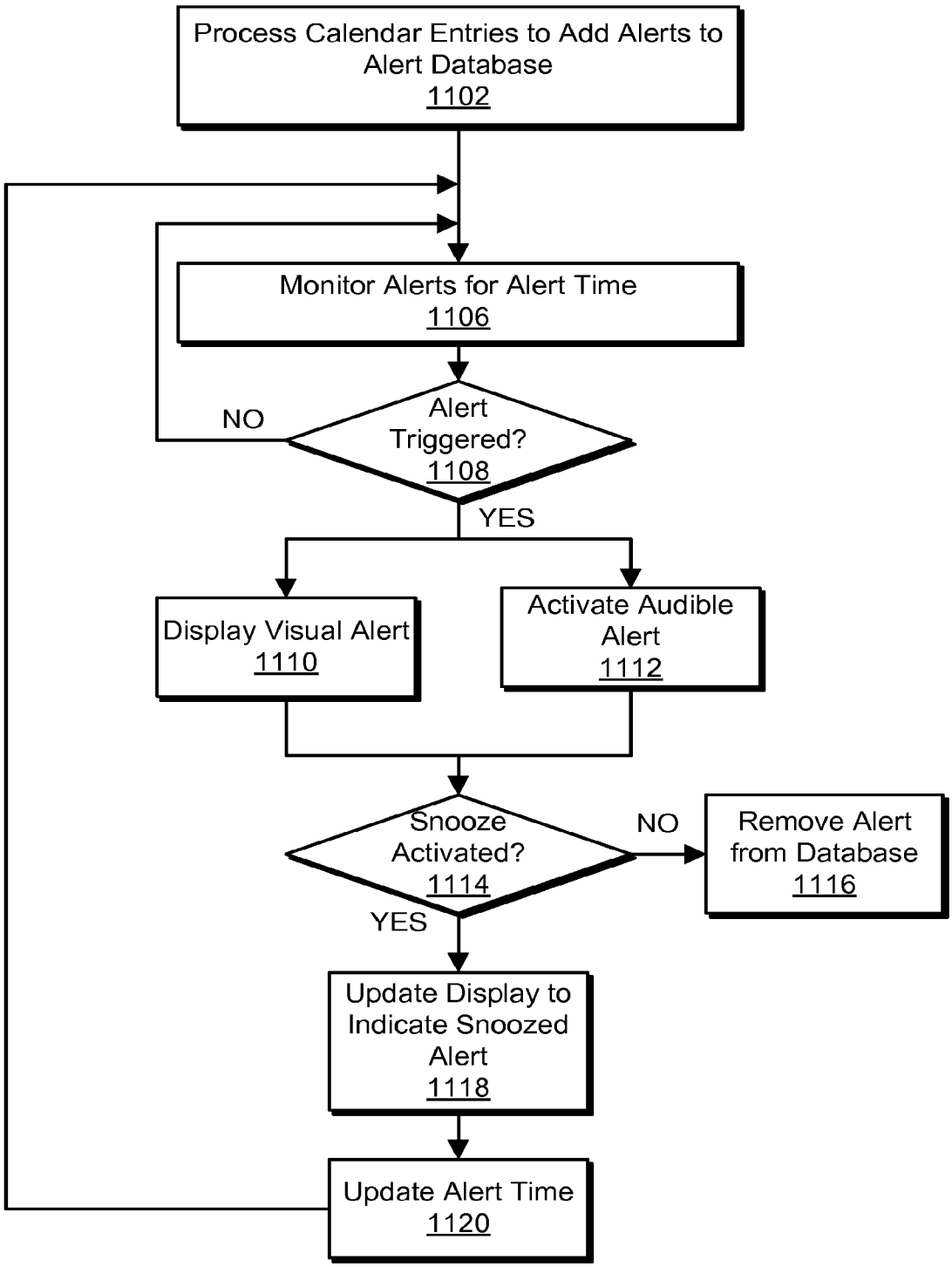

Process Calendar Entries to Add Alerts to Alert Database
1102
Monitor Alerts for Alert Time
1106
Alert Triggered?
1108
NO
YES
Display Visual Alert
1110
Activate Audible Alert
1112
Snooze Activated?
1114
NO
Remove Alert from Database
1116
YES
Update Display to Indicate Snoozed Alert
1118
Update Alert Time
1120

FIG. 11

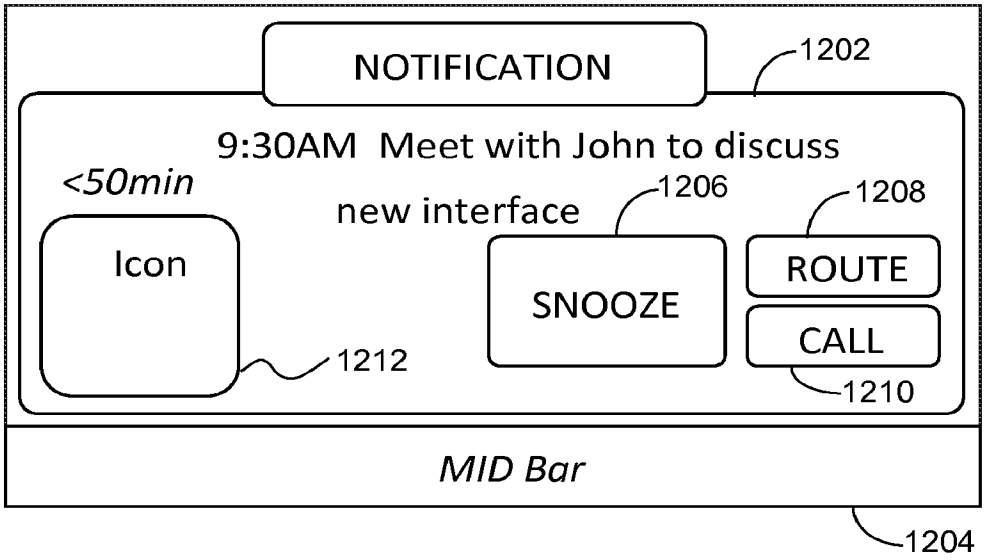


FIG. 12A

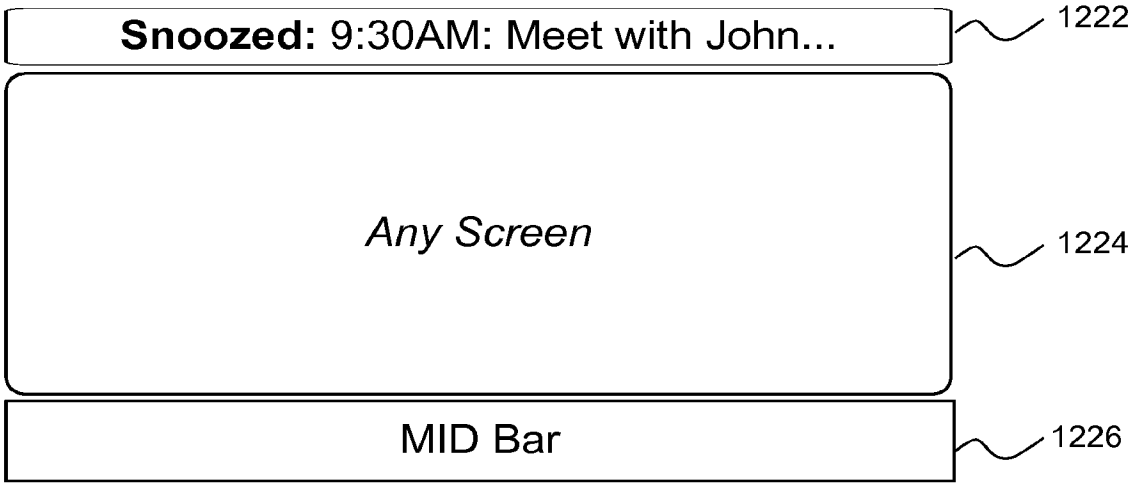


FIG. 12B

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US 12/21314

A. CLASSIFICATION OF SUBJECT MATTER
IPC(8) - G06Q 50/00 (2012.01)
USPC - 705/6
According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
IPC(8): G06Q 50/00 (2012.01)
USPC: 705/6

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched
USPC: 701/1, 7.13, 7.15, 7.16, 7.18, 32.4, 36, 49, 55, 409, 412, 468; 368/10, 28; 709/203, 220; 719/318, 328 (view search terms below)

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)
PubWEST: (PGPB, USPT, EPAB, JPAB); Google Scholar
Search Terms: vehicle calendar, in-car calendar, mobile device, calendar, receive calendar, calendar source, format, reformat, convert, transform, short-range communication, Bluetooth, wi-fi, display, second calendar, aggregate, merge, join, remove duplicate

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X --- Y	US 2010/0306309 A1 (SANTORI et al.) 02 December 2010 (02.12.2010) entire document, especially abstract; para [0010], [0012], [0014], [0030]-[0038], [0041]-[0044], [0047]-[0051], [0053]-[0055], [0057]-[0058], [0062], [0064]-[0065], [0070], [0073]-[0080], [0089], [0094].	1-8, 10-18, 24, 25, 27 --- 9, 19-23, 26
Y	US 2009/0106036 A1 (TAMURA et al.) 23 April 2009 (23.04.2009) entire document, especially abstract; para [0064], [0070].	9
Y	US 2009/0177745 A1 (DAVIS et al.) 09 July 2009 (09.07.2009) entire document, especially abstract; para [0038]-[0040], [0082], [0099], [0136]-[0146].	19-23
Y	US 2006/0010206 A1 (APACIBLE et al.) 12 January 2006 (12.01.2006) entire document, especially abstract; para [0143], [0172], [0203], [0208], [0234].	26
A	US 2009/0157513 A1 (BONEV et al.) 18 June 2009 (18.06.2009) entire document.	1-27

☐ Further documents are listed in the continuation of Box C. ☐

* Special categories of cited documents:
"A" document defining the general state of the art which is not considered to be of particular relevance
"E" earlier application or patent but published on or after the international filing date
"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
"O" document referring to an oral disclosure, use, exhibition or other means
"P" document published prior to the international filing date but later than the priority date claimed
"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
17 April 2012 (17.04.2012)	08 MAY 2012
Name and mailing address of the ISA/US Mail Stop PCT, Attn: ISA/US, Commissioner for Patents P.O. Box 1450, Alexandria, Virginia 22313-1450 Facsimile No. 571-273-3201	Authorized officer: Lee W. Young PCT Helpdesk: 571-272-4300 PCT OSP: 571-272-7774

Form PCT/ISA/210 (second sheet) (July 2009)

Microsoft

Accessibility

A Guide for Businesses and Organizations

Empowering employees, customers and partners
with accessible technology

www.microsoft.com/enable/business/

Accessibility:

A Guide for Businesses and Organizations

Empowering employees, customers, and partners with accessible technology

www.microsoft.com/enable/business/

Published by Microsoft Corporation
Trustworthy Computing
One Microsoft Way
Redmond, Washington 98052-6399

Managing editor: Bonnie Kearney, Trustworthy Computing, Accessibility Outreach

First edition. Published in 2011.

© 2011 Microsoft Corporation. All rights reserved.
Terms of use: www.microsoft.com/info/cpyright.mspx
Trademarks: www.microsoft.com/library/toolbar/3.0/trademarks/en-us.mspx
To download a copy of this guide, visit www.microsoft.com/enable/business/

Microsoft, IntelliMouse, Internet Explorer, Natural, Outlook, Silverlight, SmartArt, and Windows are either registered trademarks or trademarks of Microsoft Corporation in the United States and/or other countries. All other trademarks are property of their respective owners.

Permission for reuse: This guide, and companion CD, may be used for nonprofit educational and training purposes only. These materials may be printed and duplicated when used for educational or training purposes and not for resale. If you or your organization wants to use these materials for any other purpose, you may submit a request to and obtain written permission from Microsoft (www.microsoft.com/about/legal/permissions/default.mspx). Requests will be considered on a case-by-case basis.

Table of contents

About this guide 5

Chapter 1: Accessibility in the workforce 6

What is *accessibility*, what is *accessible technology*? 7

The need for accessible technology in business and organizations 8

Chapter 2: Impairment types and technology solutions 11

Defining *disability* and *impairments* 11

Vision impairments 12

Mobility and dexterity impairments 17

Hearing impairments and deafness 23

Language impairments 27

Learning impairments 29

Age-related impairments 31

Chapter 3: Selecting accessible technology 33

Identifying the right mix of accessibility solutions 33

Accessibility in Microsoft products 35

Assistive Technology Product Starter Guide 42

Assistive Technology Decision Tree 44

Chapter 4: Planning and training for accessibility 48

Developing an accessible technology plan 48

Accessibility training for web developers and testers 49

Resources 51

Resources from Microsoft 51

Additional resources and events 52

About this guide

Purpose of this guide

In an era when technology is redefining the workplace and creating a knowledge-based global economy that places a high value on communication, collaboration, and mobility, accessibility is increasingly essential in doing business. Accessible technology addresses the personal needs of all computer users, including those with physical disabilities, learning and language impairments, and age-related limitations, making it easier for organizations to empower employees, serve customers, and engage with partners.

This guide from Microsoft® provides information about accessibility and accessible technology to help organizations worldwide ensure that all the people they serve or engage have equal access to information and services. For organizations new to accessibility and working with people with disabilities, accessibility can sometimes seem overwhelming. To help your organization meet the needs of people with all types of abilities, this guide provides specific information about many types of impairments and some of the accessible technology solutions that help address them.

How to use this guide

Chapter 1 provides an overview of accessibility, defines accessible technology, and discusses why it is important for organizations to make accessibility an integral part of their business.

Chapter 2 is organized by the types of disabilities and the accessibility solutions available to help individuals who have disabilities. The chapter defines each type of impairment and offers examples of accessibility features and assistive technology products that are helpful in addressing and accommodating these impairments.

Chapter 3 provides more in-depth information, including an overview of accessibility features in the most recent versions of the Windows® operating system, Windows Internet Explorer®, and Microsoft Office. This chapter also includes more details about assistive technology products and resources to help you find and select assistive technology products for your employees or other users.

Chapter 4 provides guidance on planning and training for accessibility and gives an overview to the online accessibility trainings provided in CD format at the back of this guide and available online at http://msdn.microsoft.com/accessibility. These trainings are designed to help organizations create more accessible software products using the Windows platform.

Download

This guide is available for download on the Microsoft Accessibility website (www.microsoft.com/enable/business/).

Chapter 1: Accessibility in the workforce

Over the past three decades, innovations such as personal computers, the Internet, mobile devices, and cloud computing have revolutionized how people work, communicate, and get information. These advances, in turn, have dramatically changed the way we do business. And as technology continues to transform the workplace, demand is growing for accessible technology that can accommodate the needs and preferences of all users.

Businesses and organizations—from government agencies and universities to utilities and financial institutions—are looking for more effective ways to engage customers; to recruit, empower, and retain valuable employees; and to increase efficiency and productivity across their organizations. In today's connected world, technology is at the heart of all these initiatives. Yet to achieve those goals, organizations must make technology and its benefits accessible to the largest possible number of people—regardless of age or ability.

Accessible technology can make it easier for anyone to see, hear, and use a computer. It enables people with a wide range of abilities—including those with disabilities, age-related impairments, or temporary limitations, in addition to novice computer or web users—to adjust technology to accommodate their individual visual, dexterity, hearing, learning, and language needs and preferences or to modify their personal technology experience.

Microsoft is one of the technology industry leaders in accessibility innovation, in building products that are safer and easier to use, such as Windows 7 and Microsoft Office 2010, and in providing a platform that enables other companies to develop their own accessible technology solutions. Creating technology products that are accessible to everyone, regardless of age or ability, is an integral part of the Microsoft corporate mission: *to help people and businesses throughout the world to realize their full potential.*

This chapter introduces accessibility, defines more precisely what accessible technology is, and explains why it is important to modern businesses and organizations.

What is *accessibility*, what is *accessible technology*?

For the purpose of this guide, we define *accessible technology* as any computer technology that individuals can adjust to accommodate their vision, dexterity, hearing, cognitive, and speech needs or that businesses and organizations can use to make online information and services accessible to more people.

For many people with disabilities, *accessibility* is what makes computer use possible, but accessibility has much broader applications. Accessibility makes it easier for *anyone* to see, hear, and use a computer and to personalize their computers to meet their own needs and preferences. If technology is truly accessible, it can be adjusted to meet the needs and preferences of people with a wide range of abilities—not just those with severe disabilities.

Actually, most people who use computers also benefit from at least a few accessibility features and settings that enable them to personalize their computers and work environments, such as changing font sizes and styles, background images, colors, and computer sounds.

For businesses and organizations, accessible technology encompasses five elements:

- **Accessibility features or settings** that are built into software programs to allow users to adjust and customize product settings to meet their vision, dexterity, hearing, language, and learning needs. In Windows, for example, changing the font size and color and the mouse pointer options are accessibility settings. Windows, Office, and Internet Explorer include many accessibility features and settings that make it easier for users to see, hear, and use their computer.
- **Assistive technology products** (specialty hardware devices or software programs) that are specially designed and carefully chosen to accommodate either a specific disability or multiple disabilities. Examples include a screen magnification program for a computer user who has low vision or an ergonomic keyboard for a computer user with arthritis.
- **Web accessibility** design features that make it easier for people with certain disabilities to understand online content or to access online services. Examples include text enlargement for people with low vision and text equivalents of photos, graphics, and video files that work with assistive screen readers used by people who are blind.
- **Internal business applications**, such as intranets and internal purchasing applications, that are accessible to all employees.
- **Compatibility between assistive technology products**, the operating system, and software programs. This is critical for assistive technology products to function properly.

This guide presents accessibility features and assistive technology products that are compatible with the Windows operating system. Many of the accessibility features available in Windows 7 and Windows Vista can be found through the Ease of Access Center (located in the Control Panel). The Ease of Access Center (Figure 1-1) provides a convenient, centralized place where people can find accessibility settings and programs to help make their computers easier to use.

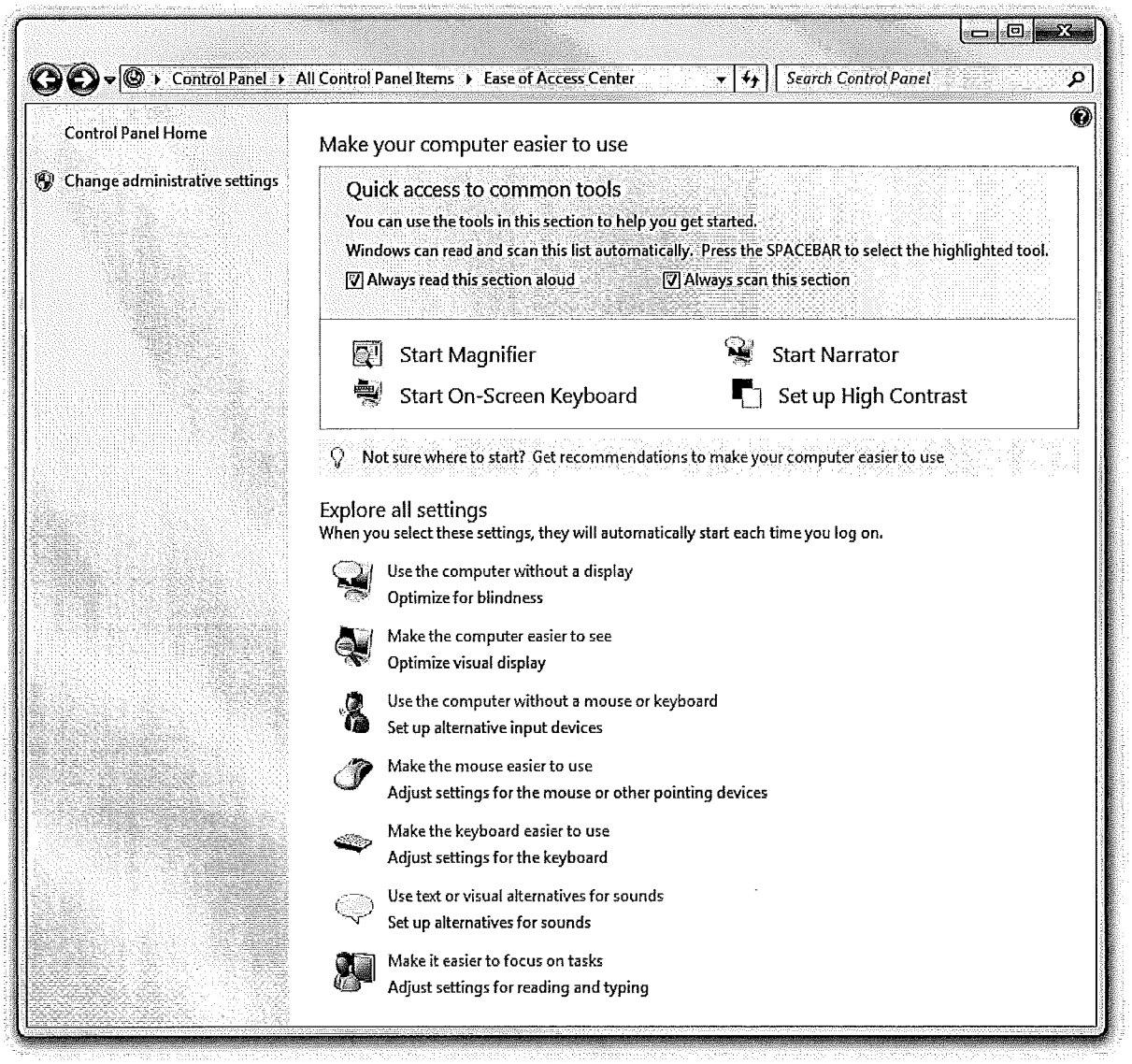


Figure 1-1 The Ease of Access Center is found in Windows 7 and Windows Vista.

The need for accessible technology in business and organizations

Accessible technology is important in the workplace for several reasons. Accessible technology helps businesses support workforce diversity, recruit from a larger pool of candidates, and enhance team collaboration and communication among all employees—including those with disabilities. For example, accessible technology can facilitate communication and collaboration between sighted and non-sighted colleagues by providing just-in-time delivery of information without the need for special printing and by enabling people who are blind or have other vision impairments to enlarge or customize fonts, choose high-contrast settings for greater visibility, or use a screen reader to access team documents.

Today, more than half of all U.S. jobs—from the front office to the factory floor—require some technology skills.[1] Simultaneously, the percentage of the workforce represented by individuals 55 years and older is increasing.[2] As a result of functional limitations that result from aging, these employees will require environmental modifications and/or technology accommodations.[3]

Accessibility can also help businesses attract new customers and interact more easily and effectively with a wider range of existing and potential customers, partners, and suppliers. Organizations that make accessibility a priority in their business can advertise job openings, requests for proposal, and other opportunities on websites that are accessible to people with vision impairments. And accessibility can help organizations increase online traffic and loyalty on their websites with design practices that are user-friendly and accessible to all users, including those with disabilities or age-related impairments.

Companies today are marketing many goods and services online. Governments and other organizations are offering more and more information and benefits over the Internet—sometimes exclusively. And just as the Internet has created a worldwide marketplace where even small businesses can compete on a global scale, web-enabled mobile devices have put a shopping cart in nearly every purse and pocket. Consumers today compare products, make purchases, book travel, and pay bills online while exchanging instant messages or emails with salespeople and customer service representatives—from any place and at any time.

Accessibility helps everyone

Another powerful consideration for making accessibility a part of any large business or organization is the sheer number of people around the world who need accessible technology, could benefit from using it, or choose to use accessible technology for a more comfortable or convenient computing experience.

In the United States alone, about one in five residents (54.4 million people) reported having some level of disability in 2005, according to a U.S. Census Bureau report that was released in December 2008 (the most current information available when this guide was published), but that doesn't tell the whole story. A two-part study commissioned by Microsoft and conducted by Forrester Research in 2003 and 2004 found that more than half (57 percent) of computer users in the United States between the ages of 18 and 64 could likely benefit from accessible and assistive technology due to mild-to-moderate difficulties or impairments that interfere with their ability to use a computer or to perform routine tasks.

Most of these users did not identify themselves as having a disability or impairment, but the Forrester Research study found that among computer users:

- One in four experiences a visual difficulty.
- One in four experiences pain in their wrists or hands.
- One in five experiences hearing difficulty.

---

[1] Bay Ledger News Zone, February 24, 2009. AFP American Edition

[2] Occupational Outlook Handbook, 2010-11 Edition. Overview of the 2008-18 Projections; US Bureau of Labor Statistics; www.bls.gov/oco/oco2003.htm

[3] Chappell NL, Cooke HA. 2011. Age Related Disabilities - Aging and Quality of Life. In: JH Stone, M Blouin, editors. International Encyclopedia of Rehabilitation. Available online: http://cirrie.buffalo.edu/encyclopedia/en/article/189/

Accessibility and aging

As the global population continues to grow older and the number of age-related impairments (such as low vision or arthritis) increases, so does the need for accessible and assistive technology. People today are living and working longer, and lower birth rates in developed nations since the mid-1960s mean that there are fewer younger workers in such countries to replace those who do retire. For example:

- Japan's population is aging faster than that of any other country in the world. By 2020, about 30 percent of the population will be older than 65. That figure is expected to climb to 37 percent by 2040.[4]
- By 2018, more than one in five U.S. workers will be older than 55—an increase of more than 33 percent over 2008 when that age group accounted for only 18 percent of the U.S. labor force.[5]
- By 2050, an estimated 45 percent of the working-age population in the European Union will be over age 65.[6]

Many people with age-related disabilities develop those impairments during their working lives. That trend is bound to increase as the global workforce grows older and more workers begin to experience age-related limitations that may interfere with their job performance or even force them to retire. Accessible and assistive technology can help businesses and organizations recruit and retain experienced employees and can help older workers keep their jobs and remain at peak productivity for as long as they choose to work.

In addition to the aging populations in many countries increasing the need for accessible technology among employees and customers, many nations are extending civil rights for people with disabilities to encompass accessibility and digital inclusion. Some governments are requiring procurement officials to purchase the most accessible products available, creating economic incentives for businesses to build accessible technology products.

Perhaps most important, organizations that make accessibility a priority are sending a clear message to employees and customers that their needs matter. And that can breed satisfaction and loyalty.

---

[4] http://www.stat.go.jp/english/data/handbook/c02cont.htm Acquired February 10, 2011.

[5] http://www.bls.gov/oco/oco2003.htm Acquired February 10, 2011.

[6] http://www.un.org/esa/population/publications/ReplMigED/EU.pdf Acquired February 10, 2011.

Chapter 2: Impairment types and technology solutions

This chapter defines *disability* and outlines the different types of impairments that people experience, including vision, mobility and dexterity, hearing, language, learning, and age-related limitations. Specific examples of accessible technology solutions are matched to each type of impairment.

Defining *disability* and *impairments*

What is *disability*? A quick Internet search on that question is likely to return thousands of matches. Each person who tries to answer the question does so from a particular perspective and bias shaped by their own experience.

Disabilities and impairments can be mild or severe, permanent or temporary. Some people are born with disabilities, but the majority of disabilities are the result of an injury, accident, illness, or some other condition. And disabilities can change during the course of a person's life, often growing worse as people age. No matter how we define disability or impairment, it is relevant in this discussion because we are talking about accessible technology solutions for different types of impairments.

Before determining how accessible technology can benefit your customers and employees, it helps to understand the different types of impairments and how they affect computer use and access to online information.

The next sections include descriptions of different impairment types and suggested accessibility features and assistive technology products for:

- Vision impairments.
- Mobility and dexterity impairments.
- Hearing impairments and deafness.
- Learning impairments.
- Language impairments.
- Age-related limitations.

Vision impairments

Among computer users in the United States alone, approximately one in four (27 percent) has a vision impairment that affects his or her computer use. There are many ways for people with vision difficulties to modify their computer display and its appearance to make it easier to see or to receive information through sound or touch.

Did you know?
Visual acuity is expressed as a fraction. The top number refers to the distance you stand from the vision chart, which is usually 20 feet. So 20/200 vision indicates that the line you read correctly at 20 feet could be read by a person with normal vision at 200 feet.

Vision impairments include:

- **Low vision.** People with low vision do not have clear vision even with the use of eyeglasses, contact lenses, or intraocular lens implants. There are many ways to adjust and personalize the appearance of Windows to make it easier for someone with a vision impairment to see what is on the computer screen. For people with vision impairments and low vision, the computer monitor, appearance, text and icon size, and resolution should all be modified to make text and images more legible and easier to see. For those who still have difficulty seeing things on the screen, sound and touch options are available through Windows and compatible assistive technology products to make computing possible. On the following pages, you'll find options in Windows that can increase clarity and legibility on the screen to make the computer easier to see.
- **Colorblindness.** People who are colorblind have difficulty seeing particular colors or distinguishing between certain color combinations. Computer programs that allow users to choose the display's color combinations and to adjust screen contrast are helpful for people who are colorblind. Individuals with a variety of vision impairments often find it easier to read white text on a black background instead of black on white. Windows lets you use a High Contrast setting or select your own color schemes so you can find the colors that are easiest for you to see when you read.
- **Blindness.** Blindness occurs in a variety of degrees, and many people who are considered blind still have some measure of sight. In the United States, for example, a person whose level of sight is equal to or less than 20/200—even with corrective glasses or lenses—is considered "legally blind." A person who is completely sightless is considered "blind." Many diseases and conditions may contribute to (or cause) blindness, including cataracts, cerebral palsy, diabetes, glaucoma, and multiple sclerosis. Accidents, diabetes, and macular degeneration account for most blindness in the United States. Worldwide, according to the World Health Organization, the number of people blinded by infectious diseases has been greatly reduced, but age-related impairment is increasing. Cataracts remain the leading cause of blindness globally.

People who are blind can interact with a computer through screen readers, keyboards, Braille devices, and audio/voice rather than with a traditional monitor and mouse. The use of sophisticated assistive technology provides for both computer input and output and is critical for people who are blind.

People who are both deaf and blind can also use computers with the help of assistive technology products. For someone who is both deaf and blind, captioning and other sound options are of no use, but Braille assistive technology products are critical. People who are both deaf and blind can use computers by using refreshable Braille displays and Braille embossers, which are discussed in more detail in the following sections.

Accessibility features in Windows

Windows makes it easy to find options that are helpful for people who have difficulty seeing the screen or for those who are blind and need to use the computer without a display. In the following pages, you will find information on accessibility features in Windows 7 and Windows Vista: Make the computer easier to see, Use the computer without a display (or monitor), and Keyboard shortcuts.

If you don't know whether you could benefit from accessibility or which accessibility features would be most helpful, fill out the questionnaire in the Ease of Access Center in Windows 7 and Windows Vista. The questionnaire poses a series of questions about your personal experience with everyday tasks, such as watching television or using a pen or pencil. Windows can use your answers to those questions to suggest settings you may find useful.

Make the computer easier to see

For people who have vision impairments and low vision, start by using the **Make the computer easier to see** page in the Ease of Access Center found in Windows 7 and Windows Vista.

> **Tip**
> To go to the Ease of Access Center, press Windows logo key + U.

1. In Windows 7 or Windows Vista, open the Make the computer easier to see page: Click the **Start** button, click **Control Panel**, click **Ease of Access**, click **Ease of Access Center**, and then click **Make the computer easier to see.**

2. On the **Make the computer easier to see** page, you can select the options that you want to use:
   - **Choose a High Contrast theme.** This option allows you to set a high-contrast color scheme that heightens the color contrast of some text and images on your computer screen, making those items more distinct and easier to identify.
   - **Turn on or off High Contrast when LEFT ALT+LEFT SHIFT+PRINT SCREEN is pressed.** This option allows you to toggle a high-contrast theme on or off by pressing Left Alt+Left Shift+Print Screen keys.
   - **Turn on Narrator.** This option sets Narrator to run when you log on to your computer. Narrator reads on-screen text aloud and describes some on-screen events (such as the appearance of error messages) while you're using the computer. For more information about using Narrator, read Hear text read aloud with Narrator (http://windows.microsoft.com/en-us/windows7/Hear-text-read-aloud-with-Narrator)
   - **Turn on Audio Description.** This option sets Audio Descriptions to run when you log on to your computer. Audio Descriptions describe what's happening in videos. Audio Descriptions are not included with all videos.
   - **Change the size of text and icons.** This option allows you to make text and other items on your screen appear larger, so they're easier to see. For more information, see Make the text on your screen larger or smaller (http://windows.microsoft.com/en-us/windows7/Make-the-text-on-your-screen-larger-or-smaller)
   - **Turn on Magnifier.** One of the most common accessibility solutions for a computer user with low vision is a screen magnifier. Windows includes a screen magnifier program called Magnifier which enlarges portions of the screen and makes it easier to view text and images and to see the whole screen more easily. Magnifier in Windows 7 now includes full-screen mode, lens mode, and docked mode. The magnification quality is improved, and you can set the magnification level up to 16 times the original size and choose to track what you magnify by movement of your mouse, the keyboard, or text editing. For more information about using Magnifier, see Make items on the screen appear bigger with Magnifier (http://windows.microsoft.com/en-us/windows7/Make-items-on-the-screen-appear-bigger-Magnifier)

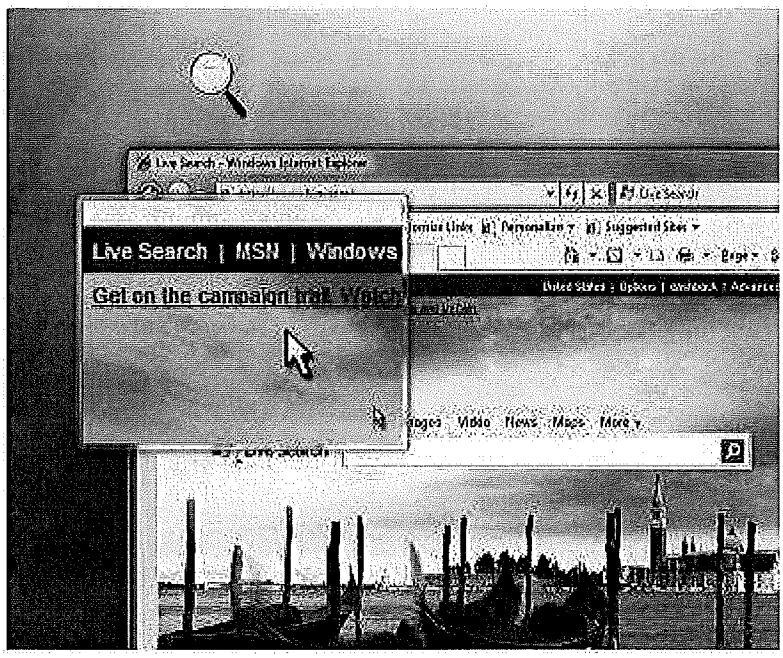


Figure 2-1 Use Magnifier in lens mode to improve screen visibility.

- **Adjust the color and transparency of the window borders.** This option allows you to change the appearance of window borders to make them easier to see.
- **Fine tune display effects.** This option allows you to customize how certain items appear on your desktop.
- **Make the focus rectangle thicker.** This option makes the rectangle around the currently selected item in dialog boxes thicker, which makes it easier to see.
- **Set the thickness of the blinking cursor.** This option allows you to make the blinking cursor in dialog boxes and programs thicker and easier to see.
- **Turn off all unnecessary animations.** This option turns off animation effects, such as fading effects, when you close windows and other elements.
- **Remove background images.** This option turns off all unimportant, overlapped content and background images to help make the screen easier to see.

For additional information about how to use accessibility features in Windows and other Microsoft products, see the Microsoft Accessibility Tutorials available online at www.microsoft.com/enable/training/.

Use the computer without a display

For people who are blind or partially sighted, assistive technology products are critical for productive computer use. To get started, Windows has many features that enable you to use the computer without a display. For example, you can have screen text read aloud by using Narrator and you can have Windows describe screen activity to you.

People who are blind and cannot use a monitor can turn on or adjust settings to **Use the computer without a display** in the Ease of Access Center. In the following section, you'll find assistive technology products that are needed for people who are blind or partially blind.

Tip
To go to the Ease of Access Center, press Windows logo key + U.

1. In Windows 7 or Windows Vista, open the Use the computer without a display page: Click the **Start** button, click **Control Panel**, click **Ease of Access**, click **Ease of Access Center**, and then click **Use the computer without a display**.
2. On the **Use the computer without a display** page, select the options that you want to use:
   - **Turn on Narrator.** Windows comes with a basic screen reader called Narrator, which reads text on the screen aloud and describes some events (such as the appearance of an error message) that happen while you're using the computer. For more information about Narrator, read Hear text read aloud with Narrator (http://windows.microsoft.com/en-us/windows7/Hear-text-read-aloud-with-Narrator).
   - **Turn on Audio Description.** This option sets Audio Description to run when you log on to Windows. Audio descriptions describe what's happening in videos.
   - **Turn off all unnecessary animations (when possible).** This option turns off animation effects, such as fading effects, when windows and other elements are closed.
   - **How long should Windows notification dialog boxes stay open?** This option sets how long notifications are displayed on the screen before they are closed.

Keyboard shortcuts

Keyboard shortcuts are combinations of two or more keys that, when pressed, can be used to perform a task that would typically require a mouse or other pointing device. Keyboard shortcuts can make it easier for people with all kinds of impairments, particularly vision impairments, to interact with their computers. Memorizing a few keyboard shortcuts makes it easier for some people who have difficulty seeing the monitor or keyboard to quickly accomplish tasks.

A list of keyboard shortcuts for Windows is available at http://windows.microsoft.com/en-US/Windows7/Keyboard-shortcuts.

Assistive technology products for people with vision impairments

For the operating system or an application to be accessible to someone who is blind, it must provide information about its interactions with the user so that assistive technology can then present those interactions in an alternative format. For example, if the computer provides a list box containing several selections to choose from, the assistive technology product must inform a computer user who is blind that he or she needs to choose from a list of selections. The list of selections might be spoken or presented in tactile fashion with a Braille display. A common assistive technology product used by people who are blind is a *screen reader*, a software program that presents graphics and text as speech. Computer users who are blind also may use Braille displays and Braille embossers. In fact, it is common for people who are blind to use a combination of assistive technology products.

> **Tip**
> The Assistive Technology Product Starter Guide—a table with details about specific assistive technology products, is included in Chapter 3.

Assistive technology products with different features are available to help people with vision impairments. Some assistive technology products provide a combination of features that help specific individuals. Assistive technology products that are helpful to many people with vision impairments are described in the following list.

- **Screen magnifiers** work like a magnifying glass. They enlarge a portion of the screen as the user moves the focus—increasing legibility for some users. Some screen enlargers (software or hardware) allow a user to zoom in and out on a particular area of the screen. Learn about Magnifier in Windows 7 and Windows Vista and about the built-in zoom and magnify features in Microsoft mouse and keyboard products. Another example of a screen magnifier program is ZoomText by Ai Squared.
- **Screen readers** are software programs that present graphics and text as speech. A screen reader is used to verbalize, or "speak," everything on the screen, including names and descriptions of control buttons, menus, text, and punctuation. An example of a screen reader is Window-Eyes.
- **Braille printers** (or embossers) transfer computer-generated text into embossed Braille output. Braille translation programs convert text scanned in or generated via standard word processing programs into Braille, which can be printed into raised Braille. The Tiger Cub Jr. is an example of a Braille printer.
- **Braille displays**, as shown in Figure 2-2, provide tactile output of information represented on the computer screen. The user reads the Braille letters with his or her fingers, and then, after a line is read, refreshes the display to read the next line. The Seika Braille Display is an example.

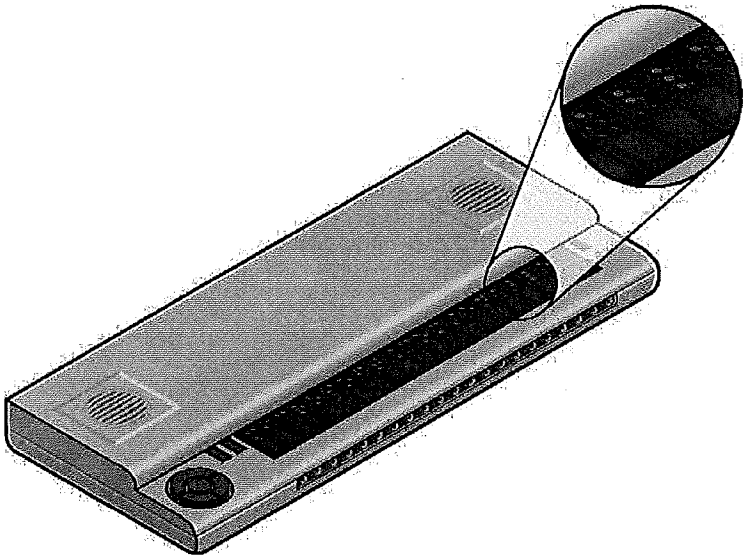


Figure 2-2 Braille displays, such as this one, can help someone who is blind read what is displayed on a computer screen.

- **Braille notetakers** enable someone who is blind to capture notes and then transfer them to a PC. Braille notetakers take advantage of refreshable Braille technology. In some cases, Braille notetakers replace or supplement a standard keyboard. An example of such a notetaker is the Eurobraille Esys.
- **Book readers.** Some people with low vision need book-reading assistance. Magnification devices are available as a desktop magnification aid (such as Desktop SenseView DSV) or as a portable magnification aid (such as SmartView Nano Magnifier). People with low vision may also use a PC configuration for book reading assistance (for example, Cicero Text Reader). Some may also use a dedicated reading device (such as the Victor Reader Wave). An individual's ability to read materials and the accommodations they will use depends on the format in which the material is available. For example, printed materials and books can be read by people with low vision with the assistance of a desktop or portable magnification aid. Someone who is blind would need to have printed material scanned and read aloud through a text-to-speech software program on the PC. Books are available in digital formats through organizations such as Bookshare (www.benetech.org) and Recording for the Blind and Dyslexic (www.rfbd.org). The most common digital format is the Digital Accessible Information System, or DAISY.

- Microsoft provides an **add-in for Microsoft Word** to convert documents to DAISY format. The Word-to-DAISY translator lets you take a document in Microsoft Office Word 2010, Word 2007, Word 2003, or Word XP and easily convert the Word document to the talking DAISY book format. This makes it easier for people to share Word documents with colleagues who need to use book readers to read documents. Learn more, and download the DAISY/Word add-in at http://office.microsoft.com/en-us/help/HA102786941033.aspx.

Mobility and dexterity impairments

Mobility and dexterity impairments can be caused by a wide range of common illnesses and accidents. They can also result from cerebral palsy, multiple sclerosis, loss of limbs or digits, spinal cord injuries, and repetitive stress injury, among other causes. As a result of accidents or conditions, some people may be unable to use (or may be without) arms or fingers to interact with their computers using a standard keyboard or mouse.

Others who have dexterity impairments or pain in their hands, arms, and wrist might need to adjust settings to make it more comfortable to use a keyboard or mouse. For example, some people cannot press multiple keys simultaneously (like Ctrl+Alt+Delete). Still others may strike multiple keys or repeat keys unintentionally. Some people may have use of their hands and arms but have a limited range of motion. All of these conditions can make using a standard mouse or keyboard difficult, if not impossible.

Mobility and dexterity impairments need to be individually addressed to choose the right mix of accessibility features in Windows and assistive technology hardware and software solutions.

There are many types of products available to allow people with mobility and dexterity impairments to use a computer, even if they can move only their eyes. The following section outlines accessibility features in Windows to make the mouse and keyboard more comfortable. In addition, you can set up a computer for a person who needs to use an on-screen keyboard and other alternative input options rather than a standard keyboard or mouse. Following are examples of assistive technology hardware and software products.

Accessibility features in Windows

Accessibility features built into Windows that are useful to people with mobility impairments include keyboard filters that compensate somewhat for erratic motion, tremors, slow response time, and similar conditions. For example, Sticky Keys (a feature in Windows) allows the user to enter key combinations without having to hold one key down while depressing a second. Other options allow users to adjust how quickly a letter appears on the screen when they hold down a key. In addition, Windows allows users to adjust mouse options, such as button configuration, double-click speed, pointer size, and how quickly the mouse pointer responds to movements of the mouse. Users can also increase the size of screen elements to provide a larger target, which can benefit people who have disabilities related to fine motor skills.

Make the mouse easier to use

For people who have pain or discomfort when using the mouse or who have other dexterity impairments, consider a different style of mouse (options discussed later in this section) and try changing the size of the mouse cursor and the mouse button options to make the mouse easier to use. Start by exploring the mouse options available on the **Make the mouse easier to use** page in the Ease of Access Center.

Tip

To go to the Ease of Access Center, press Windows logo key + U.

1. In Windows 7 or Windows Vista, open the Make the mouse easier to use page: Click the **Start** button, click **Control Panel**, click **Ease of Access**, click **Ease of Access Center**, and then click **Make the mouse easier to use**.

2. On the **Make the mouse easier to use** page, select the options that you want to use:
   - **Change the color and size of mouse pointers.** You can use these options to make the mouse pointer larger or to change the color to make it easier to see.
   - **Turn on Mouse Keys.** You can use this option to control the movement of the mouse pointer by using the numeric keypad.
   - **Activate a window by hovering over it with the mouse.** This option makes it easier to select and activate a window by pointing at it with the mouse rather than by clicking it.
   - Prevent **windows from being automatically arranged when moved to the edge of the screen.** This option prevents windows from automatically resizing and docking along the sides of your screen when you move them there.
   - You can also **change mouse settings,** including customizing the mouse in a variety of ways, such as reversing the functions of your mouse buttons, making the mouse pointer more visible, and altering the scroll wheel speed. In Windows 7 and Windows Vista, open the Mouse Control Panel by clicking **Mouse settings**.

Make the keyboard easier to use

For a person who experiences pain, discomfort, or hand tremors when using the keyboard, consider a different style of keyboard (options discussed later in this section) and make sure to adjust the keyboard controls. You can adjust these settings on the **Make the keyboard easier to use** page in the Ease of Access Center.

1. In Windows 7 or Windows Vista, open the Make the keyboard easier to use page: Click the **Start** button, click **Control Panel**, click **Ease of Access**, click **Ease of Access Center**, and then click **Make the keyboard easier to use**.

2. On the **Make the keyboard easier to use** page, select the options that you want to use:
   - **Turn on Mouse Keys.** This option sets Mouse Keys to run when you log on to Windows. Instead of using the mouse, you can use the arrow keys on your keyboard or on the numeric keypad to move the pointer.
   - **Turn on Sticky Keys.** This option sets Sticky Keys to run when you log on to Windows. Instead of having to press three keys at once (such as when you must press the Ctrl, Alt, and Delete keys together to log on to Windows), you can use one key at a time by turning on Sticky Keys and adjusting the settings. Then, you can press a modifier key and have it remain active until another key is pressed.
   - **Turn on Toggle Keys.** This option sets Toggle Keys to run when you log on to Windows. Toggle Keys can play an alert each time you press the Caps Lock, Num Lock, or Scroll Lock keys. These alerts can help prevent the frustration of inadvertently pressing a key and not realizing it.
   - **Turn on Filter Keys.** This option sets Filter Keys to run when you log on to Windows. You can set Windows to ignore keystrokes that occur in rapid succession or keystrokes that are held down for several seconds unintentionally.
   - **Underline keyboard shortcuts and access keys.** This option makes keyboard access in dialog boxes easier by highlighting access keys for the controls in them. (For more information about keyboard shortcuts, see the section that follows).
   - **Prevent windows from being automatically arranged when moved to the edge of the screen.** This option prevents windows from automatically resizing and docking along the sides of your screen when you move them there.

Keyboard shortcuts

Keyboard shortcuts are combinations of two or more keys that, when pressed, can be used to perform a task that would typically require a mouse or other pointing device. Keyboard shortcuts can make it easier for people with all kinds of impairments to use a computer, particularly those with dexterity impairments who may find using the mouse tiring. Memorizing a few keyboard shortcuts makes it faster for people to get where they need to go.

A list of keyboard shortcuts for Windows is available at http://windows.microsoft.com/en-US/Windows7/Keyboard-shortcuts.

Here are a few keyboard shortcuts for the features mentioned in this section:

Press this key	To do this
Right Shift for eight seconds	Turn Filter Keys on and off
Left Alt+Left Shift+Print Screen	Turn High Contrast on or off
Left Alt+Left Shift+Num Lock	Turn Mouse Keys on or off
Shift five times	Turn Sticky Keys on or off
Num Lock for five seconds	Turn Toggle Keys on or off
Windows logo key +U	Open the Ease of Access Center

Use the computer without the mouse or keyboard

Windows has two features that make it possible to use the computer without using a mouse or keyboard: Speech Recognition, which lets you use voice commands to navigate Windows 7 or Windows Vista, and On-Screen Keyboard, which lets you enter text by selecting keys on a visual keyboard on the screen.

You can turn on or adjust settings for these features on the **Use the computer without a mouse or keyboard** page in the Ease of Access Center.

Tip
To go to the Ease of Access Center, press Windows logo key + U.

1. In Windows 7 or Windows Vista, open the Use the computer without a mouse or keyboard page: Click the **Start** button, click **Control Panel**, click **Ease of Access**, click **Ease of Access Center**, and then click **Use the computer without a mouse or keyboard.**
2. Select the options that you want to use:
   - **Use On-Screen Keyboard.** On-Screen Keyboard displays a visual keyboard with all the standard keys. Instead of relying on the physical keyboard to type and enter data, you can use On-Screen Keyboard to select keys using the mouse or another pointing device. On-Screen Keyboard in Windows 7 can be resized and customized to make it easier to see and use. On-Screen Keyboard now also includes text prediction in eight languages. When text prediction is enabled, as you type, On-Screen Keyboard displays a list of words that you might be typing. For more information, see Type without using the keyboard (On-Screen Keyboard) (http://windows.microsoft.com/en-us/windows7/Type-without-using-the-keyboard-On-Screen-Keyboard).

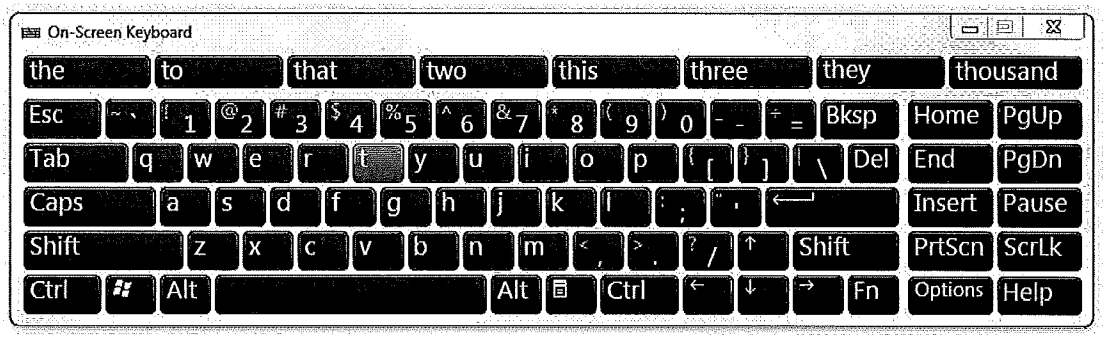


Figure 2-3 On-Screen Keyboard in Windows 7 includes text prediction.

   - **Use Speech Recognition.** Use this option to control the computer with your voice. Using a microphone, you can speak commands that the computer will understand and respond to, and you can dictate text. For more information about setting up Speech Recognition, see Set up Speech Recognition (http://windows.microsoft.com/en-us/windows7/Set-up-Speech-Recognition).

Assistive technology products for people with mobility and dexterity impairments

The following list describes assistive technology products used with computers by people with mobility and dexterity impairments.

- **Ergonomic keyboards and mice.** Ergonomic keyboards and mice are designed to be more comfortable than a standard keyboard and mouse. To improve the quality of your PC experience, Microsoft designers and ergonomists created industry-leading keyboard and mouse products to encourage healthier hand and wrist positions. Microsoft Natural® keyboards and mice have set the industry standard for comfort and can significantly reduce carpal tunnel syndrome symptoms. Microsoft keyboards and mice (http://www.microsoft.com/hardware/) also have built-in zoom and magnifier options.
- **Joysticks** can be plugged into the computer's mouse port and used to control the cursor on the screen. Joysticks benefit users who need to operate a computer with or without the use of their hands. For example, some people might operate the joystick with their feet or with the use of a cup on top of the joystick that can be manipulated with their chin. An example of a joystick is the SAM-Joystick.

- **Trackballs** look like an upside down mouse with a movable ball on top of a stationary base. An example of a trackball is shown in Figure 2-4. The ball can be rotated with a pointing device or a hand. People who have fine motor skills but lack gross motor skills can use these devices more easily and comfortably than they can use a traditional mouse. BIGtrack is an example of a trackball-style mouse that is more comfortable for many people with dexterity issues.

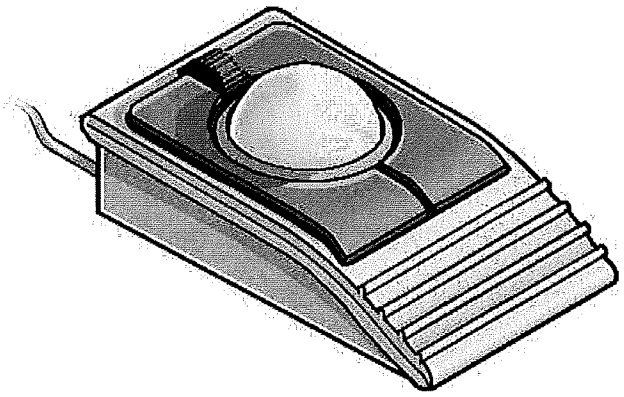


Figure 2-4 A trackball can be rotated with a pointing device or a hand.

- **On-screen keyboard programs** provide an image of a standard or modified keyboard on the computer screen. The user selects the keys with a mouse, touchscreen, trackball, joystick, switch, or electronic pointing device. On-screen keyboards often have a scanning option. With the scanning capability turned on, the individual keys on the on-screen keyboard are highlighted. When a desired key is highlighted, the user is able to select it by using a switch positioned near a body part that he or she has under voluntary control. On-Screen Keyboard is found in Windows 7 and Windows Vista. ScreenDoors 2000 is another on-screen keyboard product that can be helpful for some people.
- **Keyboard filters** include typing aids, such as word prediction utilities and add-on spelling checkers. These products can often be used to reduce the number of keystrokes. As an example, imagine you have to type the letter "g." However, to type the letter, you first have to move your finger over the entire first row of your keyboard and halfway across the second row. Along the way, you might accidentally press the "R," "P," or "D" keys, but you only want the letter "g." Keyboard filters enable users to quickly access the letters they need and to avoid inadvertently selecting keys they don't want. SoothSayer Word Prediction is an example of a keyboard filter.
- **Touchscreens** are devices placed on the computer monitor (or built into it) that allow direct selection or activation of the computer by touching the screen. These devices can benefit some users with mobility impairments because they present a more accessible target. It is easier for some people to select an option directly rather than through a mouse movement or keyboard. Moving the mouse or using the keyboard for some might require greater fine motor skills than simply touching the screen to make a selection. Other users might make their selections with assistive technology, such as mouth sticks. With Windows 7 and a touchscreen monitor, you can just touch your computer screen for a more direct and natural way to work. Use your fingers to scroll, resize windows, play media, and pan and zoom.
- **Alternative PC hardware and all-access workstations.** In some cases, alternative PC hardware is needed. Some individuals with mobility impairments find it challenging to open the monitor of a laptop because the laptop latch isn't accessible for them. Or some might need a laptop to be mounted to a wheelchair. Such assistive technology solutions are referred to as *all-access workstations*. **Alternative input devices** allow users to control their computers through means other than a standard keyboard or pointing device.

Alternative input devices include:

- **Alternative keyboards** are available in different sizes with various keypad arrangements and angles. Larger keyboards (such as the BigKeys LX) are available with enlarged keys (see Figure 2-5), which are easier to access by people with limited motor skills. Smaller keyboards are available with smaller keys (or keys placed closer together) to allow someone with a limited range of motion to reach all the keys. Many other keyboards are also available—one-hand keyboards, keyboards with keypads located at various angles, and split keyboards where the keypad is split into sections.

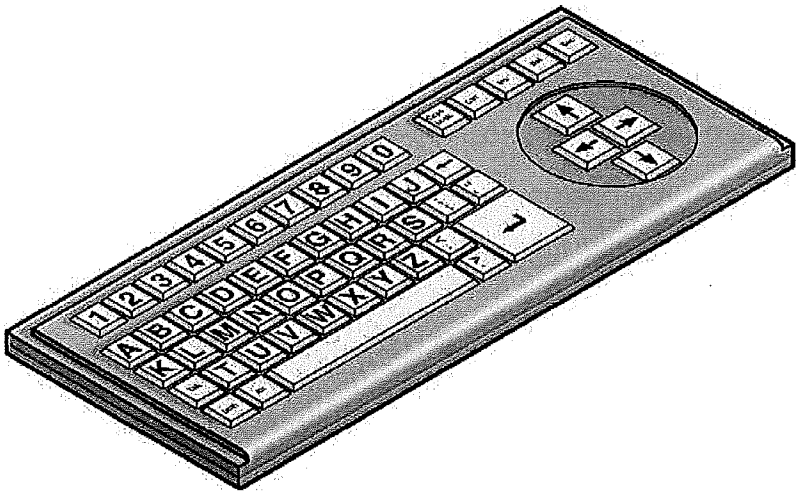


Figure 2-5 An alternative keyboard can include large keys and an "ABC" layout.

- **Electronic pointing devices** allow the user to control the cursor on the screen using ultrasound, an infrared beam, eye movements, nerve signals, or brain waves. When used with an on-screen keyboard, electronic pointing devices also allow the user to enter text or data. The assistive technology product HeadMouse Extreme is an example of a pointing device.
- **Sip-and-puff device**, shown in Figure 2-6, refers to just one of many different types of switch access. In typical configurations, a dental saliva extractor is attached to a switch. An individual uses his or her breath to activate the switch. For example, a puff generates the equivalent of a keystroke, the pressing of a key, or a mouse click. Maintaining constant "pressure" on the switch (more like sucking than sipping) is the equivalent of holding a key down. With an on-screen keyboard, the user "puffs" out the letters. Moving the cursor over a document's title bar and "sipping" enables the user to drag items around on the screen just as you would with a mouse. This technology is often used with on-screen keyboards. The Jouse 2 is an example of a sip-and-puff device.

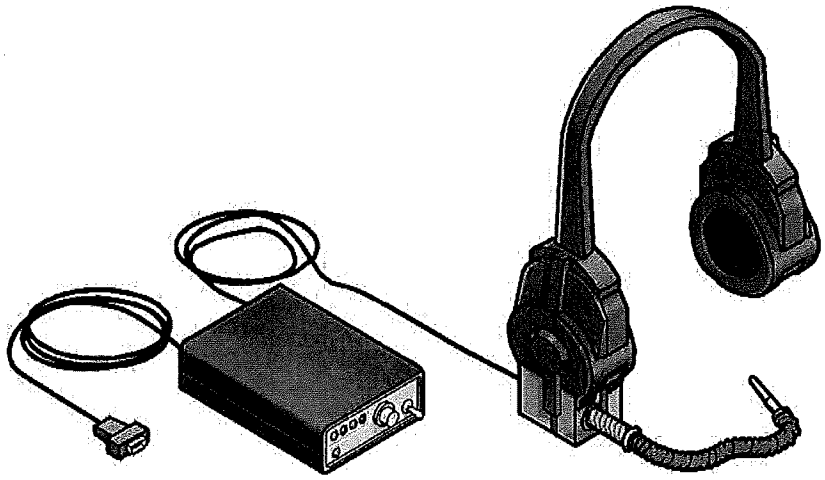


Figure 2-6. A sip-and-puff device is breath activated.

- **Wands and sticks** are typing aids used to strike keys on the keyboard. They are most commonly worn on the head, held in the mouth, strapped to the chin, or held in the hand. They are useful for people who need to operate their computers without the use of their hands or who have difficulty generating fine movements. The majority of these devices are customized for a user by adapting a pencil or a wooden dowel which can be purchased in any hardware store.

Hearing impairments and deafness

Hearing impairments encompass a range of conditions—from slight hearing loss to deafness. According to Forrester Research, an estimated one in five computer users has some form of hearing loss.

Hearing impairments include:

- **Hearing loss and hard-of-hearing.** People who have hearing loss or are hard-of-hearing may be able to hear some sound but might not be able to distinguish words. People with this type of hearing impairment can use an amplifying device to provide functional hearing. On the computer, adjusting sounds, using alternatives for sounds (such as visual indicators and captions), and headphones to eliminate background noise can be helpful options.
- **Deafness.** People who are deaf may not be able to hear any sounds or words spoken. It is helpful to adjust the computer to use visual alternatives for sounds.

Computer use among people who are both deaf and blind

Although it's not well known, people who are both deaf and blind can use computers with the aid of assistive technology. To someone who is both deaf and blind, captioning and other sound options are of no use, but Braille assistive technology products are critical. People who are both deaf and blind can use computers with assistive technology, such as refreshable Braille displays and Braille embossers.

Accessibility features in Windows

Accessibility features for those with hearing impairments include changing notifications from sound to visual notifications, volume control, and captioning. These features are available in Windows 7 and Windows Vista. Visual notifications (Sound Sentry) and captions (Show Sounds) allow users to choose to receive visual warnings and text captions, rather than sound messages, for system events, such as the arrival of a new email message.

Accessibility features helpful for people who have hearing impairments include:

- Adjust volume.
- Change computer sounds.
- Use text or visual alternatives for sounds.

Adjust volume

Although most speakers have a volume control, you can also control speaker volume using Windows. The quickest way to change the speaker volume for your computer is to click the **Speakers** button in the notification area of the taskbar and then move the slider up or down to increase or decrease the speaker volume.

Adjust overall sound volume in Windows 7 or Windows Vista

1. Open **Volume Control:** Click the **Start** button, click **Control Panel**, click **Hardware and Sound**, and then, under **Sound**, click **Adjust system volume**.
2. Under **Main Volume**, move the slider up or down to raise or lower the volume.

Change computer sounds

You can select the sounds that play when certain events occur on the screen. This is helpful for people who have trouble hearing some sounds—high or low-pitched sounds, for example, or sounds associated with other devices. To change sounds in Windows 7 or Windows Vista:

1. Open **Sound:** Click the **Start** button, and then click **Control Panel.** In the search box, type **sound,** and then click **Sound.**
2. Click the **Sounds** tab.
3. In the **Sound Scheme** list, click the sound scheme that you want to use, and then click **OK.**

To change an individual sound, select an event (under Program Events) to which you want to assign a new sound. You can click **Test** to hear each sound.

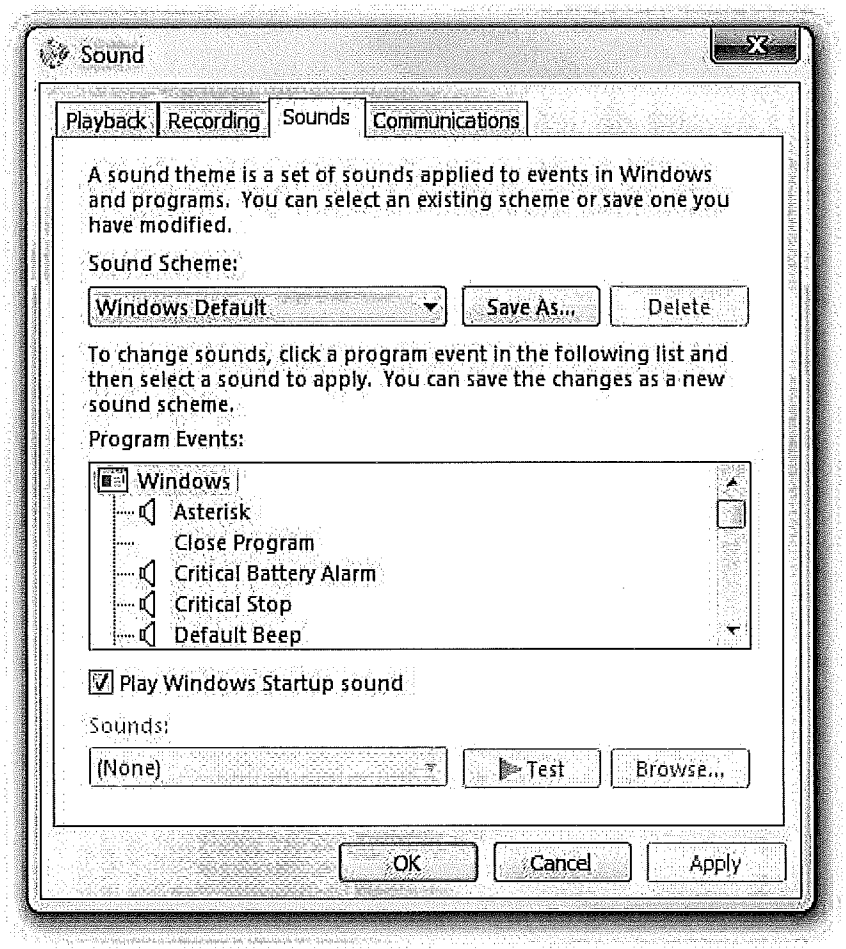


Figure 2-7 The Windows operating system offers many sound options.

Use text or visual alternatives to sounds

Windows provides settings for using visual cues to replace sounds in many programs. You can adjust these settings on the **Use text or visual alternatives for sounds** page in the Ease of Access Center.

1. In Windows 7 or Windows Vista, open the Use text or visual alternatives for sounds page: Click the **Start** button, click **Control Panel**, click **Ease of Access**, click **Ease of Access Center**, and then click **Use text or visual alternatives for sounds.**
2. On the **Use text or visual alternatives for sounds** page, select the options that you want to use:
   - **Turn on visual notifications for sounds (sound sentry).** This option sets sound notifications to run when you log on to Windows. Sound notifications replace system sounds with visual cues, such as a flash on the screen, so that system alerts are noticeable even when they're not heard. You can also choose how you want sound notifications to warn you.
   - **Turn on text captions for spoken dialog (when available).** This option causes Windows to display text captions in place of sounds to indicate that activity is happening on your computer (for example, when a document starts or finishes printing).

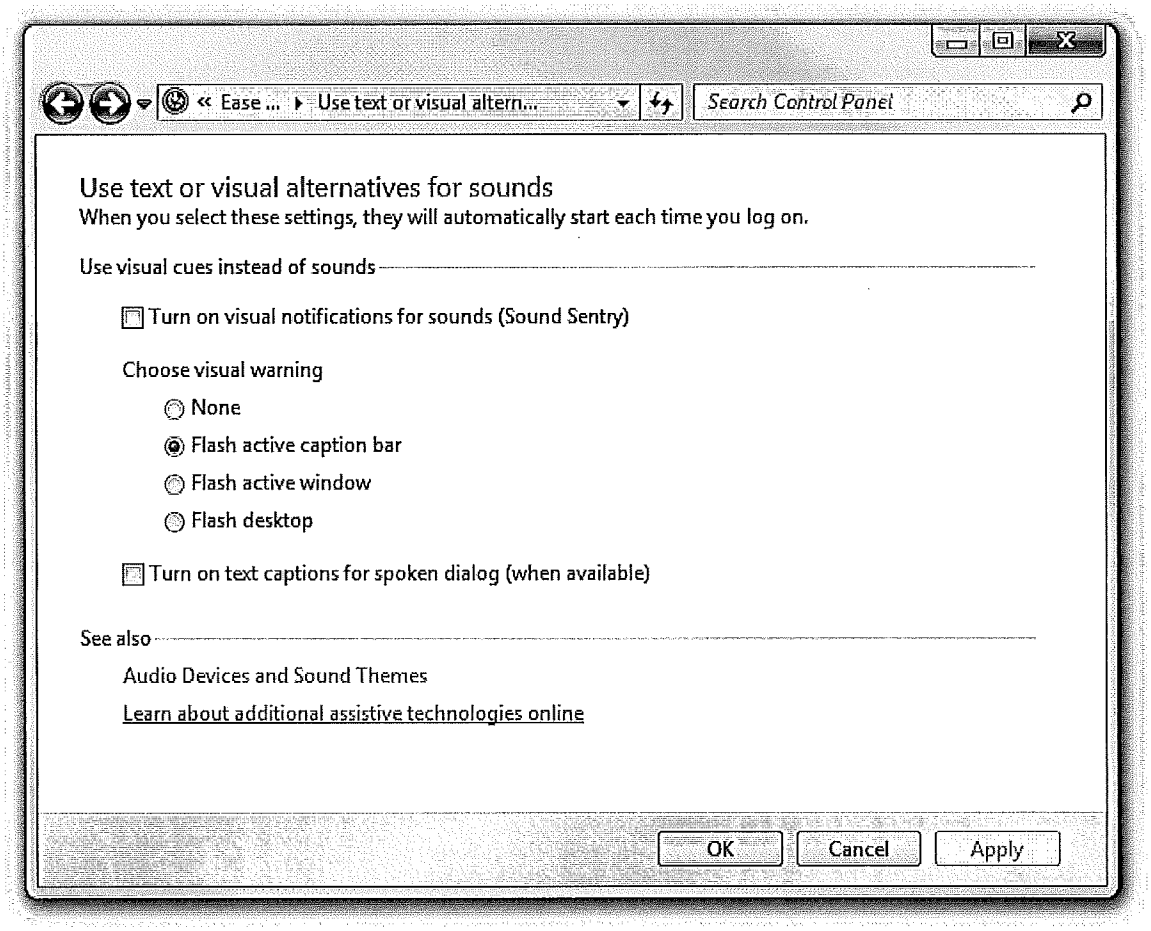


Figure 2-8 For visual cues, go to the **Use text or visual alternatives for sounds** page in the Ease of Access Center.

Assistive technology products for people with hearing impairments

Individuals with hearing impairments may need a sign-language interpreter or other accessibility solutions to be able to communicate actively in the workplace.

Personal listening devices and personal amplifying products can also be helpful for people who still have some hearing.

One product that may be useful is iCommunicator—a graphical sign-language translator that converts speech to sign language in real time to enable people who are deaf to communicate more easily with hearing people. For more information, see www.icommunicator.com.

Depending on the environment, people with hearing impairments may be able to use Microsoft Office Outlook®, Microsoft Office Communicator and other instant messaging services, and Office Live Meeting solutions for receiving text rather than spoken dialogue to communicate with colleagues or customers. A combination of speech recognition (available in Windows 7 and Windows Vista) paired with Outlook and instant messaging could be effective in helping people with hearing impairments communicate in real-time.

Language impairments

Language impairments include conditions such as aphasia (loss or impairment of the power to use or comprehend words, often as a result of brain damage), delayed speech (a symptom of cognitive impairment), and other conditions resulting in difficulties remembering, solving problems, or perceiving sensory information. For people who have these impairments, complex or inconsistent visual displays or word choices can make using computers more difficult. For most computer users, in fact, software that is designed to minimize clutter and competing objects on the screen is easier to use, more inviting, and more useful.

Some people with language impairments do not have the ability to communicate orally. These individuals can use augmentative and assistive communication devices to "speak" for them. To communicate, they either type out words and phrases that they wish to "say" or select from a series of images that, when arranged in a particular way, generate a phrase. For example, an individual could use the combination of a picture of an apple and a representation of the McDonald's golden arches to order a hot apple pie. Pairing the picture of the arches with a picture of a car could say, "Let's take a ride to McDonald's."

Accessibility features in Windows

When Windows 7 and Windows Vista were developed, there was a focus on reducing screen clutter to help individuals focus on only the things important to them. Windows 7 and Windows Vista let you eliminate shortcuts and icons from the desktop if they are not helpful. Reducing unnecessary options on the screen benefits people with language and learning impairments, in particular, because it reduces visual clutter, which can be confusing.

Other options that allow for abbreviated menus and customized toolbars, for example, also help reduce the number of competing elements on the screen. Spelling and grammar checkers are also helpful for those who commonly reverse the order of letters because of dyslexia or other learning impairments.

Make it easier to focus on reading and typing tasks

You can use the settings on the **Make it easier to focus on tasks** page in the Ease of Access Center in Windows 7 and Windows Vista to reduce the amount of information on the screen and to help people with language impairments focus on tasks.

1. In Windows 7 or Windows Vista, open the Make it easier to focus on tasks page: Click the **Start** button, click **Control Panel**, click **Ease of Access**, click **Ease of Access Center**, and then click **Make it easier to focus on tasks.**
2. Then, select the options that are most helpful:

   - **Turn on Narrator.** This option sets Narrator to run when you log on to Windows. Narrator reads on-screen text aloud and describes some events (such as the appearance of an error message) while you're using the computer. For more information about using Narrator, read Hear text read aloud with Narrator (http://windows.microsoft.com/en-us/windows7/Hear-text-read-aloud- with-Narrator).
   - **Remove background images.** This option turns off all unimportant, overlapped content and background images to help make the screen easier to see.
   - **Turn on Sticky Keys.** This option sets Sticky Keys to run when you log on to Windows. Instead of having to press three keys at once (such as when you must press the Ctrl, Alt, and Delete keys together to log on to Windows), you can press one key at a time by turning on Sticky Keys and adjusting the settings. Then, you can press a modifier key and have it remain active until another key is pressed.
   - **Turn on Toggle Keys.** This option sets Toggle Keys to run when you log on to Windows. Toggle Keys can play an alert each time you press the Caps Lock, Num Lock, or Scroll Lock These alerts can help prevent the frustration of inadvertently pressing a key.
   - **Turn on Filter Keys.** This option sets Filter Keys to run when you log on to Windows. You can set Windows to ignore keystrokes that occur in rapid succession or keystrokes that are held down for several seconds unintentionally.
   - **Turn off all unnecessary animations (when possible).** This option turns off animation effects, such as fading, when windows and other elements are closed.
   - **How long should Windows notification dialog boxes stay open?** With this option, you can choose how long notifications are displayed on the screen before they close.
   - **Prevent windows from being automatically arranged when moved to the edge of the screen.** This option prevents windows from automatically resizing and docking along the sides of your screen when you move them there.

Tip
Replacement for Serial Keys
Windows 7 does not include Serial Keys. In previous versions of Windows, Serial Keys provided support so that alternative input devices, such as augmentative communication devices, could be plugged into the computer's serial port. For individuals who use these devices, it is important to install an alternative solution prior to upgrading to Windows 7. Recommended solutions: AAC Keys from AAC Institute (www.aacinstitute.org/) and SKEYS from Eyegaze (www.eyegaze.com/).

Assistive technology products for people with language impairments

Assistive technology products used with computers by people with language impairments are described in the following list.

- **Augmentative and assistive communication (AAC) devices** are used by individuals who cannot speak or who find speaking difficult. The user types in a word, phrase, or sentence to communicate—or selects a series of symbols or pictures on the device—and the device "speaks" aloud for the user. Often these devices are used to replace a PC keyboard. In these cases, the user is able to use one device for both communicating and for computer input. One example of an augmentative communication device is QualiSPEAK Pro.
- **Touchscreens** are devices placed on the computer monitor (or built into it) that allow direct selection or activation of the computer by touching the screen. Earlier we discussed how touchscreens benefit people with mobility impairments, but they also benefit users with language disabilities. The ability to touch the computer screen to make a selection is advantageous for people with language and learning disabilities because it is a more simple, direct, and intuitive process than making a selection using a mouse or keyboard. With Windows 7 and a touch-screen monitor, you can just touch your computer screen for a more direct and natural way to work. Use your fingers to scroll, resize windows, play media, and pan and zoom. Additional touchscreen technologies are available for Windows. The Gus Communicator PC10 Touch Screen Tablet PC is an example of an assistive technology product that can be used via touch to communicate.
- **Speech synthesizers** provide the user with information through a computer voice. Also known as *text-to-speech (TTS)*, the speech synthesizer receives information in the form of letters, numbers, and punctuation marks and then "speaks" it out loud to the user in a computer voice. Scan and Read Pro is an example of an assistive technology product that produces more natural-sounding speech synthesis.

Learning impairments

Learning impairments can range from conditions such as dyslexia and attention deficit disorder to retardation. Processing problems are the most common and have the most impact on a person's ability to use a computer. These conditions interfere with the learning process.

Many people with these impairments are perfectly capable of learning if information is presented to them in a form and at a pace that is appropriate to them individually. Information that is presented in short, discrete units is often easier to understand. In addition, many individuals with learning disabilities learn more efficiently using their visual abilities rather than their auditory skills. Many are primarily visual or auditory learners, whereas other learners are "ambidextrous." Control over the individual learner's single- or multisensory experience is critical.

Did you know?
According to the International Dyslexia Association and the Learning Disabilities Association of America, about 15 percent of the population (close to one in seven people) has a learning disability.[7]

[7] http://www.interdys.org/FAQHowCommon.htm Acquired February 10, 2011.

Accessibility features in Windows

The simplified interface in Windows 7 and Windows Vista benefits people with learning impairments, in addition to those with language impairments, because it helps reduce the number of competing elements on the screen. Complicated user interfaces can interfere with learning. User interface engineers found that an emphasis on a consistent user experience had the greatest positive impact on individuals with processing problems. Consider the person who can't read his own handwriting but can edit for others by using a computer. Additional computer settings, such as adjustable text and screen element sizes, speech capabilities, choice of visual or sound warnings for system events, and Internet display options, can benefit those with learning impairments.

Features in Windows and Office that might be useful for people with learning impairments include:

- Make it easier to focus on reading and typing tasks.
- Check spelling and grammar in Office programs.
- Use AutoComplete in Office 2010.

Make it easier to focus on reading and typing tasks

You can use the settings on the **Make it easier to focus on tasks** page in the Ease of Access Center in Windows 7 and Windows Vista to reduce the amount of information on the screen and to help people with learning disabilities focus on reading and typing tasks.

In Windows 7 or Windows Vista, open the Make it easier to focus on tasks page: Click the **Start** button, click **Control Panel**, click **Ease of Access**, click **Ease of Access Center**, and then click **Make it easier to focus on tasks**.

Check spelling and grammar in Office programs

In Microsoft Office 2010, the **Spelling & Grammar** feature is on the **Review** tab. Also on the **Review** tab are the Research, Thesaurus, and Translate features, which also may be helpful for people with learning disabilities.

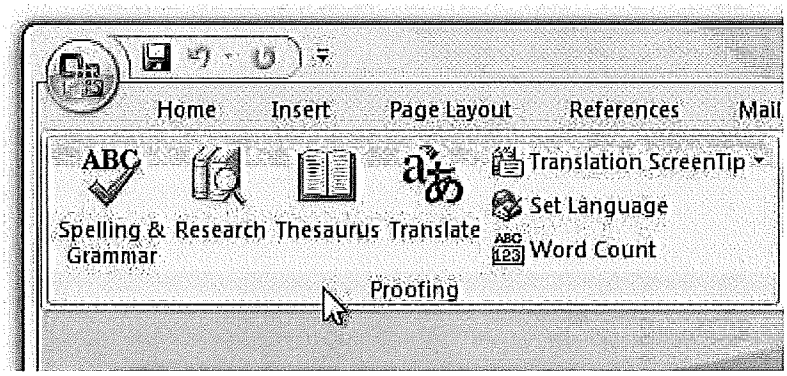


Figure 2-9 The features on the Office 2010 **Review** tab can be helpful for people with learning disabilities.

Assistive technology products for people with learning impairments

The following list includes assistive technology products used with computers by people with learning impairments:

- **Word prediction programs** allow the user to select a desired word from an on-screen list located in the prediction window. The program predicts words from the first one or two letters typed by the user. The word can then be selected from the list and inserted into the text by typing a number, clicking the mouse, or scanning with a switch. These programs help support literacy, increase written productivity and accuracy, and increase vocabulary skills through word prompting. ClaroRead Standard and TextHelp Read & Write Standard are just two examples of such programs.
- **Reading tools and learning disabilities programs** include software designed to make text-based materials more accessible for people who struggle with reading. Options can include scanning, reformatting, navigating, or speaking text out loud. These programs help people who have difficulty seeing or manipulating conventional print materials; people who are developing new literacy skills or who are learning English as a foreign language; and people who comprehend better when they hear and see text highlighted simultaneously. The Universal Reader is an example of assistive technology that can make reading easier.
- **Speech synthesizers** (also known as *text-to-speech*) speak information aloud in a computerized voice. Speech synthesizers can be helpful for people with learning, language, or vision impairments. Products, such as Scan and Read Pro, produce natural-sounding speech synthesis that can support reading skills development.
- **Speech recognition programs** allow computer navigation by voice rather than entering data by keyboard or mouse. In addition to voice, you can still use a mouse and keyboard to enter data, write text, and navigate applications. People who have difficulty typing or reading text because of a learning, language, or mobility impairment can often successfully work on a computer with the use of speech recognition. Speech Recognition is available in Windows 7 and Windows Vista. Some may prefer or require a more robust speech recognition program, such as Dragon NaturallySpeaking.

Age-related impairments

Age-related impairments occur as part of the natural aging process. They may include any of the various types of impairments already discussed in this guide.

As people age, they may experience vision or hearing loss, mobility or dexterity impairments, or difficulties with learning or language. For example, by the time we reach our fifties, two-thirds of us will have developed vision, hearing, or dexterity impairments that may affect our computer use, such as changes in vision that make it harder to read online text or arthritis in our hands that makes typing difficult or painful.[8]

As the age of the population increases —and more people experience the disabilities, impairments, and other functional limitations that often come with age—providing products and services that meet the needs of older people will become increasingly important. Because of accessible technology, businesses will be able to tap into an expanding market of underserved consumers, governments and other organizations will offer better access to services to more people, and consumers will have greater access to essential services and information.

---

[8] Chappell NL, Cooke HA. 2011. Age Related Disabilities - Aging and Quality of Life. In: JH Stone, M Blouin, editors. International Encyclopedia of Rehabilitation. Available online: http://cirrie.buffalo.edu/encyclopedia/en/article/189/

Accessibility features in Windows

Many of the accessibility features in Windows 7 and Windows Vista can be helpful in addressing age-related impairments. For specific types of limitations, such as low vision, hearing loss, or dexterity impairments, consult the sections of the guide that deal specifically with those disabilities or use the Ease of Access Center in Windows 7 and Windows Vista to learn which built-in accessibility features best meet the needs of an individual.

The Ease of Access Center also includes a questionnaire that poses questions about one's experience with a variety of everyday life activities—such as watching television and writing with a pencil or pen—and makes recommendations for accessibility settings based on the answers. This can be especially helpful for people who are beginning to experience age-related limitations and who may not identify themselves as having an impairment or disability. Whether they have trouble seeing images on TV or hearing conversations in a crowded room, Windows can provide accessibility suggestions based on actual experiences rather than on impairment language or labels.

Assistive technology products for people with age-related impairments

Most age-related impairments do not require specialized assistive technology products and can be aided by customization options, such as font size, contrast, or other customization options within the operating system. If an age-related impairment becomes serious enough to warrant specialized assistive technology, the relationship to age is no longer the primary technology consideration and solutions are identified in this guide by the type of disability or impairment experienced.

Related resources:

- Computing Guide for Boomers (www.microsoft.com/enable/aging/)
- Ten tips for the awkward age of computing (www.microsoft.com/enable/aging/tips.aspx)
- Save time with quick computer shortcuts (www.microsoft.com/athome/organization/compshortcuts.aspx)
- 5 ways to make your keyboard easier to use (www.microsoft.com/athome/setup/keyboard.aspx)
- Visualize it: 5 ways to make your PC easier to see (www.microsoft.com/athome/setup/magnify.aspx)
- Always looking for your mouse pointer? (www.microsoft.com/athome/setup/cursor.aspx)
- Customize your PC (www.microsoft.com/athome/setup/customize.aspx)

Chapter 3: Selecting accessible technology

When selecting technology for your company or organization, it is important to consider accessibility features and assistive technology products that will be helpful to individuals with specific disabilities. It is also important to plan for the onset of temporary disabilities that will inevitably occur.

At Microsoft, for example, we provide ergonomic hardware and assistive technology consultation so our employees can be productive, comfortable, and injury-free at work. We are a more diverse company because of our efforts to recruit and employ top-quality people, including those who happen to have disabilities, and we recognize that our employees with disabilities make an added contribution by helping us more effectively recognize, understand, and reach a broader market for our products. Accommodating and enabling employees to perform the necessary functions of their jobs ultimately enhances our ability to develop great products and services for everyone. For more information, see Accessibility at Microsoft (www.microsoft.com/enable/microsoft/).

This chapter includes guidance on how to go about identifying accessibility solutions, details about accessibility settings in Microsoft products, a starter guide to assistive technology hardware and software, and a needs assessment tool.

Identifying the right mix of accessibility solutions

Improving the work experience can mean different things to different individuals—having a multisensory experience of audio paired with a visual representation may benefit one person, and reducing visual and auditory distractions may be better for another. There are hundreds of types of accessibility solutions available—both built-in features and assistive technology hardware and software products—so it is important to take the time to identify the right mix of accessibility solutions for each individual.

Needs assessments

Identifying the best assistive technology solution often requires an in-depth needs assessment to understand how a difficulty or impairment impacts computer use. It is important to take the time to evaluate an individual's needs through an assessment tool or to provide assistive technology consultation with an assistive technology expert before purchasing products.

Some organizations have staff trained in accessibility assessment. If your organization doesn't have such resources available, this guide includes an Assistive Technology Decision Tree tool to help you. In addition, many accessibility consultants are available through various organizations, including those listed here.

Accessibility consultants

Many assistive technology centers and occupational therapists have accessibility consultants to help individuals identify the right mix of accessibility features and products. Some centers offer computer training, and many organizations have lending libraries, so you can try a product before committing to purchase it.

In the United States

- **Microsoft Accessibility Resource Centers** (www.microsoft.com/enable/centers) are available in the United States. These centers provide expert consultation on assistive technology and accessibility features built into Microsoft products.
- **The Alliance for Technology Access** (www.ataccess.org) and the **Association of Assistive Technology Act Programs** (www.ataporg.org/) are other U.S. networks dedicated to providing information and technology support services to people with disabilities.
- **The Rehabilitation Engineering and Assistive Technology Society of North America**, known as RESNA (www.resna.org), offers certification programs for assistive technology practitioners. RESNA is another source for identifying assistive technology experts who can assist organizations in North America.

In Asia

- **Tokyo Information Technology Regional Support Center** for persons with disabilities (www.tokyo-itcenter.com/) delivers training, organizes IT support, and has an exhibition room for people with disabilities.
- **Osaka IT Station** (www.itsapoot.jp/) provides work-related training, organizes IT support, and has an exhibition room for people with disabilities.
- **National Information Society Agency (NIA), Korea** (www.nia.or.kr/koil/default.asp) is a statutory agency founded by Article 10 of the Framework Act on Informatization Promotion for the purpose of promoting informatization and to support development of related policies for national agencies and local autonomies. NIA has been making efforts to improve web accessibility in Korea, including developing web accessibility standards, operating web accessibility education and certification programs and portal sites (www.wah.or.kr), supporting development and purchase of assistive technologies, and promoting awareness on web accessibility issues through campaigns and seminars.

In Latin America

- **POETA Accessible Centers** in Latin America (www.poetaweb.org) deliver training in information and communications technology, civic education, and job readiness to thousands of at-risk youth and people with disabilities across Latin America and the Caribbean.

In Europe

- **AbilityNet** in the United Kingdom (www.abilitynet.org.uk/) helps ensure that people with disabilities in the United Kingdom, whether as individuals or through supporting organizations, have accessible IT that enables and improves their lives. AbilityNet is the leading U.K. charity for computing and disability and has a network of centers. A range of free resources is available from their website. AbilityNet also offers advice on web and software accessibility, including user testing.
- **ONCE**, the Spanish National Organization for the Blind (www.once.es) and its foundation, ONCE Foundation for Cooperation and the Social Integration of People with Disabilities in Spain (www.fundacionONCE.es), provide work-related training and employment for people with disabilities. They also aim for universal accessibility, promoting the creation of universally accessible environments, products, and services.

- **Enable Ireland** (www.enableireland.ie/) works in partnership with those who use its services to achieve maximum independence, choice, and inclusion in their communities. Enable Ireland runs a national assistive technology training service specializing in electronic assistive technology, providing advice and training on assistive technology products to Enable Ireland service users and staff.
- **Charta 77/PCs without Barriers** in the Czech Republic (en.kontobariery.cz/) provides technology knowledge and support to those living with disabilities through 16 PC centers across the Czech Republic.
- **The Organization of People with Disabilities and Their Friends APEIRONS** in Latvia (www.apeirons.lv/) has a goal to integrate people with disabilities into society, in addition to creating more accepting attitudes toward them from the general public. The organization operates a lab in downtown Riga where people can take classes, learn about accessible technologies, and test various options.
- **The eCentrum project** in Poland (www.idn.org.pl/) specializes in the use of modern technologies in education and mobilization for those living with disabilities, creating e-learning and blended learning educational programs, along with desktop training at several locations throughout Poland.

In Australia

- **Vision Australia** (www.visionaustralia.org) works in partnership with Australians who are blind or have low vision to help achieve the possibilities they choose in life. Vision Australia services include assistive technology assessment, computer training, and expertise in web and software accessibility testing, training, and advice.

Online training

In addition, online training and web seminars are available for learning specific types of assistive technology products. Primary sources for online training include:

- Accessibility for Businesses and Organizations (www.microsoft.com/enable/business/).
- The Assistive Technology Industry Association (www.atia.org).
- The HP Guide to Selecting Assistive Technology (www.hp.com/hpinfo/abouthp/accessibility/atproduct.html).

Accessibility in Microsoft products

Following is a list of accessibility features of these products:

- Windows 7
- Internet Explorer 8
- Office 2010

Tip
Demos and tutorials for accessibility features can be found at www.microsoft.com/enable/.

Accessibility features are found in current and earlier versions of Microsoft products including Windows, Office, and Internet Explorer. Find more information at www.microsoft.com/enable/products/.

Accessibility in Windows 7

Windows 7 includes accessibility options and programs that make it easier to see, hear, and use your computer, including ways to personalize your PC.

Windows 7 includes significant accessibility improvements. Magnifier now includes a lens mode and full-screen mode. On-Screen Keyboard can be resized to make it easier to see and includes text prediction. Windows 7 also gives you more ways to interact with your PC by taking advantage of new strides in speech recognition and touch technology.

Find more information at www.microsoft.com/enable/products/windows7/.

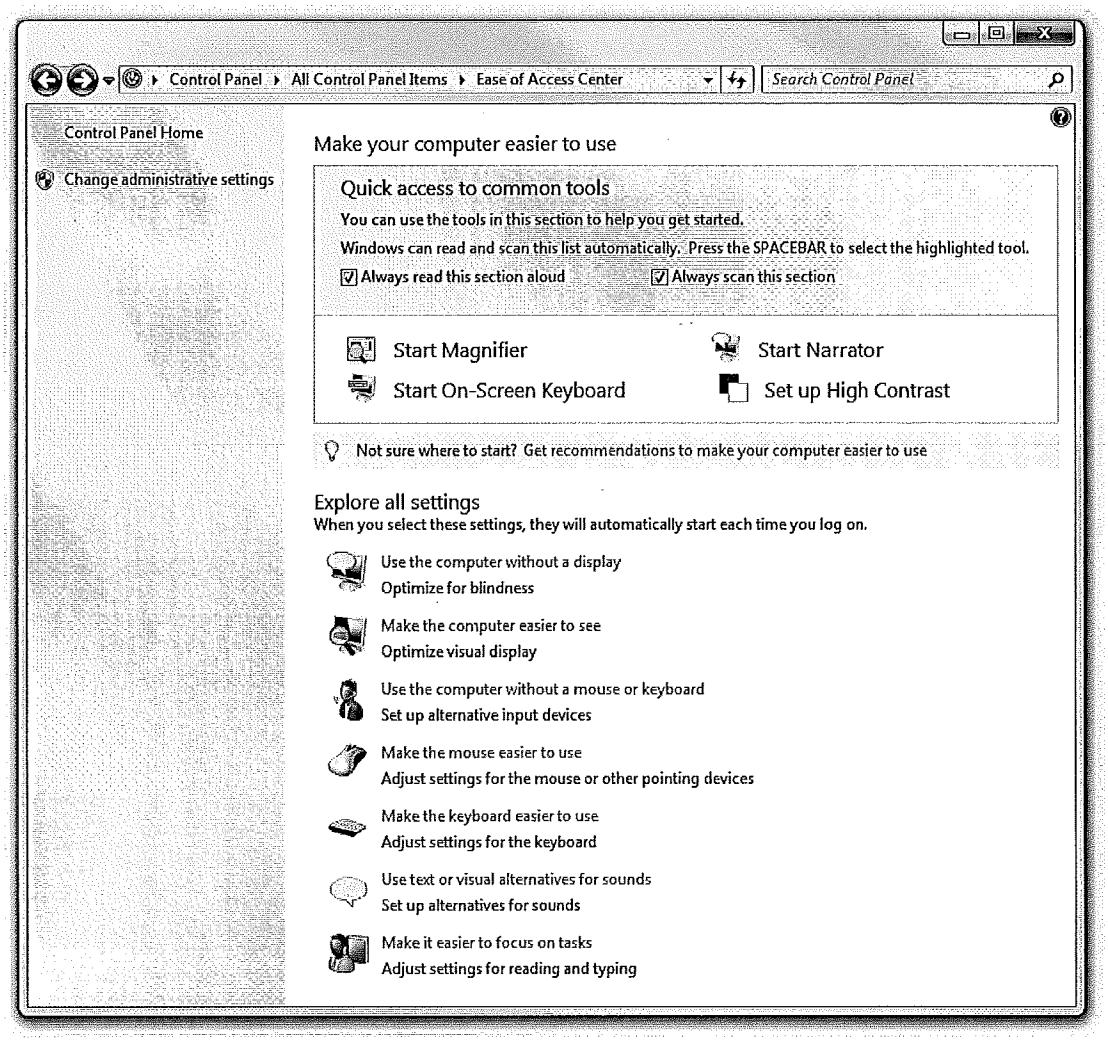


Figure 3-1 The Windows 7 Ease of Access Center gives you quick access to common tools.

Overview of accessibility features in Windows 7

Feature	Description
Ease of Access Center	A central location to explore accessibility settings and programs to make your computer easier to use. The Ease of Access Center can be found in the Control Panel by selecting Windows logo key + U and when logging on to Windows. The Ease of Access Center includes: ▪ **Quick access to common tools.** Start Magnifier, On-Screen Keyboard, Narrator, and High Contrast quickly. ▪ **Get recommendations to make your computer easier to use.** An optional questionnaire provides a personalized list of recommended settings, based on your answers to a series of questions about your eyesight, dexterity, hearing, and more. A custom list of recommended settings is provided so you can choose which options to try. ▪ **Explore all settings by category.** Instead of looking for accessibility settings in various places, settings are organized so you can explore how to: o Use the computer without a display. o Make the computer easier to see. o Use the computer without a mouse or keyboard. o Make the mouse easier to use. o Make the keyboard easier to use. o Use text or visual alternatives to sounds. o Make it easier to focus on tasks.
Magnifier	Enlarges portions of the screen, making it easier to view text and images and to see the whole screen more easily. Magnifier in Windows 7 now includes full-screen mode, lens mode, and docked mode. The magnification quality is improved, and you can set the magnification level up to 16 times the original size and choose to track what you magnify by movement of your mouse, the keyboard, or text editing. Options include: ▪ Choose where Magnifier focuses so that it follows the movement of the mouse cursor, keyboard focus, or text editing. ▪ Change the zoom level. ▪ Set the zoom increment. ▪ Set the lens size. ▪ Turn on color inversion for better screen legibility. ▪ Display the Magnifier toolbar.
Make items on the screen appear larger	Make the text and other items, such as icons, on your screen easier to see by making them larger. You can do this without changing the screen resolution of your monitor or laptop screen. This allows you to increase or decrease the size of text and other items on your screen while keeping your monitor or laptop set to its optimal resolution.

Feature	Description
On-Screen Keyboard	Displays a visual keyboard with all the standard keys. Instead of relying on the physical keyboard to type and enter data, you can use On-Screen Keyboard to select keys by using the mouse or another pointing device. On-Screen Keyboard in Windows 7 can be resized and customized to make it easier to see and use. On-Screen Keyboard now also includes text prediction in eight languages. When text prediction is enabled, as you type, On-Screen Keyboard displays a list of words that you might be typing. Options include: ▪ Change how information is entered. ▪ Set On-Screen Keyboard to use audible clicks. ▪ Use a numeric keypad. ▪ Enable text prediction.
Speech Recognition	Command your PC with your voice, including the ability to dictate into almost any application. You can dictate documents and email and surf the web by saying what you see. An easy setup process and an interactive tutorial are available to familiarize you with the speech commands and to train your computer to better understand you. Options include: ▪ Dictate text using Speech Recognition. ▪ Use the dictation scratchpad. ▪ Add or edit words in the Speech Dictionary. ▪ Use common commands.
Windows Touch	Although great for a lot of tasks, using a keyboard and mouse is not always the easiest way to do things. With Windows 7, if you've got a touchscreen monitor, you can just touch your computer screen for a more direct and natural way to work. Use your fingers to scroll, resize windows, play media, and pan and zoom.
Narrator	Windows comes with a basic screen reader, called Narrator, which reads text on the screen aloud and describes some events (such as the appearance of an error message) that happen while you're using the computer. You can find Narrator in the Ease of Access Center. Options include: ▪ Choose which text Narrator reads aloud. ▪ Change the Narrator voice. ▪ Start Narrator minimized.
Keyboard shortcuts	Keyboard combinations of two or more keys that, when pressed, can be used to perform a task that would typically require a mouse or other pointing device. Keyboard shortcuts can make it easier to interact with your computer, helping to save you time and effort.
Mouse Keys	Instead of using the mouse, you can use the arrow keys on the numeric keypad to move the pointer.
Sticky Keys	Instead of having to press three keys at once (such as when you must press the Ctrl, Alt, and Delete keys simultaneously to log on to Windows), you can press one key at a time, when Sticky Keys is turned on.

Feature	Description
Filter Keys	Ignore keystrokes that occur in rapid succession and keystrokes that are held down for several seconds unintentionally.
Visual Notifications	Replace system sounds with visual cues, such as a flash on the screen, so system alerts are announced with visual notifications instead of sounds.
Captions	Get information via animations and video that some programs use to indicate that activity is happening on your computer.

Tip
Replacement for Serial Keys
Windows 7 does not include Serial Keys. In previous versions of Windows, Serial Keys provided support so that alternative input devices, such as augmentative communication devices, could be plugged into the computer's serial port. For individuals who use these devices, it is important to install an alternative solution prior to upgrading to Windows 7. Recommended solutions: AAC Keys from AAC Institute (www.aacinstitute.org/) and SKEYS from Eyegaze (www.eyegaze.com/).

Accessibility in Internet Explorer 8

The Internet is easier to see and explore with accessibility settings and features in Internet Explorer 8. Internet Explorer 8 lets you select text and move around a webpage with the keyboard, makes it easier to copy and paste text from webpages, and lets you zoom in on a webpage. Enhanced keyboard access can also be found in the toolbar buttons, search box items, address bar, and tabs. Find more information, including tutorials, for how to use these features at www.microsoft.com/enable/products/ie8/.

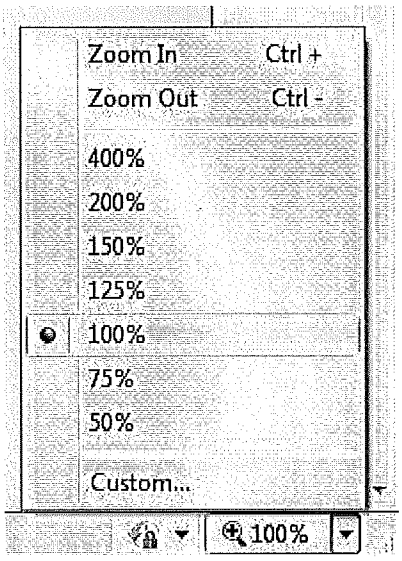


Figure 3-2 Zoom adjustment in Internet Explorer 8 can make webpages easier to see.

Overview of accessibility features in Internet Explorer 8

Feature	Description
Zoom in on a webpage	Zoom lets you enlarge or reduce the view of a webpage. Unlike changing font size, zoom enlarges or reduces everything on the page, including text and images.
Select text and move around a webpage with the keyboard	Rather than using a mouse to select text and move around within a webpage, you can use standard navigation keys on your keyboard—Home, End, Page Up, Page Down, and the Arrow keys. This feature is called *Caret Browsing* and is named after the *caret*—or cursor. This makes it easier to select, copy, and paste text to another document with a keyboard instead of a mouse.
Simplify common tasks with Accelerators	Make tasks like copying, navigating, and pasting easier by using accelerators to save time and keystrokes. Accelerators help you quickly perform tasks without navigating to other websites to get things done. Highlight text from any webpage, and then click the blue **Accelerator** icon that appears above your selection to obtain driving directions, translate and define words, send email content, or search.
Choose colors used on webpages	Make webpages easier to see by changing the text, background, link, and hover colors. Internet Explorer 8 supports the system link color, so High Contrast mode and color preferences you have chosen in Windows will work in Internet Explorer too.
Choose font, colors, and advance accessibility formatting options	Under **Tools/Internet Options**, you can choose your own font style, size, and colors for links and webpages or choose advanced accessibility formatting options that let you use your own customized style sheet.
Choose advanced settings	Make webpages easier to see and work with by adjusting accessibility settings for browsing, multimedia, printing, alternative text, and more in **Tools/Internet Options.**
Find text on a webpage	As you type words into the text box, the matching words are highlighted on the webpage, making it easy to quickly scroll the page and see all the instances of the words you're searching for.

Accessibility in Microsoft Office 2010

Microsoft Office 2010 makes it easier for everyone to create documents, spreadsheets, and presentations with rich content. Finding the commands you need is easier with the completely redesigned user interface. Find more information at www.microsoft.com/enable/products/office2010/.

Overview of accessibility features in Office 2010

Feature	Description
Accessibility Checker	Word 2010, Excel 2010, and PowerPoint 2010 include an Accessibility Checker that identifies areas which could be challenging for users with disabilities to view or use. With the task pane, users can fix potential content problems.
The Ribbon	The menus and toolbars in all Office 2010 programs have been replaced with the Ribbon, designed to help you quickly find the commands that you need to complete a task. To move through the ribbon with a keyboard instead of a mouse, you can press Ctrl+Right Arrow or Ctrl+Left Arrow on a Ribbon tab to move to the next or previous Ribbon group tab.
Zoom	The Zoom tool makes resizing your work area faster and easier.
Produce professional-looking results quickly and easily	Galleries simplify the process of creating great-looking documents, presentations, and spreadsheets by showing a set of potential design choices. No complex dialog boxes are needed.
Live Preview	Live Preview lets you see exactly how your gallery selection will look when it is applied.
Create diagrams and charts without a mouse	Organizational charts, process diagrams and other graphics can be created with SmartArt® graphics tools, which are completely accessible from the keyboard or assistive technology devices.
Compose documents by talking to your computer	Office 2010 works with Speech Recognition in Windows 7 so you can navigate the user interface, compose documents, open email, and more—without using a mouse or keyboard.
Create accessible portals with SharePoint Designer 2010	SharePoint Designer 2010 includes a built-in compatibility checker for common accessibility standards to help make sure websites are easy to use for everyone. More Accessible mode in SharePoint Services provides greater accessibility for custom controls.
Scroll, zoom, listen, and automate	Zoom and scroll directly with a Microsoft IntelliMouse®, and let Microsoft Narrator read text and commands aloud.
Correct Mistakes as you type	Correct capitalization and spelling as you type, plus formatting, punctuation marks, symbols, and lists.
Use Full Screen Reading view	Word 2010 includes a Full Screen Reading view that improves the resolution and display of text for reading on the screen.

Assistive Technology Product Starter Guide

The following tables provide lists of assistive technology hardware and software products by category. Specific examples of the assistive technology products are provided. The tables are by no means exhaustive or an endorsement of these products but are provided as a sampling of what is available today. These types of assistive technology products are also referenced in the Assistive Technology Decision Tree which follows.

Assistive technology: hardware products

	Vision	Mobility	Hearing	Language	Learning	Example
Amplified phone			●			Ameriphone Dialogue XL
Augmentative communication device				●		GoTalk 4+
Alternative input		●				HeadMouse Extreme and Tracker Pro
Alternative keyboard	●	●				ZoomText large-print keyboard and Orbitouch keyless keyboard
Alternative mouse or pointing device		●				BIGtrack
Braille display	●					Eurobraille Esys 12 Braille Display
Braille printer	●					Emprint SpotDot
DAISY reader	●					Victor Reader Wave
Ergonomic keyboard		●				Microsoft Wireless Laser Desktop 4000
Foot mouse		●				Footime Foot Mouse
Hands-free telephone		●				QualiPHONE*
High-resolution monitor	●					HP w1858 18.5-inch diagonal monitor
Large-button phone	●	●				Ameriphone Dialogue XL
Listening aid			●			Motiva Personal FM System
Monitor glare guard	●					Fellowes anti-glare screen
Movable numeric keypads		●				Maxim Low-Force Keypad (USB)
Notetaker	●				●	Livescribe Pulse Smartpen and GW Sense Navigation
One-handed keyboard		●				Maltron One-Handed Keyboard
Optical character recognition system	●				●	Scan and Read Pro**
Oversized or undersized keyboard		●				BigKeys LX and WinMini
Oversized monitor	●					HP w2338h 23-inch diagonal monitor
Scanner	●				●	Scan N Talk Ultra

	Vision	Mobility	Hearing	Language	Learning	Example
Screen magnifier/magnifier	●					Desktop SenseView DSV, SmartView Graduate, and ColorMouse
Switch		●		●		Big Red Twist Switch
Talking calculators	●				●	Sci-Plus 300 large display talking calculator
Touchscreens		●		●	●	Magic Touch Add-On Touch Screens
TTY			●			Compact/C
Voice synthesizer/ Speech to text	●		●	●	●	TextSpeak TS Wireless AAC Speech Generator and iCommunicator***

*Requires PC to phone line connection; **Requires flatbed scanner (such as Scan N Talk Ultra); ***Requires installation on a PC

Assistive technology: software products

	Vision	Mobility	Hearing	Language	Learning	Example
Braille translator	●					Duxbury Braille Translator
Communication aid				●		Overboard
Graphical idea trees					●	Read&Write GOLD
Macro writing software					●	ClaroRead Standard
On-screen keyboard		●				ScreenDoors and SofType
Reading aid	●					gh Player 2.2
Scanner software	●				●	Scan N Talk Ultra
Screen magnifier	●					ZoomText v9.1
Screen readers	●					Window-Eyes v7.2
Speech recognition/ Voice dictation					●	Dragon Naturally Speaking Preferred
Talking calculators	●				●	Sci-Plus 300 large-display talking calculator*
Task organizer software	●	●	●	●	●	MyLifeOrganized
Voice synthesizer/ Speech to text	●		●	●	●	TextSpeak TS Wireless AAC Speech Generator and iCommunicator
Word prediction software					●	Read&Write GOLD and ClaroRead Standard

*Includes a large-display calculator

Purchasing assistive technology

The Enablemart website (www.enablemart.com) is one source where you can purchase assistive technology products. Governments and large businesses or organizations might be eligible for volume pricing.

Assistive Technology Decision Tree

The UnumProvident **Assistive Technology Decision Tree** (www.microsoft.com/enable/download/default.aspx#righttech), shown in Figure 3-3, leads you through questions based on the type of impairment to identify assistive technology products that you might consider. By asking questions regarding the extent and type of impairment (including range of motion, quadriplegia, back impairment, vision impairment, hearing/auditory impairment, speech impairment, and psychological impairment), the decision tree narrows down technology that might be helpful for an individual.

Figure 3-3a Assistive Technology Decision Tree

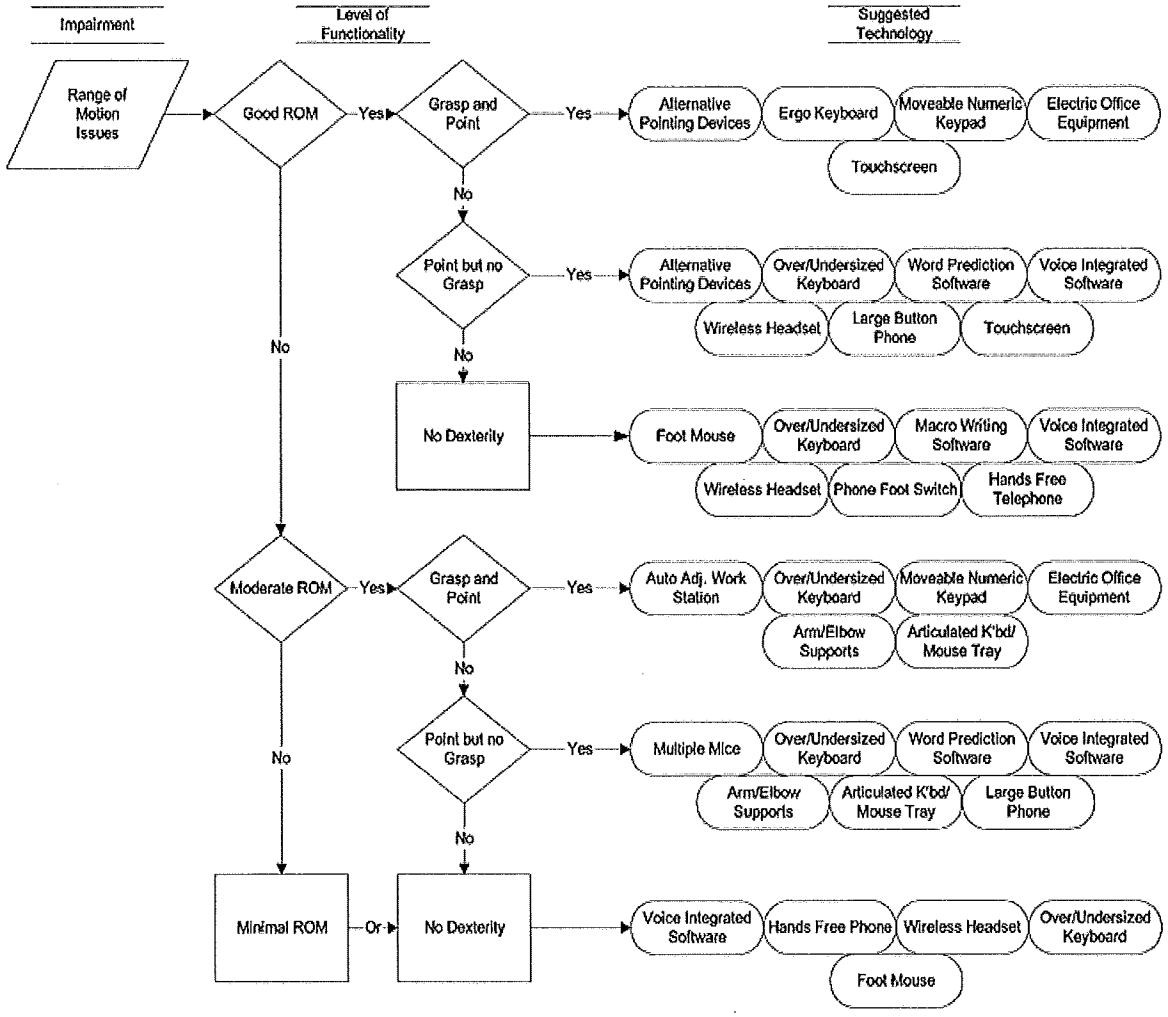


Figure 3-3b Assistive Technology Decision Tree

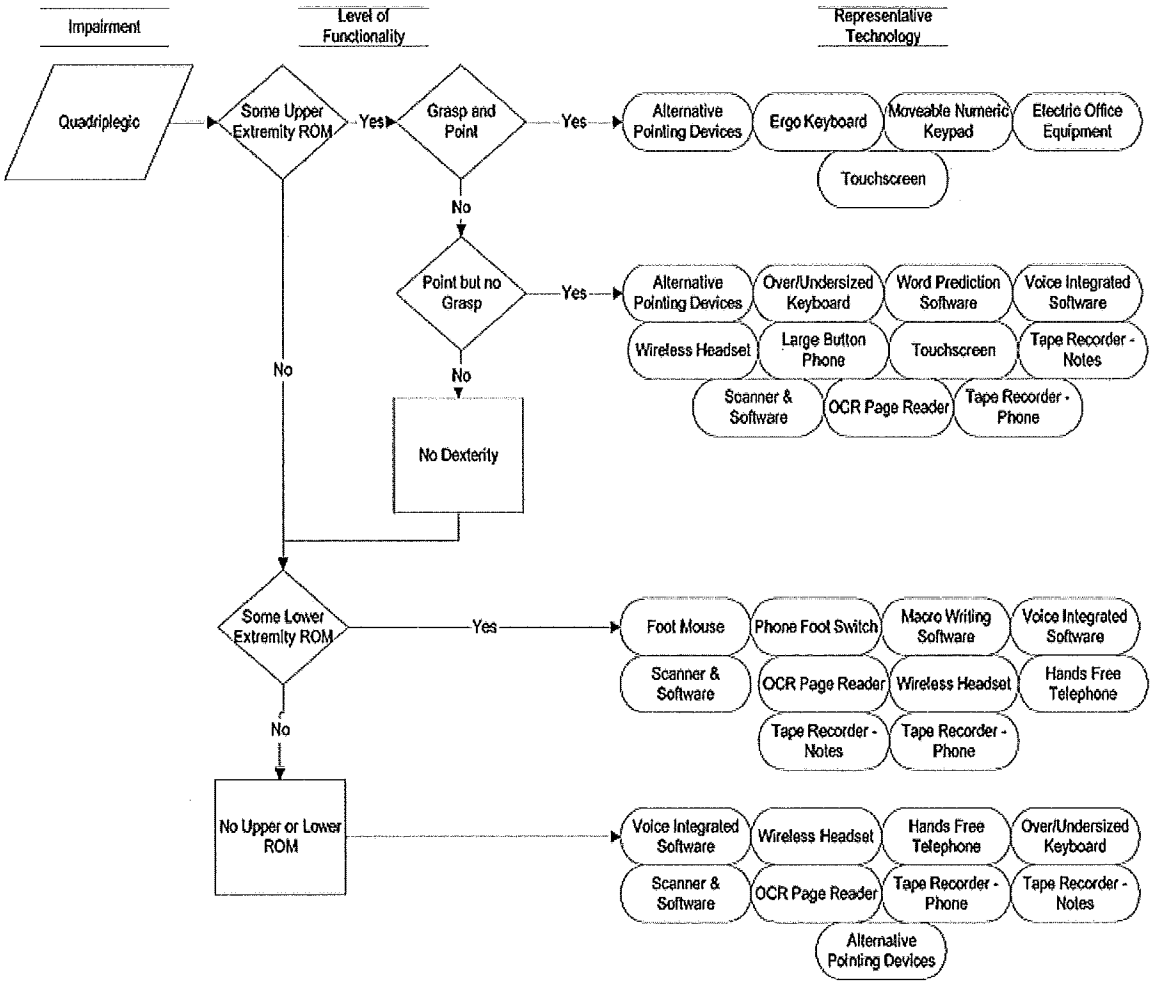


Figure 3-3c Assistive Technology Decision Tree

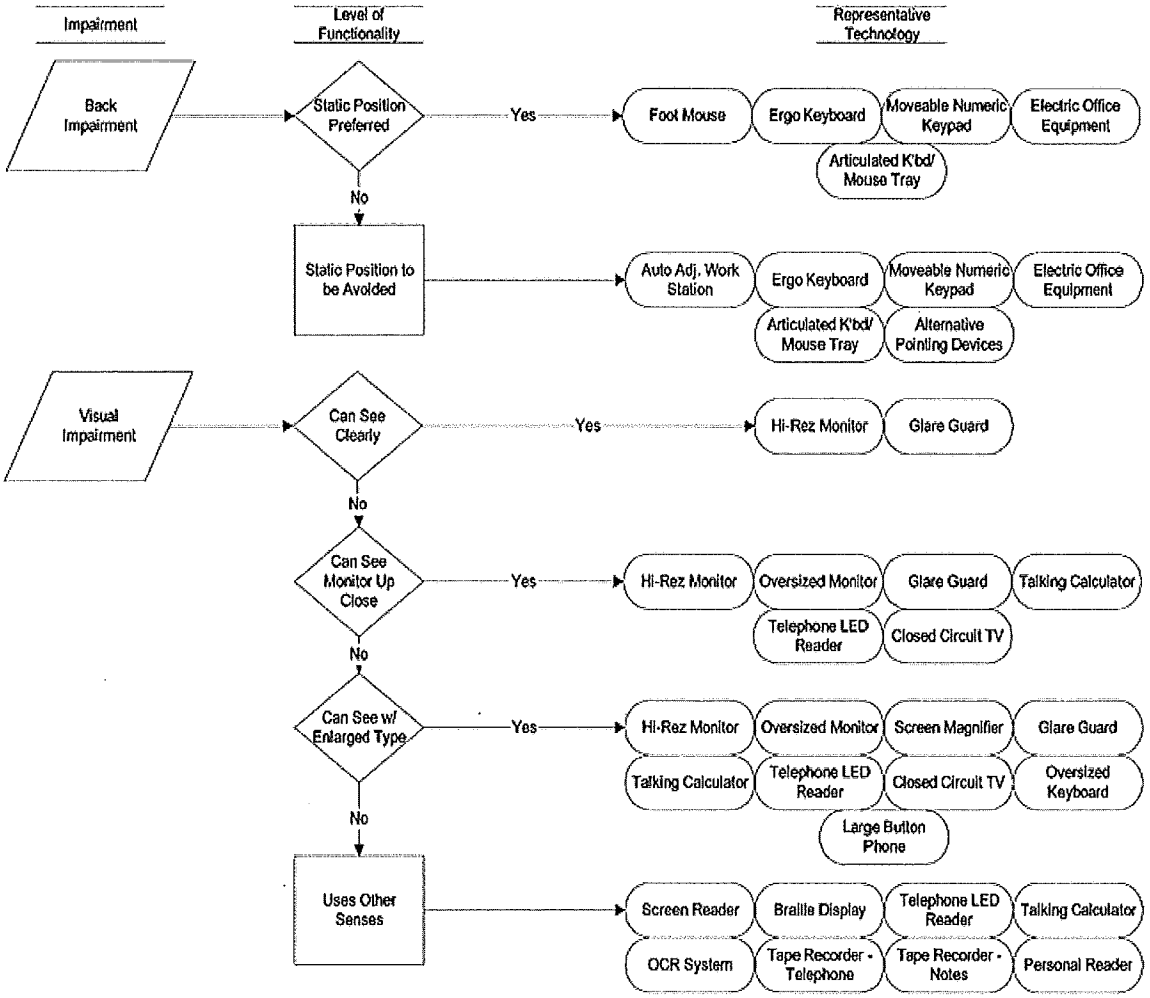
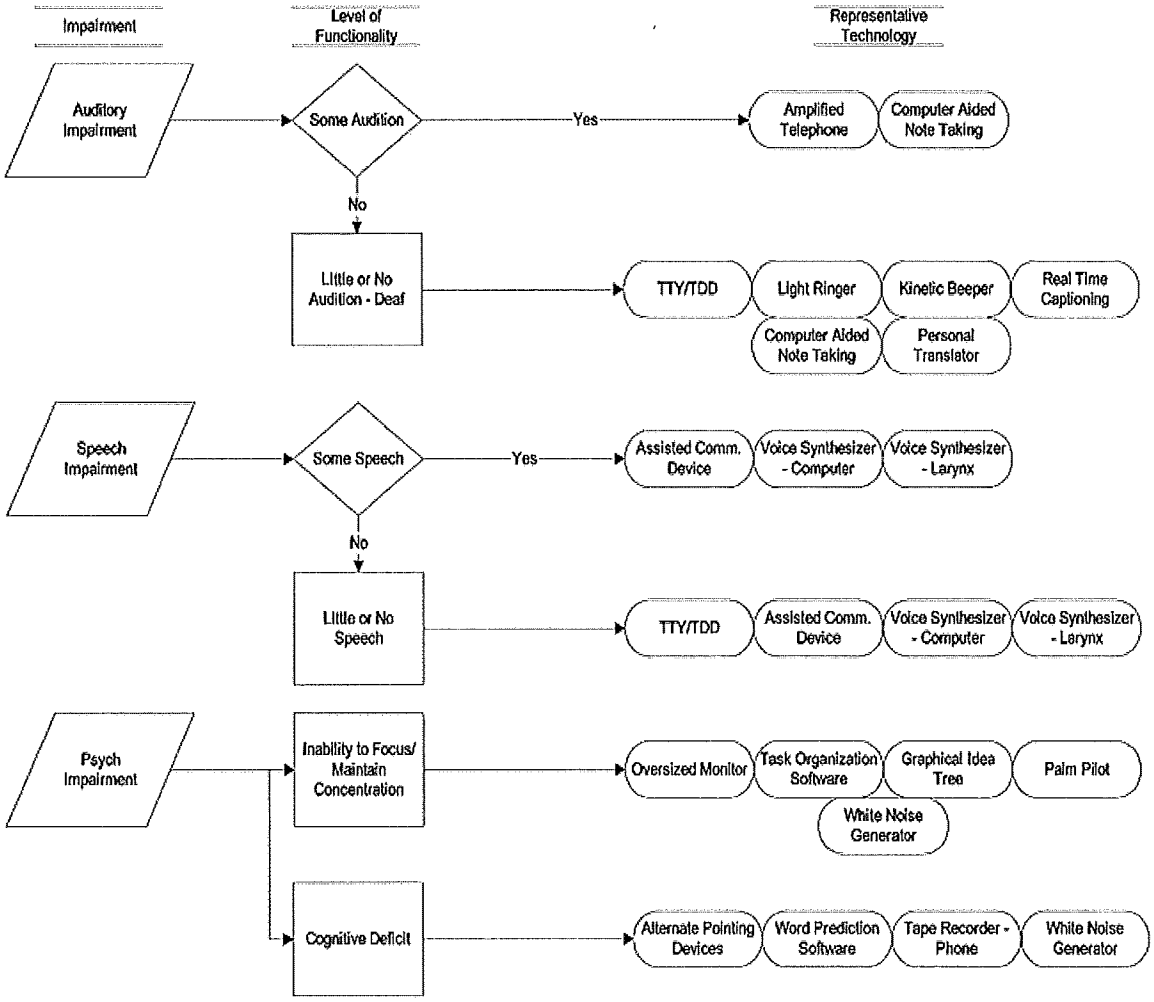


Figure 3-3d Assistive Technology Decision Tree



Chapter 4: Planning and training for accessibility

Microsoft has developed Accessibility Training Courses designed to help organizations create more accessible software products using the Windows platform. Online developer training courses are designed to help large organizations train their web development teams on how to make software applications and websites more accessible.

Developing an accessible technology plan

For organizations that want to increase the accessibility of their technology, there are a few key steps and considerations. Start by developing an accessible technology plan for your organization that enables you to integrate accessibility into your existing processes and product life cycles. The accessible technology plan should include specific steps:

- Set your accessibility goals.
- Assess your accessibility needs and current level of accessibility.
- Identify requirements.
- Lay out an implementation and execution strategy to meet your goals.

To carry out the plan, you need to:

- **Purchase accessible IT.** Lay a solid foundation for accessibility by purchasing an operating system, productivity suite, browser, and other information technology that is accessible and includes built-in features and settings for added accessibility. Accessible IT also provides a platform you can use to develop internal systems and applications that are not only accessible themselves but also compatible and interoperable with other accessible technology and assistive devices.
- **Train employees** on why building more accessible products makes good sense and how to use the accessibility features included in your internal systems. Train web developers on how to create more accessible websites to help users benefit from increased accessibility choices.
- **Make websites and internal tools accessible.** Use established guidelines and best practices to make your organization's websites and internal tools accessible to all employees.
- **Evaluate and update legacy and proprietary systems for greater accessibility.** Determine whether your current legacy and proprietary systems have built-in accessibility options, features, shortcuts and toolbars you could be using. Do employees with disabilities, impairments, or age-related limitations have trouble accessing your systems?
- **Design and develop accessible technology.** Make accessibility an integral part of your product design and development process in a programmatic way, right from the start of the product development cycle.

Accessibility training for web developers and testers

Microsoft has developed online Accessibility Training Courses designed to help organizations train their IT professionals on how to build accessible technology and improve the accessibility of their websites and in-house technologies.

The training modules (available on a CD that comes with this guide and available online at http://msdn.microsoft.com/accessibility) are valuable resources you can use to help inspire you to learn more about creating accessible products and thereby incorporate accessibility in a programmatic way as a part of the product development cycle.

Each training module listed contains a description of the training and the intended audience. For screen readers that do not recognize Microsoft Silverlight™, there is an alternative version of each course that presents all the information without using Silverlight. There is also a third, text-only version available on the companion CD and online at http://msdn.microsoft.com/accessibility.

Training module	Delivery method	Description	Target audience
Introduction to accessibility	Online Self-paced	Opportunity to hear stories of people whose lives are enhanced by accessible technology products and to understand the importance of making accessibility a systematic component of the product life cycle	Chief executive officer Chief technical officer Chief operating officer HR director IT professionals Developers Testers
General accessibility for developers	Online Self-paced	How to plan and access costs for creating accessible applications using a logical hierarchy	Developers Testers
Windows (Win 32) accessibility for developers	Online Self-paced	How to use MSAA and UIA in Win32 to create programmatic access for users of assistive technology	Developers Testers
WinForms accessibility for developers	Online Self-paced	How to use WinForms common controls to create more accessible applications	Developers Testers
Windows Presentation Foundation (WPF) accessibility for developers	Online Self-paced	How to use the WPF UI Automation application to create access for users of assistive technology	Developers Testers
Silverlight accessibility for developers	Online Self-paced	How to use WPF UI Automation to create more accessible Silverlight applications	Developers Testers
Accessible Web Applications for developers	Online Self-paced	How to use the Web to create more accessible applications	Developers Testers

Resource Materials

Along with the training course, Microsoft has developed resource materials to further raise awareness within organizations about building more accessible products and services in a programmatic way. The materials include additional resources to help developers to make their online products more accessible using the Windows operating system and a guide that specifically addresses software engineering for accessibility. The materials are available online, in a downloadable PDF format, at www.microsoft.com/enable/business/.

Deploying accessible technology

After you have purchased or developed technology, you still have to deploy it throughout your organization. To realize the greatest productivity benefits from accessible technology, train all employees so that they understand and can use the accessibility features in any technology you purchase or develop in-house.

Avoid common mistakes in deploying accessible technology, including:

- Centralized lockout of accessibility options.
    - Employees can be shut out of built-in features, such as high-contrast settings, when system administrators use group policies that do not allow them to have access to these features. (For example, an administrator may bar user access to options in the system control panel where most of the accessibility tools can be activated).
- Lack of keyboard access to all features.
    - One accessibility best practice is to make sure the keyboard is able to perform the same tasks as a mouse device. It is also important to document the keyboard user interface in the product manual and through online Help.
- Applications that do not honor system settings.
    - When set correctly, system settings indicate when applications should change their default behavior. For example, when the Show Sounds setting is on, an application that typically uses sound to convey important information should also show the information visually. By not honoring this setting, a person with hearing difficulty may not know if an audible alert has been activated.

In the training modules (available on a CD that comes with this guide and available online at http://msdn.microsoft.com/accessibility) you will find more direction on common developer mistakes and how to avoid them.

Finally, make sure your IT department can provide high-quality, ongoing support for employees who are relying on accessible technology, in addition to others who may want or need to use it.

In closing

Thank you for your interest in learning more about accessibility in the workforce, why it is important to your organization, and how it can help your employees, customers, and partners realize their full potential. We hope you find the Accessibility Training Course CD included in this guide, and available online at http://msdn.microsoft.com/accessibility helpful in creating software products that are more accessible.

Resources

Resources from Microsoft

The Microsoft mission is to enable people and businesses throughout the world to realize their full potential. Computer technology is an important and powerful tool that enables and empowers individuals of all abilities. At Microsoft, we strive to develop technology that is accessible and usable by everyone, including individuals who experience the world in different ways because of impairments, disabilities, or age-related limitations.

Microsoft Government Accessibility website www.microsoft.com/govaccessibility

Microsoft Accessibility website www.microsoft.com/enable/

- Accessibility for Businesses and Organizations http://www.microsoft.com/enable/business/
- Accessibility for Educators www.microsoft.com/enable/education/
- Accessibility Update newsletter www.microsoft.com/enable/news/subscribe/
- Accessibility in Microsoft products www.microsoft.com/enable/products/
- Accessibility tutorials www.microsoft.com/enable/training/
- Accessibility demos www.microsoft.com/enable/demos/
- Assistive technology products www.microsoft.com/enable/at/
- Microsoft Accessibility Resource Centers www.microsoft.com/enable/centers/
- The business value of integrating accessible technology into business organizations www.microsoft.com/enable/business/value.aspx
- Developing an accessible technology plan www.microsoft.com/enable/business/plan.aspx
- Business accessibility case studies www.microsoft.com/enable/casestudy/default.aspx

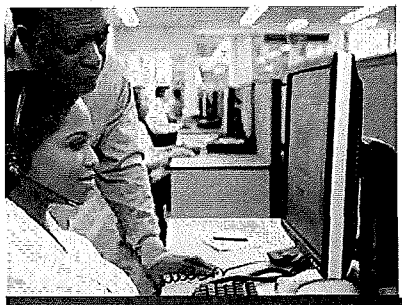
Microsoft Accessibility Developer Center http://msdn.microsoft.com/accessibility

- Accessibility training http://msdn.microsoft.com/en-us/windows/bb735024.aspx
- WPF Introduction http://msdn.microsoft.com/en-us/library/aa663364.aspx
- UI automation control types http://msdn.microsoft.com/en-us/library/ms749005.aspx
- Control pattern mapping for UI http://msdn.microsoft.com/en-us/library/ms750574.aspx
- UI automation control patterns http://msdn.microsoft.com/en-us/library/ms743073.aspx
- UI automation events http://msdn.microsoft.com/en-us/library/ms748252.aspx#Types_of_Events
- UIA verify http://uiautomationverify.codeplex.com/

Additional resources and events

The following organizations offer additional accessibility resources or host annual accessible technology events:

- Access Technology Higher Education Network (ATHEN) www.athenpro.org
- Assistive Technology Industry Association www.atia.org
- Australian Government Web Publishing Guide: Accessibility http://webpublishing.agimo.gov.au/Accessibility.html
- Illinois Center for Information Technology and Web Accessibility www.cita.uiuc.edu/
- Industry Canada: Accessible Procurement Toolkit www.apt.gc.ca/
- Knowbility www.knowbility.org
- Montgomery College, Maryland, accessibility resources www.montgomerycollege.edu/standards/webstandardstraining/
- OCAD University, Inclusive Design Research Centre http://idrc.ocad.ca/
- Rehabilitation Engineering and Assistive Technology Society of North America www.resna.org
- SIGACCESS: ACM Special Interest Group on Accessible Computing http://portal.acm.org/sig.cfm?id=SP1530
- Technology and Persons with Disabilities Conference at CSUN www.csun.edu/cod/conf/
- Techshare India http://techshare.barrierbreak.com/
- Trace Research and Development Center http://trace.wisc.edu/sitehelp/
- U.K. web accessibility basics www.webcredible.co.uk/user-friendly-resources/web-accessibility/basics.shtml
- United States Access Board www.access-board.org
- University of Australia Accessibility Resources www.unisa.edu.au/footer/accessibility/resources.asp
- W3C policies and guidelines www.w3.org/WAI/Policy/
- W4A www.w4a.info
- WebAIM www.webaim.org



This guide from Microsoft provides information about accessibility and accessible technology to help organizations worldwide ensure that everyone has equal access to information and services.

For organizations new to accessibility and working with people with disabilities, accessibility can sometimes seem overwhelming. To help your organization meet the needs of people with all types of abilities, you will find specific information about many types of impairments and some of the accessible technology solutions that address them.

This guide provides

- An understanding of accessibility and how it impacts organizations
- Definitions of impairment types and technology solutions for each type of impairment
- Guidance on choosing accessible technology solutions
- Resources for more information

www.microsoft.com/enable/business/

http://msdn.microsoft.com/accessibility

Ford Ex. 1109

First edition. Published in 2011. Part number 098-117235
Copyright © 2011 Microsoft Corporation. All rights reserved.

I'm looking for:

Windows

- Windows 8
- Windows 7

Office

- Office 365
- Office 2013
- Office 2010

Assistive Technology Products

- Shop and Select Assistive Technology Products
- Types of Assistive Technology Products
- Assistive Technology Products for Windows

Accessibility Developer Center

msdn

Guides

Guides

Accessibility in Education

Educators today are faced with the challenge of both integrating technology into the classroom and teaching students of all learning styles and abilities—including students with disabilities. Microsoft is dedicated to building accessibility into our products and to providing accessibility resources for educators.

Accessibility Guide for Educators

This guide provides information on:

- Accessibility and how it impacts the classroom
- Types of impairments, disabilities, and specific accessibility solutions
- Selecting assistive technology for students
- Additional resources

More Information

Video: Best Practices of Accessibility in Schools

Guide for Windows 8

Accessibility: A Guide for Educators – English

Guide for Windows 7 and Windows Vista

Accessibility: A Guide for Educators – English

Guía de Accesibilidad para Educadores – Spanish

Guide for Windows XP

Accessibility: A Guide for Educators – English

Guía de Accesibilidad para Educadores – Spanish

Curriculum resources

This curriculum resource shows how the PC can be personalized for students with learning style differences or physical disabilities. It also shows how to use Microsoft

Teacher training workshop

This workshop shows educators how to use accessibility features on PCs to help students with disabilities use computers.

Accessibility in Education Workshop

Guides

Guides

Guide for Individuals with Language and Communication Impairments

Microsoft products include accessibility features and options that can be adjusted to address language and communication preferences as well as difficulties and impairments ranging from aphasia (loss or impairment of the power to use or comprehend words), delayed speech, and other conditions resulting in difficulties remembering, solving problems, or perceiving sensory information.

This guide describes accessibility features built into Windows 8 and Office 2013 which are available at your option to address language and communication impairments and preferences. You can also learn about the types of assistive technology products available to further assist you.

In this section:

- Make Windows 8 easier to use
- Adjust accessibility settings from the Ease of Access Center
- Make it easier to focus on tasks
- Use Office features to focus on tasks
- Surf the web more easily with Internet Explorer 10
- Find assistive technology for language and communication impairments

Make Windows 8 easier to use

With Windows 8 you can easily access the most commonly used accessibility options right from the sign-in screen. Select the **Ease of Access** button in the lower-left corner of your screen, or press the **Windows logo key+U**, to choose the settings for your PC that you want to have available each time it starts.

Adjust accessibility settings from the Ease of Access Center

The **Ease of Access Center** is a convenient, central location where you can set up all of the accessibility settings and programs available in Windows, and "get recommendations" for suggested settings to fit your individual learning needs and preferences.

After log-in, you can access the Ease of Access Center by pressing the **Windows logo key+U**. On a touch-enabled device, swipe in from the right edge of the screen, and then tap **Search**. Enter **Ease of Access Center** in the search box, tap or click **Settings**, and then tap or click **Ease of Access Center** in the results.

After log-in, you can access the Ease of Access Center by pressing the **Windows logo key+U**. On a touch-enabled device, swipe in from the right edge of the screen, and then tap **Search**. Enter **Ease of Access Center** in the

I'm looking for:

Windows

- Windows 8
- Windows 7

Office

- Office 365
- Office 2013
- Office 2010

Assistive Technology Products

- Shop and Select Assistive Technology Products
- Types of Assistive Technology Products
- Assistive Technology Products for Windows

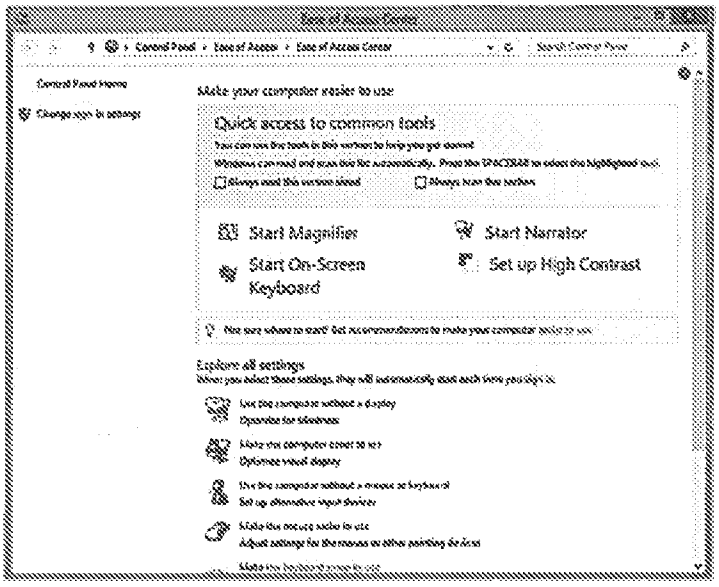
Accessibility Developer Center msdn

More Information

Shop for communication products

Site Index | Subscribe | Worldwide | © 2014 Microsoft | Accessibility | Contact Us | Terms of Use | Trademarks | Privacy Statement

search box, tap or click **Settings**, and then tap or click **Ease of Access Center** in the results.



Ease of Access Center in Control Panel

Make it easier to focus on tasks

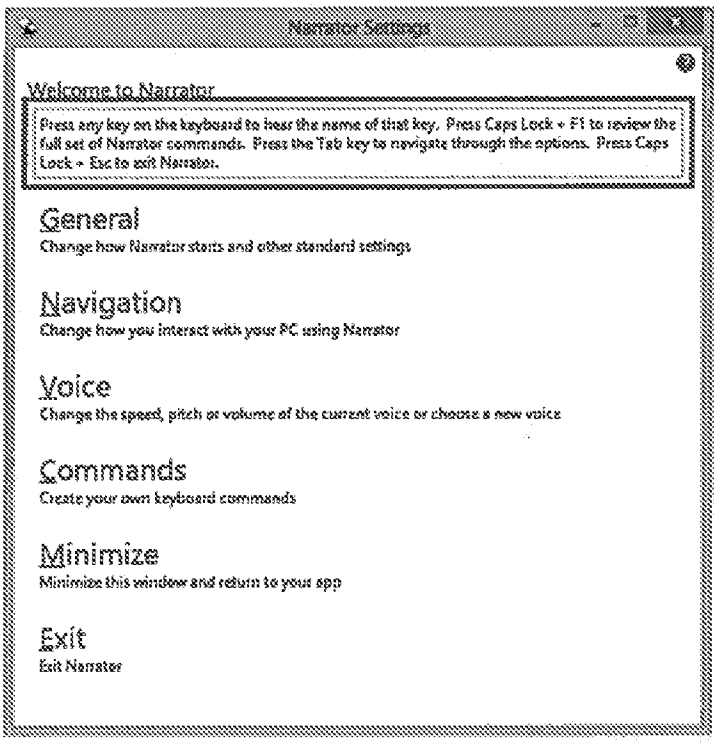
The Windows accessibility options most helpful for people with learning impairments and special needs are grouped into the **Make it easier to focus on tasks** section. A number of settings can help make it easier to focus on reading and typing. You can have Narrator read information on the screen, adjust how the keyboard responds to certain keystrokes, and control whether certain visual elements are displayed.

Hear text read aloud with Narrator

Windows comes with a basic screen reader called Narrator that reads aloud on-screen text and describes some events such as an error message appearing on screen. This feature may be useful for people with learning impairments who benefit from both visual and auditory information being presented simultaneously.

Narrator in Windows 8 is substantially faster and supports many new features. By default on touch-only devices, Narrator can be launched by simply holding down the **Windows logo button** and pressing the **Volume Up** button. Once Narrator is running, you can use Narrator's built-in touch commands to explore the screen and control your device.

There are also some new configuration options for Narrator in Windows 8. You can select one of several voices, change the speed at which Narrator speaks, create customizable keyboard commands, and specify many other settings to suit your preferences.



Narrator Settings options dialog box

Turn on Sticky Keys, Toggle Keys, and Filter Keys

Several options you can turn on in Windows can simplify the way you type information into your computer thereby making it easier to stay focused.

These options include:

- **Sticky Keys**—Instead of having to press three keys at once (such as when you must press the Ctrl, Alt, and Delete keys together to log on to Windows), you can use one key by turning on Sticky Keys and adjusting the settings. This way, you can press a modifier key and have it remain active until another key is pressed.
- **Toggle Keys**—Toggle Keys can play an alert each time you press the Caps Lock, Num Lock, or Scroll Lock keys. These alerts can help prevent the frustration of inadvertently pressing a key and not realizing it.
- **Filter Keys**—You can set Windows to ignore keystrokes that occur in rapid succession, or keystrokes that are held down for several seconds unintentionally.

Reduce visual distractions

- **Remove background images.** This option turns off all unimportant, overlapped content and background images to help make the screen easier to see.
- **Turn off all unnecessary animations.** This option turns off animation effects, such as fading effects, when windows and other elements are closed.
- **Choose how long Windows notification dialog boxes stay open.** With this option, you can choose how long notifications are displayed on the screen before they close.
- **Prevent windows from being automatically arranged when moved to the edge of the screen.** This option prevents windows from automatically resizing and docking along the sides of your screen when you move them there.

Note: Remember, you can access these options at any time after log-in by opening the Ease of Access Center by pressing the **Windows logo key+U**. Then, select **"Make it easier to focus on tasks."**

Interact with your computer by touch

Using a keyboard and mouse is not always possible or desirable for many people. With Windows 8, if you have a touch-screen monitor, you can just touch your computer screen for a more direct and natural way to work. Use your fingers to scroll, resize windows, play media, and pan and zoom. See also: How to use the touch keyboard.

Desktop with video launch icon and link to video on how to use the touch keyboard

Use Office features to focus on tasks

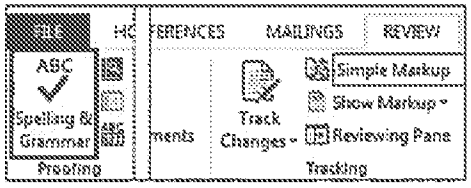
A number of accessibility options in Microsoft Office products make it easier for people with language and communication impairments to interact with their computers while creating Word documents, Excel spreadsheets, PowerPoint presentations, and more.

Spelling and grammar checker in Office programs

All Microsoft Office programs can check the spelling and grammar of your files. In Microsoft Word 2013, start the Spelling and Grammar checker by clicking **Review > Spelling and Grammar**.

Then, choose from these options as the spelling and grammar checker reviews your document:

- Check the spelling and grammar all at once.
- Check spelling and grammar automatically, as you type.
- Recheck the words you previously checked and chose to ignore (but changed your mind).



Screen shot of Spelling and Grammar button on the Word 2013 ribbon

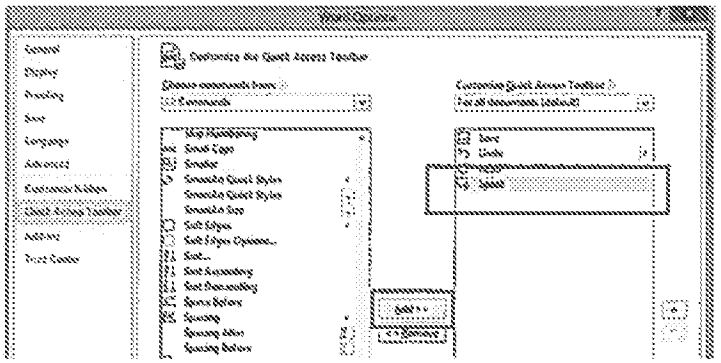
Use the Speak text-to-speech feature

Text-to-speech (TTS) is the ability of your computer to play back written text as spoken words. Depending upon your configuration and installed TTS

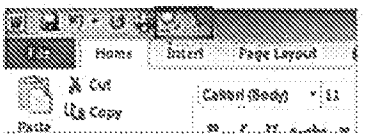
engines, you can hear most text that appears on your screen in Word 2013, Outlook 2013, PowerPoint 2013 and OneNote 2013.

Add Speak to the Quick Access Toolbar

1. Next to the Quick Access Toolbar, click **Customize Quick Access Toolbar**.
2. Click **More Commands**.
3. In the **Choose commands from** list, select **All Commands**.
4. Scroll down to the **Speak** command, select it, and then click **Add**.
5. Click **OK**.
6. When you want to use the text-to-speech command, click the icon on the Quick Access Toolbar.



Word Options dialog box where the Speak command is selected to add to the Quick Access Toolbar



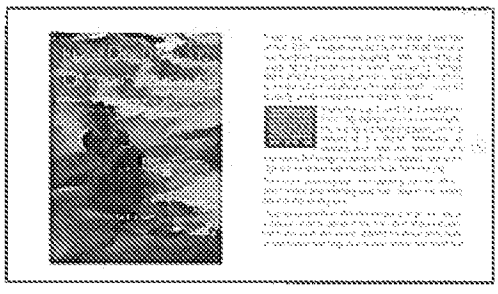
Quick Access Toolbar with Speak command added and highlighted

Use Read Mode for a clearer view

Use the new Read Mode in Word 2013 for a beautiful, distraction-free reading experience. Read Mode hides most of the buttons and tools so you can get absorbed in your reading without distractions. Press ALT+W, and then press F to open Read Mode. To move from page to page in a document, do one of the following:

- Click the arrows on the left and right sides of the pages.
- Press page down and page up or the spacebar and backspace on the keyboard. You can also use the arrow keys or the scroll wheel on your mouse.
- If you're on a touch device, swipe left or right with your finger.

Also while in Read Mode you can double-click a picture to get an enlarged view. Click outside the image to return to reading.



Document in Read Mode of Office 2013

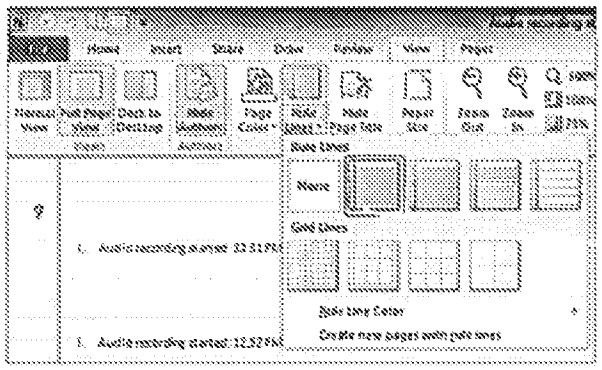
Hear text read aloud with Mini Translator

With the Microsoft Office 2013 Mini Translator, you can point to a word or selected phrase with your mouse and the translation displays in a small window. The Mini Translator also includes a Play button so you can hear an audio pronunciation of the word or phrase, and a Copy button so you can paste the translation into another document.

Use Microsoft OneNote to stay organized

Microsoft OneNote can make taking and organizing notes a lot easier. Students with dyslexia, for example, can benefit from many features in OneNote that can help them take notes faster and in different ways, stay organized, and meet literacy challenges, such as spelling and grammar.

See also: Upgrading to Microsoft OneNote 2013 from a previous version.



OneNote ribbon

Move around webpages with the keyboard

With learning impairments and disabilities it's sometimes difficult to find links on webpages. Some people find it easier and quicker to move around webpages using the keyboard in Web Apps.

- Keyboard shortcuts in Word Web App
- Keyboard shortcuts in Excel Web App
- Keyboard shortcuts in PowerPoint Web App
- Keyboard shortcuts in OneNote Web App

Surf the web more easily with Internet Explorer 10

Accessibility in Internet Explorer 10 lets you select text and move around a webpage with the keyboard. Keyboard access to the toolbar buttons, search box items, address bar, and tabs makes surfing the web quicker and easier for people with learning impairments.

Use keyboard shortcuts to navigate webpages

Press the Tab key to move forward between screen elements and **Shift+Tab** to move backward. By pressing **Tab** or **Shift+Tab**, you can navigate through the parts of the screen. Learn more keyboard shortcuts.

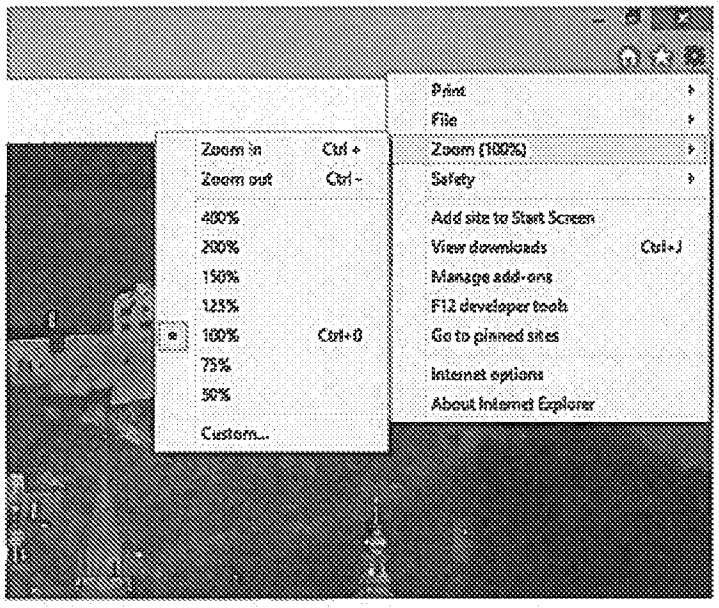
Zoom in on a webpage

To make everything on a webpage easier to see you can zoom in or enlarge the whole page including images and text. You can zoom from 10% to 1000%. Press **Ctrl+Plus** sign (+) to zoom in, or **Ctrl+Minus** sign (-) to zoom out.

Or, while viewing your Internet Explorer window from the desktop, select the **Tools** icon at the top of the window, select **Zoom**, then select **Zoom In**,

or **Zoom out**, or the desired percentage. You can also select **Custom** to set a percentage up to 1000 percent.

Tools button in Internet Explorer 10



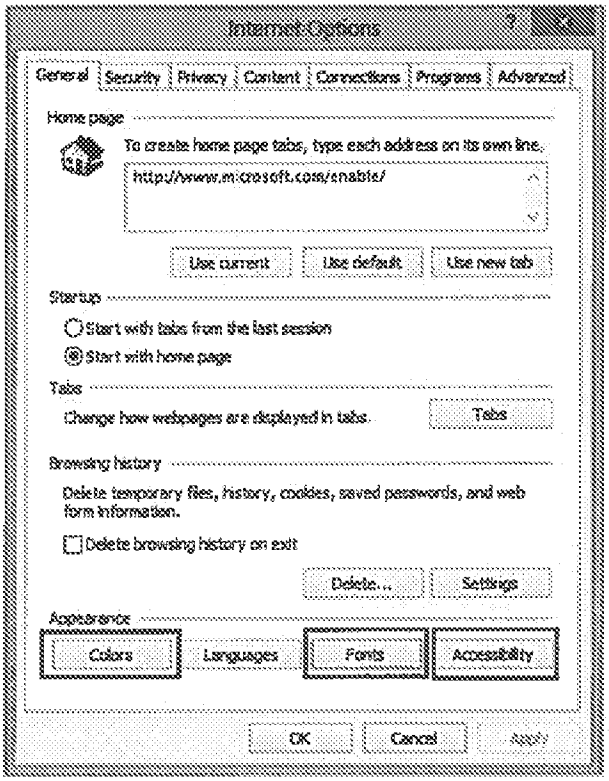
Internet Options Tools menu open to Zoom level options

You can specify the font type and size and the foreground and background colors that are used to display webpages. You can also specify the color used for links in webpages.

Change the font size, formatting, and screen colors

To make webpages easier to see, you can change the font type and size, and the foreground and background colors that are used to display webpages. You can also specify the color used for links in webpages, and override colors used on webpages.

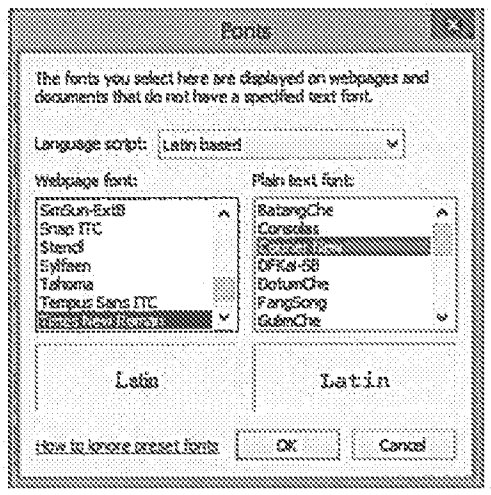
With an Internet Explorer window open on the Desktop, select **Internet Options** from the **Tools** menu.



Internet Options dialog box Colors, Fonts, Accessibility buttons

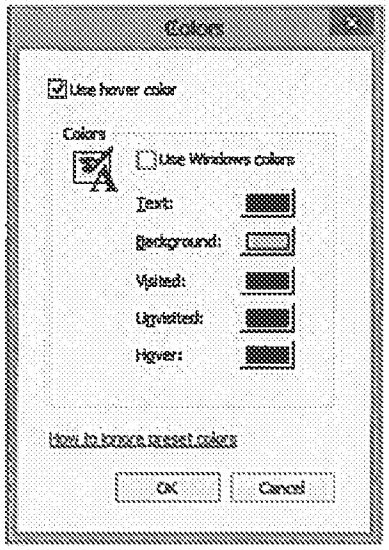
Then, select one of the buttons at the bottom of the dialog box:

- **Fonts**—to change the font type and size used on webpages.
- **Colors**—to change the font colors used on webpages.
- **Accessibility**—to make Internet Explorer ignore colors, font styles and font sizes used on webpages, or to format webpages using your own style sheet.



Fonts dialog box where font preferences are selected

Page 341 of 1087 Ford Ex. 1109



Colors dialog box where webpage color preferences are selected

Find assistive technology for language and communication impairments

You can shop for assistive technology products compatible with Microsoft Windows made by independent assistive technology companies. People who have language or communication difficulties and impairments may be interested in the following assistive technology:

- **Augmentative and assistive communication (AAC) devices** are used by individuals who cannot speak or who find speaking difficult. The user types in a word, phrase, or sentence to communicate—or selects a series of symbols or pictures on the device—and the device "speaks" aloud for the user. Often these devices are used to replace a PC keyboard. In these cases the user is able to use one device for both communicating and computer input.
- **Touch screens** are devices placed on the computer monitor (or built into it) that allow direct selection or activation of the computer by touching the screen. The ability to touch the computer screen to make a selection is advantageous for people with language and learning disabilities because it is a more simple, direct, and intuitive process than making a selection using a mouse or keyboard. With Windows and a touch-screen, you can just touch your computer screen for a more direct and natural way to work. Use your fingers to scroll, resize windows, play media, and pan and zoom.
- **Speech synthesizers** provide the user with information through a computer voice. Also known as text-to-speech (TTS), the speech synthesizer receives information in the form of letters, numbers, and punctuation marks, and then "speaks" it out loud to the user in a computer voice.

I'm looking for:

Windows

- Windows 8
- Windows 7

Office

- Office 365
- Office 2013
- Office 2010

Assistive Technology Products

- Shop and Select Assistive Technology Products
- Types of Assistive Technology Products
- Assistive Technology Products for Windows

Accessibility Developer Center

msdn

Guides

Guides

Guide for Individuals with Vision Impairments

Microsoft products include accessibility features that make it easier to see your computer if you have low vision or colorblindness. Or, if you are blind, Windows allows you to receive information through sound or touch rather than the display.

This guide describes accessibility features built into Windows 8 and Microsoft Office that are available to address vision impairments and preferences. You can also learn about the types of assistive technology products available to further assist you.

In this section:

- Make Windows 8 easier to see
- Adjust accessibility settings from the Ease of Access Center
- Make Microsoft Office programs easier to use
- Make Office documents, presentations, and spreadsheets more accessible
- See webpages more clearly with Internet Explorer
- Find assistive technology for vision impairments

Make Windows 8 easier to see

With Windows 8 you can easily access the most commonly used accessibility options right from the sign-in screen. Select the **Ease of Access** button in the lower-left corner of your screen, or press the **Windows logo key+U**, to choose the settings for your PC that you want to have available each time it starts.

Adjust accessibility settings from the Ease of Access Center

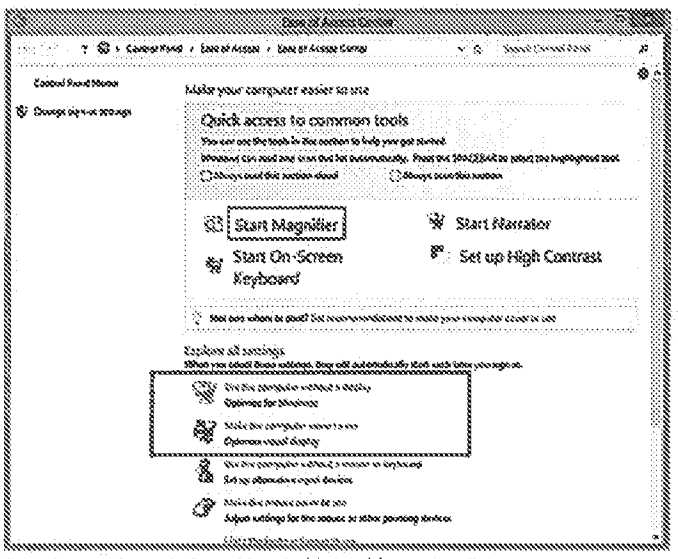
The **Ease of Access Center** is a convenient, central location where you can set up all of the accessibility settings and programs available in Windows, and "get recommendations" for suggested settings to fit your individual vision needs and preferences.

After log-in, you can access the Ease of Access Center by pressing the **Windows logo key+U**. On a touch-enabled device, swipe in from the right edge of the screen, and then tap **Search**. Enter **Ease of Access Center** in the search box, tap or click **Settings**, and then tap or click **Ease of Access Center** in the results.

More Information

Shop for vision products

Site Index | Subscribe | Worldwide | Microsoft © 2014 Microsoft
Accessibility
Contact Us | Terms of Use | Trademarks | Privacy Statement



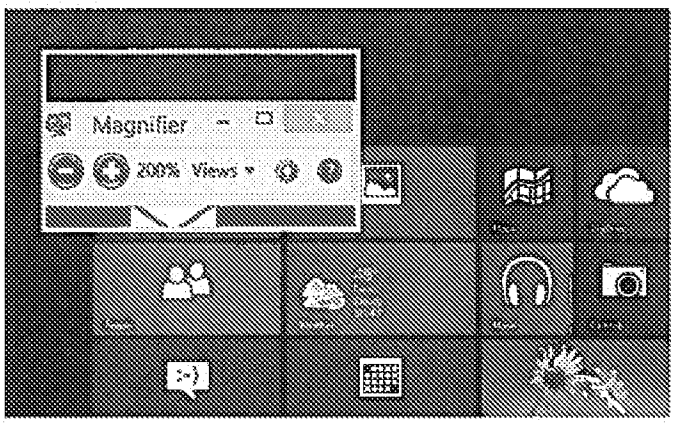
Ease of Access Center in Control Panel with the vision settings links highlighted

Make the computer easier to see

All of the Windows accessibility options most helpful for people with vision impairments are grouped under "Make the computer easier to see," and, one designed for people who are blind named, "Use the computer without a display." You can choose a High Contrast theme, turn on Narrator and Magnifier, change the size of text and icons, set the thickness of the blinking cursor, turn off unnecessary animations, remove background images, and more.

Make items on screen appear bigger with Magnifier

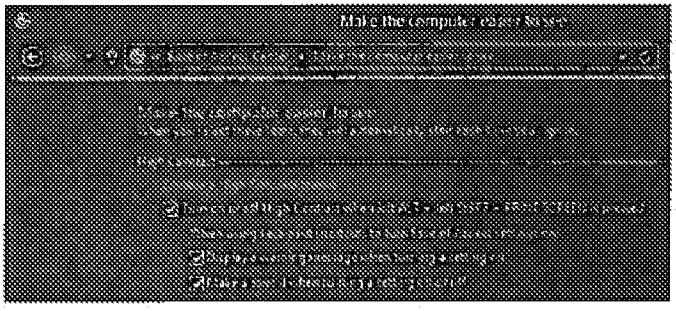
Magnifier enlarges portions of the screen making it easier to view text and images and to see the whole screen more easily. You have the choice of viewing with Magnifier using the full screen, or just a portion, and you can move Magnifier where you want it on your desktop—whatever fits your needs. You can magnify up to 16 times the original size and choose to track what you magnify by movement of your mouse, the keyboard, or text editing.



Start screen with Magnifier window at 200% magnification.

Use High Contrast to improve visibility

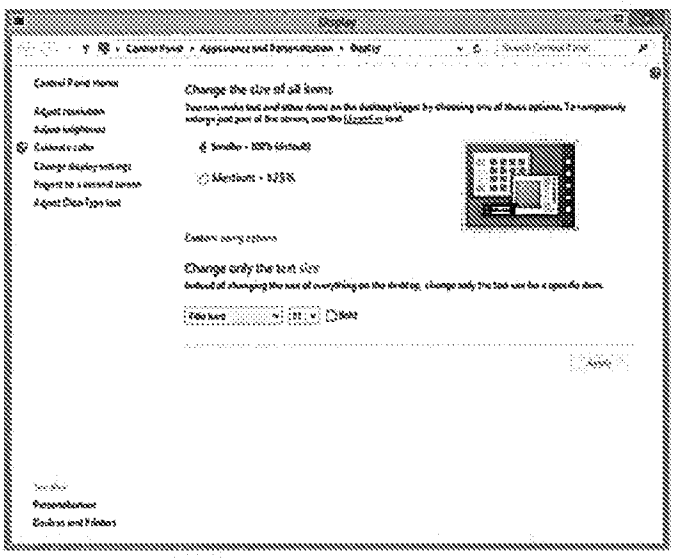
High Contrast is a popular feature used to heighten the color contrast of some text and images on your computer screen, making those items more distinct and easier to identify.



"Make the computer easier to see" screen in high contrast mode

Make the text on your screen larger or smaller

You can make the text (and other things like icons) larger without changing the screen resolution of your monitor or laptop screen. That way, you can make text easier to see and still keep your monitor or laptop set to the best possible resolution.



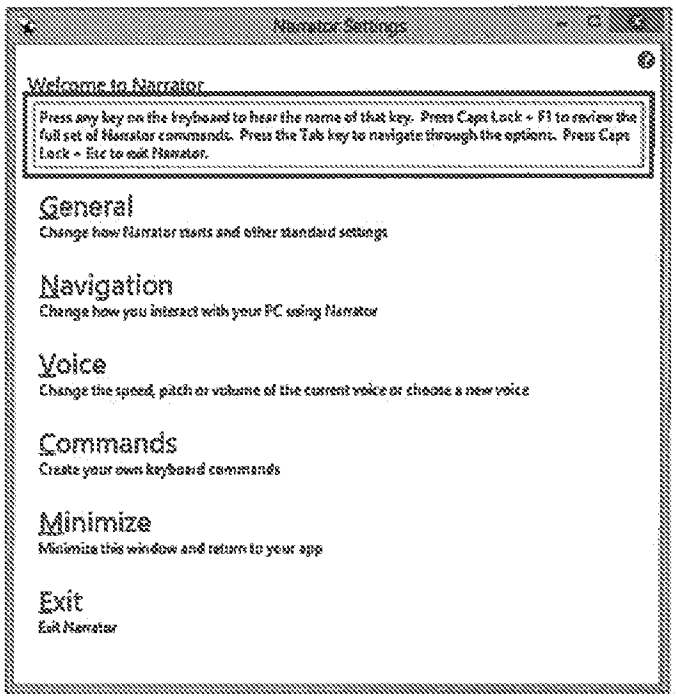
Display screen showing "Change the size of all items" options

Hear text read aloud with Narrator

Narrator, a basic screen reader that reads aloud the text that appears on screen, and describes events such as error messages, has been redesigned in Windows 8 to be substantially faster, and to support many new features. Whether you're an individual who is blind, has low vision, or, are fully sighted, you will be able to use Windows 8 from the first time you start your device.

By default on touch-only devices, Narrator can be launched by simply holding down the **Windows logo button** and pressing the **Volume Up** button (to stop Narrator from reading, tap once with two fingers). Once Narrator is running, you can use Narrator's built-in touch commands to explore the screen and control your device.

There are also some new configuration options for Narrator in Windows 8 and Windows RT. You can select one of several voices, change the speed at which Narrator speaks, create customizable keyboard commands, and specify many other settings to suit your preferences.



Narrator Settings dialog box showing available settings

Use speech recognition to operate windows and programs

Speech Recognition in Windows 8 allows you to command your PC with your voice–including the capability to dictate into almost any application. You can dictate documents and email and surf the web by saying what you see. An easy setup process and an interactive tutorial are available to familiarize you with the speech commands and train your computer to better understand you.

Learn what you can do with Speech Recognition and how to set up Speech Recognition including how to set up your microphone, teach yourself how to talk to your computer, and train your computer to recognize your speech.

Make Microsoft Office programs easier to use

A number of accessibility options in Microsoft Office products make it easier for people with vision impairments to interact with their computers while creating Word documents, Excel spreadsheets, PowerPoint presentations, and more.

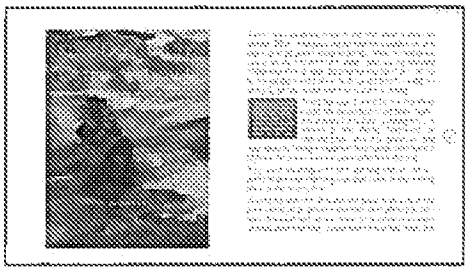
Use Read Mode for a clearer view

Use the new Read Mode in Word 2013 for a beautiful, distraction-free reading experience. Read Mode hides most of the buttons and tools so you can get absorbed in your reading without distractions. To open Read Mode, press ALT+W, and then press F. To move from page to page in a document, do one of the following:

- Click the arrows on the left and right sides of the pages.

- Press page down and page up or the spacebar and backspace on the keyboard. You can also use the arrow keys or the scroll wheel on your mouse.
- If you're on a touch device, swipe left or right with your finger.

Also while in Read Mode you can double-click a picture to get an enlarged view. Click outside the image to return to reading.



Document in Read Mode of Office 2013

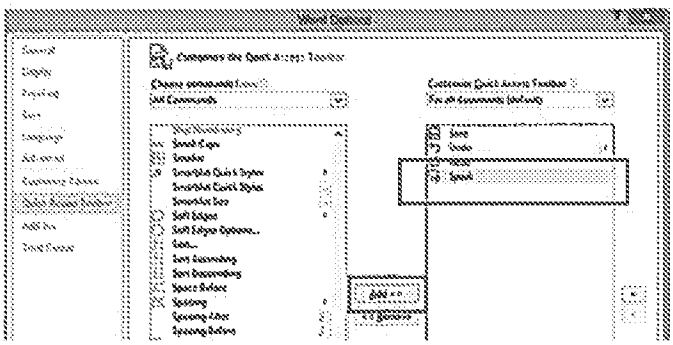
Use the Speak text-to-speech feature

Text-to-speech (TTS) is the ability of your computer to play back written text as spoken words. Depending upon your configuration and installed TTS engines, you can hear most text that appears on your screen in Word 2013, Outlook 2013, PowerPoint 2013 and OneNote 2013.

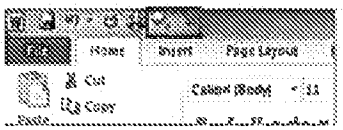
Add Speak to the Quick Access Toolbar

You can add the Speak command to your Quick Access Toolbar by doing the following:

1. Next to the Quick Access Toolbar, click **Customize Quick Access Toolbar**.
2. Click **More Commands**.
3. In the **Choose commands from** list, select **All Commands**.
4. Scroll down to the **Speak command**, select it, and then click **Add**.
5. Click **OK**.
6. When you want to use the text-to-speech command, click the icon on the Quick Access Toolbar.



Word Options dialog box where the Speak command is selected to add to the Quick Access Toolbar



Quick Access Toolbar with Speak command added and highlighted

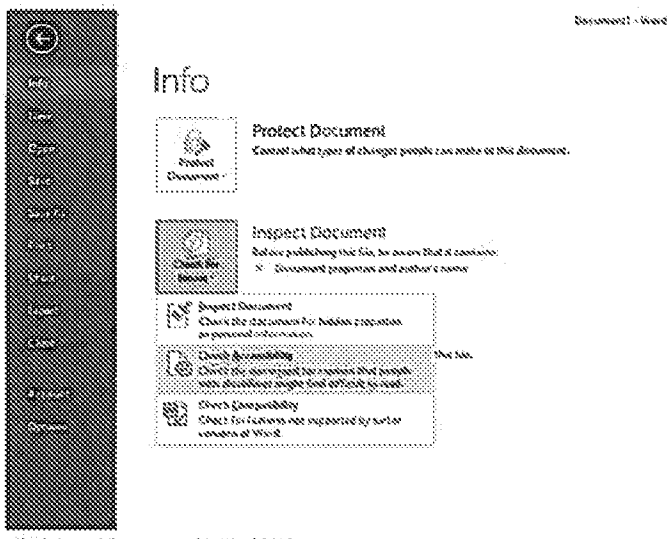
Make Office documents, presentations, and spreadsheets more accessible

A number of accessibility options in Microsoft Office products help you as the content author make your documents, spreadsheets, and presentations easier for people with vision impairments to interact with. To learn more, see Creating accessible Office files.

Accessibility Checker

Word 2013, Excel 2013, and PowerPoint 2013 include an Accessibility Checker that helps users create more accessible content. By identifying areas that might be challenging for users with disabilities to view or use, and providing a task pane to review those areas, users can fix potential problems with their content before finalizing.

See also: Add alternative text to a picture, shape, chart, table, or SmartArt graphic



Check Accessibility command in Word 2013

Check Accessibility command in Word 2013

Office Web Apps support assistive technology and speech recognition software

Office Web Apps provide support for assistive technologies such as screen readers and speech recognition software. Find more information on accessibility features in Office Web Apps.

Internet Explorer accessibility features available in Web Apps

Because Office Web Apps run in the browser, you can use your web browser's features that improve the readability of pages. Find out about vision related accessibility features in Internet Explorer.

Move around webpages with the keyboard

If you have low vision it's sometimes difficult to see links on webpages, and if you're blind you'll use the keyboard rather than the mouse or display to work with your computer. You can move around webpages quickly using the keyboard in Web Apps.

- Keyboard shortcuts in Word Web App
- Keyboard shortcuts in Excel Web App
- Keyboard shortcuts in PowerPoint Web App

- Keyboard shortcuts in OneNote Web App

See webpages more clearly with Internet Explorer

For better visibility of webpages you can change the fonts, font sizes, text and background colors, or zoom in on a webpage to enlarge it, or zoom out to see more of the page on screen.

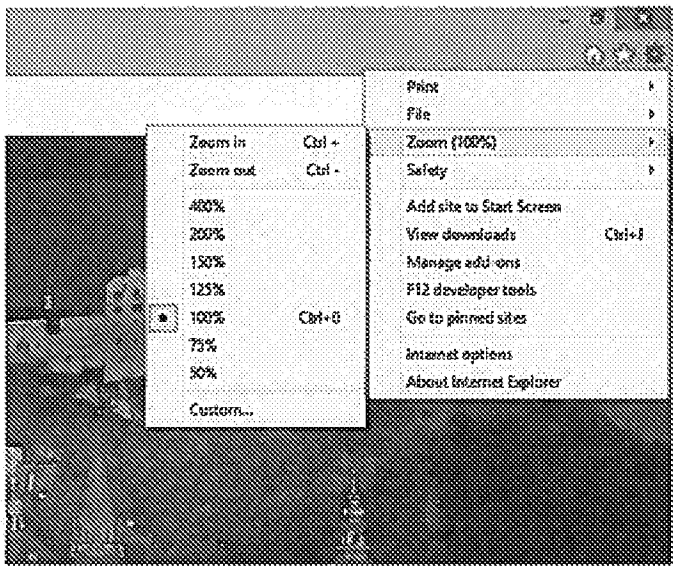
Zoom in on a webpage

Make everything on a webpage easier to see by zooming in, or enlarging the whole page including images and text. You can zoom from 10% to 1000%.

Press Ctrl+Plus sign (+) to zoom in, or Ctrl+Minus sign (-) to zoom out.

Or, while viewing your Internet Explorer window from the desktop, select the Tools icon at the top of the window, select Zoom, then select **Zoom in**, or **Zoom out**, or the desired percentage. You can also select **Custom** to set a percentage up to 1000 percent.

Tools button in Internet Explorer 10



Internet Options Tools menu open to Zoom level options

Learn more about Internet Explorer 10.

Find assistive technology for vision impairments

You can shop for assistive technology products compatible with Microsoft Windows made by independent assistive technology companies. People who have vision impairments may be interested in the following assistive technology:

- **Screen magnifiers** work like a magnifying glass. They enlarge a portion of the screen as the user moves the focus—increasing legibility for some users. Some screen enlargers (software or hardware) allow a user to zoom in and out on a particular area of the screen. Learn about Magnifier in Windows 8, Windows 7, Windows Vista, and the built-in zoom and magnify features in Microsoft mouse and keyboard products.

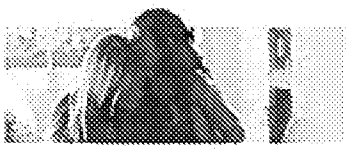
- **Screen readers** are software programs that present graphics and text as speech. A screen reader is used to verbalize, or "speak," everything on the screen including names and descriptions of control buttons, menus, text, and punctuation.
- **Braille printers** (or embossers) transfer computer generated text into embossed Braille output. Braille translation programs convert text scanned in or generated via standard word processing programs into Braille, which can be printed into raised Braille.
- **Braille displays** provide tactile output of information represented on the computer screen. The user reads the Braille letters with his or her fingers, and then, after a line is read, refreshes the display to read the next line.
- **Braille notetakers** enable a person who is blind to capture notes and then transfer them to a PC. Braille notetakers take advantage of refreshable Braille technology. In some cases, Braille notetakers replace or supplement a standard keyboard.
- **Book readers**. Some people use a PC configuration for book reading assistance, or a dedicated reading device. A person who is blind might have printed material scanned and read aloud through a text-to-speech software program on the PC. Books are available in digital formats through various commercial and not-for-profit organizations.

Mobile/Text Only Worldwide Accessibility United States Change | All Microsoft Sites

Microsoft Accessibility

Search Microsoft.com

Home Products Demos Tutorials Guides News & Articles Centers



Guides

Guides

Guide for Individuals with Age-Related Impairments

Having trouble seeing things on your computer screen? By the time we reach our fifties, two-thirds of us have vision, hearing, or dexterity impairments that will impact our computer use. Discover easy ways to customize your computer without downloading or purchasing anything.

More Web Sites

- Search with Bing
- Play games online
- Get financial advice
- Find travel deals
- Find everything on the Web with MSN

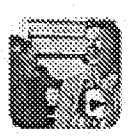
Customizing Your PC

- Five ways to make your keyboard easier to use
- Five ways to make your PC easier to see
- Magnify your computer screen: 6 ways to make it easier to see
- 10 tips from a fellow aging computer user on the awkward age of computing
- Helping your parents choose a PC
- Helping your parents customize their PC

Videos that Fit Your Life

I've learned how to make my computer easier to use
No need to squint—as you get older, get wiser too and learn how to customize your PC to make it easier to see and use.

Finally, I found someone who would listen to me!
Discover Speech Recognition and you'll love how your PC listens to you.



A great grandma, and a great techy too
It's easier than you think to stay in touch, share photos, and play games online. If this grandma can do it, so can you.

Ergonomic! What's so funny about that?
It's all about comfort with Microsoft ergonomic keyboards and mice that fit your style.

I'm looking for:

Windows

- Windows 8
- Windows 7

Office

- Office 365
- Office 2013
- Office 2010

Assistive Technology Products

- Shop and Select Assistive Technology Products
- Types of Assistive Technology Products
- Assistive Technology Products for Windows

Accessibility Developer Center

msdn

Site index | Subscribe | Worldwide Accessibility Microsoft
Contact Us | Terms of Use | Trademarks | Privacy Statement © 2014 Microsoft

I'm looking for:

Windows

- Windows 8
- Windows 7

Office

- Office 365
- Office 2013
- Office 2010

Assistive Technology Products

- Shop and Select Assistive Technology Products
- Types of Assistive Technology Products
- Assistive Technology Products for Windows

Accessibility Developer Center

msdn

Guides

Guides

Guide for Individuals with Learning Impairments

Microsoft products include accessibility features and options that can be adjusted to address learning preferences as well as difficulties and impairments ranging from dyslexia and attention deficit disorder to retardation. Many individuals with learning difficulties and impairments are perfectly capable of learning if information is presented to them in a form and at a pace that is appropriate to them individually. Providing a multisensory experience of audio speech paired with a visual representation, for example. And, reducing visual and auditory distractions can aid the learning process for many people.

This guide describes accessibility features built into Windows 8 and Microsoft Office 2013 that are available to address learning impairments and preferences. You can also learn about the types of assistive technology products available to further assist you.

In this section:

- Make Windows 8 easier to use
- Adjust accessibility settings from the Ease of Access Center
- Make it easier to focus on tasks
- Use Office features to focus on tasks
- Surf the web more easily with Internet Explorer 10
- Find assistive technology for learning impairments

Make Windows 8 easier to use

With Windows 8 you can easily access the most commonly used accessibility options right from the sign-in screen. Select the **Ease of Access** button in the lower-left corner of your screen, or press the **Windows logo key+U**, to choose the settings for your PC that you want to have available each time it starts.

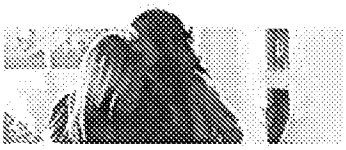
Adjust accessibility settings from the Ease of Access Center

The **Ease of Access Center** is a convenient, central location where you can set up all of the accessibility settings and programs available in Windows, and "get recommendations" for suggested settings to fit your individual learning needs and preferences.

After log-in, you can access the Ease of Access Center by pressing the **Windows logo key+U**. On a touch-enabled device, swipe in from the right edge of the screen, and then tap **Search**. Enter **Ease of Access Center** in the search box, tap or click **Settings**, and then tap or click **Ease of Access Center** in the results.

More Information

- Shop for learning products
- Shop for communication products
- Accessibility in Education



I'm looking for:

Windows

- Windows 8
- Windows 7

Office

- Office 365
- Office 2013
- Office 2010

Assistive Technology Products

- Shop and Select Assistive Technology Products
- Types of Assistive Technology Products
- Assistive Technology Products for Windows

Accessibility Developer Center

msdn

Guides

Guides

Guide for Individuals with Dexterity and Mobility Impairments

Microsoft products include accessibility features and options that are useful, and sometimes essential, to people with dexterity and mobility impairments.

This guide describes accessibility features built into Windows 8 and Microsoft Office that are available to address mobility and dexterity impairments and preferences. You can also learn about the types of assistive technology products available to further assist you.

In this section:

- Make your computer easier to use
  - Adjust accessibility settings from the Ease of Access Center
  - Make the mouse easier to use
  - Make the keyboard easier to use
  - Type without using the keyboard (On-Screen Keyboard)
  - Use speech recognition to operate windows and programs
- Make Microsoft Office programs easier to use
- Move around webpages easier with Internet Explorer
- Find assistive technology for mobility and dexterity impairments

Make your computer easier to use

With Windows 8 you can easily access the most commonly used accessibility options right from the sign-in screen. Select the **Ease of Access** button in the lower-left corner of your screen, or press the **Windows logo key+U**, to choose the settings for your PC that you want to have available each time it starts.

Adjust accessibility settings from the Ease of Access Center

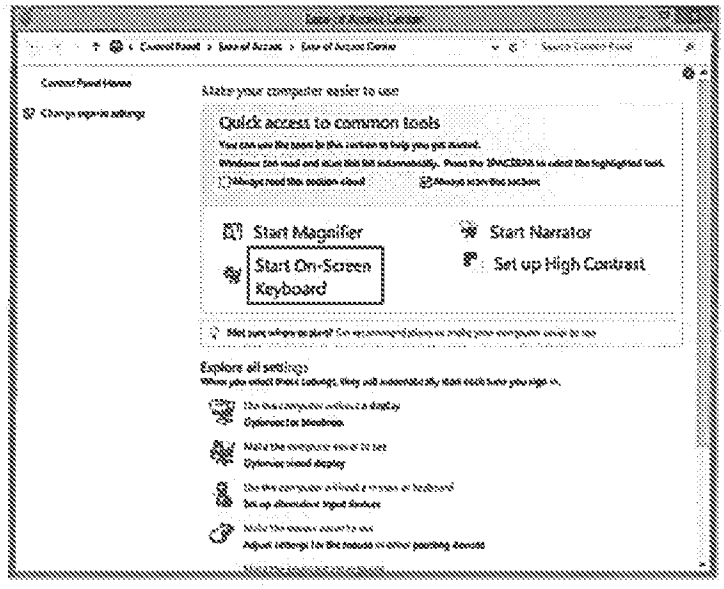
The Ease of Access Center is a convenient, central location where you can set up all of the accessibility settings and programs available in Windows, and "get recommendations" for suggested settings to fit your individual mobility and dexterity needs and preferences.

After log-in, you can access the Ease of Access Center by pressing the **Windows logo key+U**. On a touch-enabled device, swipe in from the right edge of the screen, and then tap **Search**. Enter **Ease of Access Center** in the search box, tap or click **Settings**, and then tap or click **Ease of Access Center** in the results.

More Information

- Shop for mobility products
- Shop for ergonomic products
- Microsoft comfort and ergonomic keyboards and mice

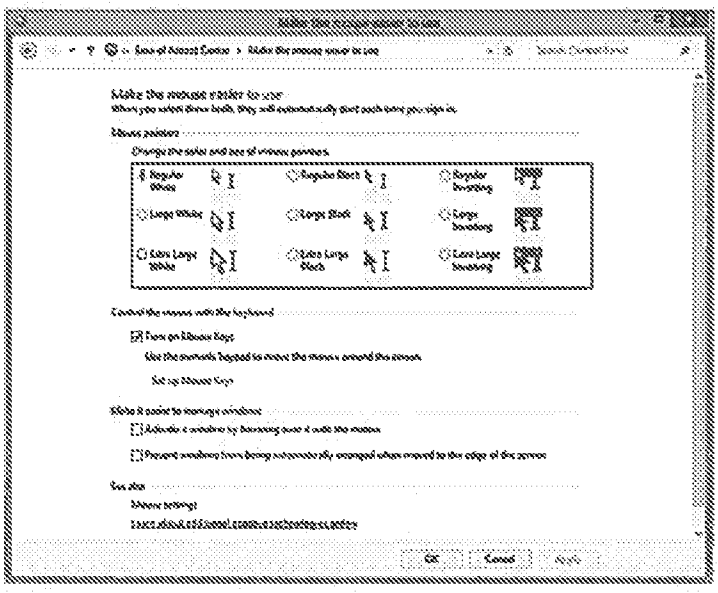
Site Index | Subscribe | Worldwide | Microsoft © 2014 Microsoft
Accessibility
Contact Us | Terms of Use | Trademarks | Privacy Statement



"Make your computer easier to use" screen in the Ease of Access Center

Make the mouse easier to use

All of the Windows accessibility options most helpful for people with mobility and dexterity impairments who use the mouse are grouped into the **Make the mouse easier to use** section. You can learn how to choose the color and size of mouse pointers, turn on Mouse Keys, activate a window by hovering over it rather than clicking the mouse, and more.



"Make the mouse easier to use" screen in the Ease of Access Center

Change mouse settings

You can customize your mouse in a variety of ways. For instance, you can swap the functions of your mouse buttons, make the mouse pointer more visible, and alter the scroll speed of the mouse wheel.

Use Mouse Keys to move the mouse pointer

If you have restricted arm, hand, or wrist movement you may benefit from Mouse Keys. With Mouse Keys, you can use the numeric keypad on your keyboard—instead of the mouse—to move the pointer.

Make the keyboard easier to use

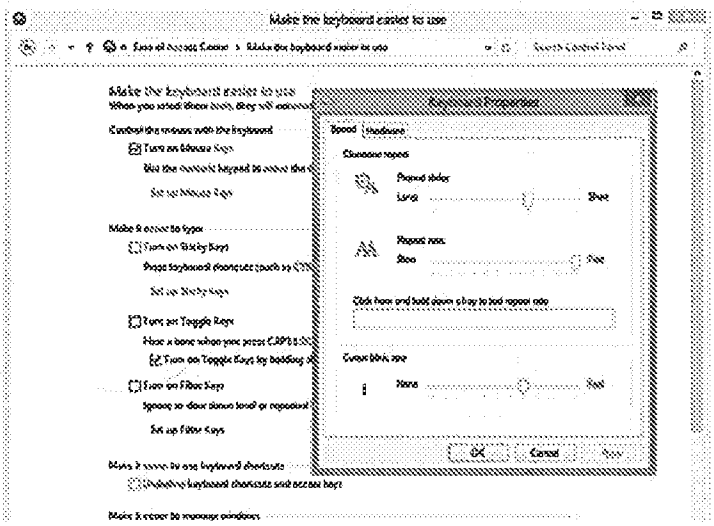
Windows options helpful for people with mobility and dexterity impairments who use the keyboard are grouped in the **Make the keyboard easier to use** section. You can learn how to turn on Mouse Keys, Sticky Keys, Toggle Keys, and Filter Keys, and how to select additional options.

Use Windows keyboard shortcuts

Keyboard shortcuts are combinations of two or more keys that, when pressed, can be used to perform a task that would typically require a mouse or other pointing device. Keyboard shortcuts can make it easier to interact with your computer, saving you time and effort as you work with Windows and other programs.

Change keyboard settings

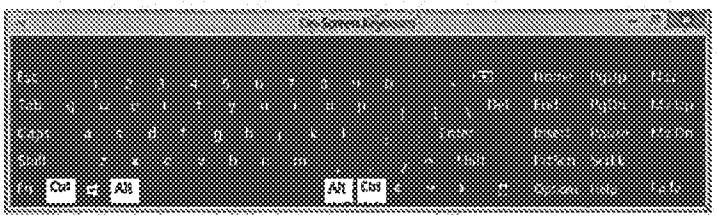
Customizing your keyboard settings can help you work more efficiently. By customizing the settings, you can select how long you need to press a key before the keyboard character starts repeating, the speed at which keyboard characters repeat, and the rate at which the cursor blinks.



"Make the keyboard easier to use" screen in the Ease of Access Center

Type without using the keyboard (On-Screen Keyboard)

On-Screen Keyboard displays a visual keyboard with all of the standard keys. Instead of relying on the physical keyboard to type and enter data, you can use On-Screen Keyboard to select keys using the mouse or another pointing device. On-Screen Keyboard in Windows can be resized and customized to make it easier to see and use. On-Screen Keyboard also includes text prediction in eight languages. When text prediction is enabled, as you type, On-Screen Keyboard displays a list of words that you might be typing. You can select the appropriate one. See also How to use the touch keyboard.

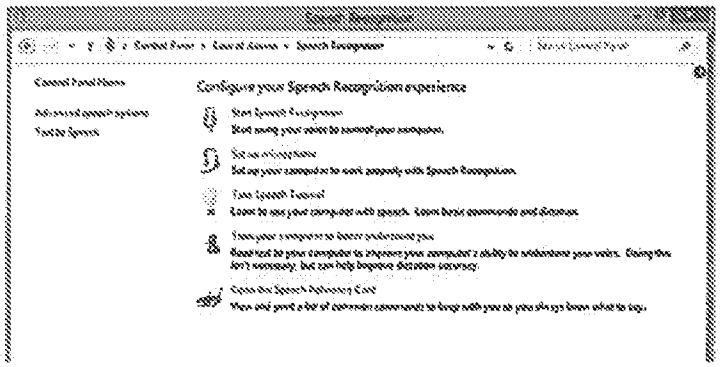


On-Screen Keyboard

Use speech recognition to operate windows and programs

Speech Recognition in Windows 8 and Windows RT allows you to command your PC with your voice-including the capability to dictate into almost any application. You can dictate documents and email and surf the web by saying what you see. An easy setup process and an interactive tutorial are available to familiarize you with the speech commands and train your computer to better understand you.

Learn what you can do with Speech Recognition and how to set up Speech Recognition including how to set up your microphone, teach yourself how to talk to your computer, and train your computer to recognize your speech.



Speech Recognition screen in Control Panel, Ease of Access

Interact with your computer by touch

Using a keyboard and mouse is not always possible or desirable for many people. With Windows 8 and Windows RT, if you've got a touch-screen monitor, you can just touch your computer screen for a more direct and natural way to work. Use your fingers to scroll, resize windows, play media, and pan and zoom. See also: How to use the touch keyboard.

Desktop with video launch button and link to video on using a touch keyboard

Make Microsoft Office programs easier to use

Keyboard shortcuts in Microsoft Office products make it easier for people with mobility and dexterity impairments to interact with their computers while creating Word documents, Excel spreadsheets, PowerPoint presentations, and more.

- Keyboard shortcuts for Word 2013
- Keyboard shortcuts for Outlook 2013
- Keyboard shortcuts for Excel 2013
- Keyboard shortcuts for PowerPoint 2013

- Keyboard shortcuts for Access 2013
- Keyboard shortcuts for Project 2013

Office Web Apps support assistive technology and speech recognition software

Office Web Apps provide support for assistive technologies such as screen readers and speech recognition software. Find more information on accessibility features and issues with Office Web Apps.

Internet Explorer accessibility features available in Web Apps

Because Office Web Apps run in the browser, you can use your web browser's features that improve the readability of pages. Find out about vision related accessibility features in Internet Explorer.

Move around webpages with the keyboard

You can move around webpages quickly using the keyboard in Web Apps.

- Keyboard shortcuts in Word Web App
- Keyboard shortcuts in Excel Web App
- Keyboard shortcuts in PowerPoint Web App
- Keyboard shortcuts in OneNote Web App

Move around webpages easier with Internet Explorer

Accessibility in Internet Explorer lets you select text and move around a webpage with the keyboard. Enhanced keyboard access is found in the toolbar buttons, search box items, address bar, and tabs making surfing the Web quicker and easier for people with mobility and dexterity impairments.

Use keyboard shortcuts to navigate webpages

Press the Tab key to move forward between screen elements and Shift+Tab to move backward. By pressing Tab or Shift+Tab, you can navigate through the parts of the screen. Learn more keyboard shortcuts.

Find assistive technology for mobility and dexterity impairments

You can shop for assistive technology products compatible with Microsoft Windows made by independent assistive technology companies. People who have dexterity and mobility impairments may be interested in the following assistive technology:

- **Ergonomic keyboards and mice** are designed to be more comfortable than a standard keyboard and mouse. To improve the quality and health of your PC experience, Microsoft designers and ergonomists created industry-leading keyboard and mouse products to encourage healthier hand and wrist positions. Microsoft Natural keyboards and mice have set the industry standard for comfort, and can significantly reduce carpal tunnel syndrome symptoms. Microsoft keyboards and mice also have built-in zoom and magnifier options.
- **Joysticks** can be plugged into the computer's mouse port and used to control the cursor on the screen. Joysticks benefit users who need to operate a computer with or without the use of their hands. For example, some people might operate the joystick with their feet or with the use of a cup on top of the joystick that can be manipulated with their chin.
- **Trackballs** look like an upside down mouse with a movable ball on top of a stationary base. The ball can be rotated with a pointing device or a hand. People who have fine motor skills but lack gross motor skills can use these devices more easily and comfortably than a traditional mouse.

- **On-screen keyboards** provide an image of a standard or modified keyboard on the computer screen. The user selects the keys with a mouse, touch screen, trackball, joystick, switch, or electronic pointing device. On-screen keyboards often have a scanning option. With the scanning capability turned on, the individual keys on the on-screen keyboard are highlighted. When a desired key is highlighted, the user is able to select it by using a switch positioned near a body part that he or she has under voluntary control. Learn about the On-Screen Keyboard features in Windows 8, Windows 7 and Windows Vista.
- **Keyboard filters** include typing aids, such as word prediction utilities and add-on spelling checkers. These products can often be used to reduce the number of required keystrokes. Keyboard filters enable users to quickly access the letters they need and to avoid inadvertently selecting keys they don't want.
- **Touch screens** are devices placed on the computer monitor (or built into it) that allow direct selection or activation of the computer by touching the screen. These devices can benefit some users with mobility impairments because they present a more accessible target. It is easier for some people to select an option directly rather than through a mouse movement or keyboard. Moving the mouse or using the keyboard for some might require greater fine motor skills than simply touching the screen to make a selection. Other users might make their selections with assistive technology such as mouth sticks. With Windows 7 and a touch-screen monitor, you can just touch your computer screen for a more direct and natural way to work. Use your fingers to scroll, resize windows, play media, and pan and zoom. Learn about Touch technology in Windows 8 and Windows RT, Windows 7 and Windows Vista.
- **Alternative PC hardware and all-access workstations.** In some cases, alternative PC hardware is needed. Some individuals with mobility impairments find it challenging to open the monitor of a laptop because the laptop latch isn't accessible for them. Or some students might need a laptop to be mounted on a wheelchair. Such assistive technology solutions are referred to as "all-access workstations."
- **Alternative input devices** (including alternative keyboards, electronic pointing devices, sip-and-puff systems, wands and sticks) allow individuals to control their computers through means other than a standard keyboard or pointing device.

I'm looking for:

Windows

- Windows 8
- Windows 7

Office

- Office 365
- Office 2013
- Office 2010

Assistive Technology Products

- Shop and Select Assistive Technology Products
- Types of Assistive Technology Products
- Assistive Technology Products for Windows

Accessibility Developer Center

msdn

Guides

Guides

Guide for Individuals with Hearing Impairments

Hearing impairments encompass a range of conditions—from slight hearing loss to deafness. It is estimated that 1 in 5 computer users has some form of hearing loss.

This guide describes accessibility features built into Windows 8 that are available to address hearing impairments and preferences including adjusting computer volume, changing computer sounds, and using text or visual alternatives for sounds. You can also learn about the types of assistive technology products available to further assist you.

In this section:

- Make Windows 8 easier to use
- Adjust accessibility settings from the Ease of Access Center
- Use text or visual alternatives to sounds
- Adjust computer volume
- Change computer sounds
- Use Office features for hearing solutions
- Find assistive technology for hearing impairments

Make Windows 8 easier to use

With Windows 8 you can easily access the most commonly used accessibility options right from the sign-in screen. Select the **Ease of Access** button in the lower-left corner of your screen, or press the **Windows logo key+U**, to choose the settings for your PC that you want to have available each time it starts.

Adjust accessibility settings from the Ease of Access Center

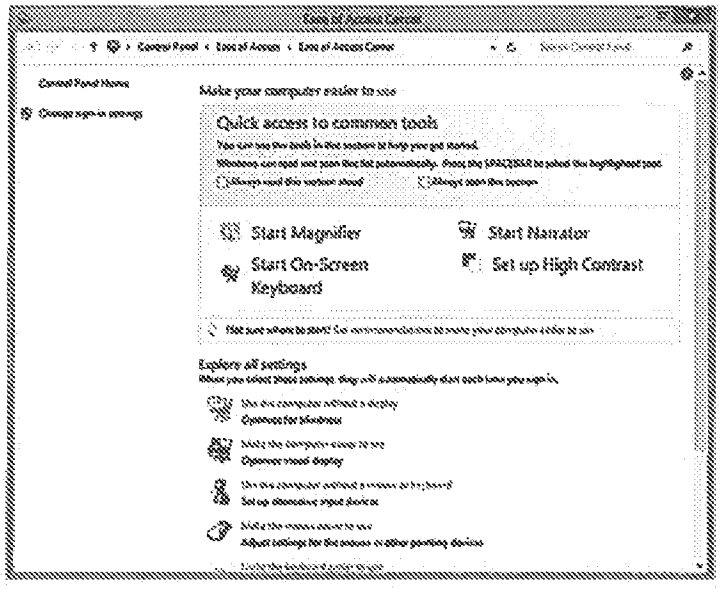
The Ease of Access Center is a convenient, central location where you can set up all of the accessibility settings and programs available in Windows, and "get recommendations" for suggested settings to fit your hearing and sound needs and preferences.

After log-in, you can access the Ease of Access Center by pressing the **Windows logo key+U**. On a touch-enabled device, swipe in from the right edge of the screen, and then tap **Search**. Enter **Ease of Access Center** in the search box, tap or click **Settings**, and then tap or click **Ease of Access Center** in the results.

More Information

Shop for hearing products

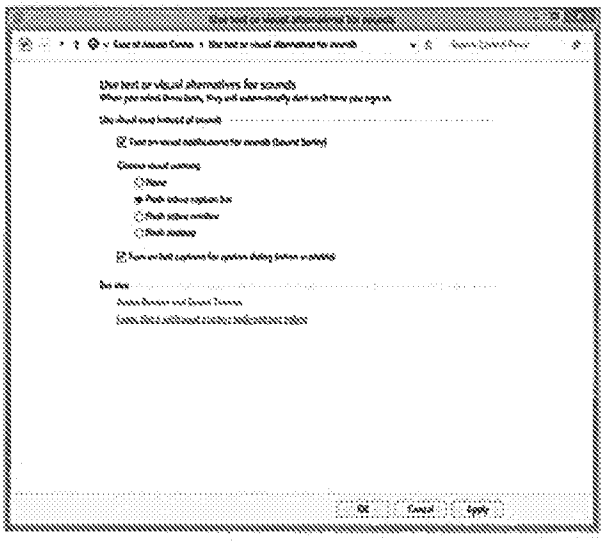
Site index | Subscribe Microsoft | Worldwide © 2014 Microsoft Accessibility
Contact Us | Terms of Use | Trademarks | Privacy Statement



Ease of Access Center in Control Panel

Use text or visual alternatives for sounds

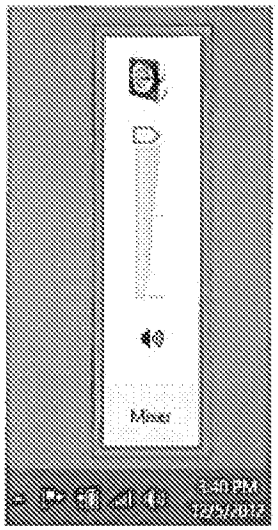
Under **Use text or visual alternatives for sounds** in the Ease of Access Center you will find options for using visual cues to replace sounds in many programs, and access to the audio sound themes control panel.



"Use text or visual alternatives for sounds" screen in Control Panel

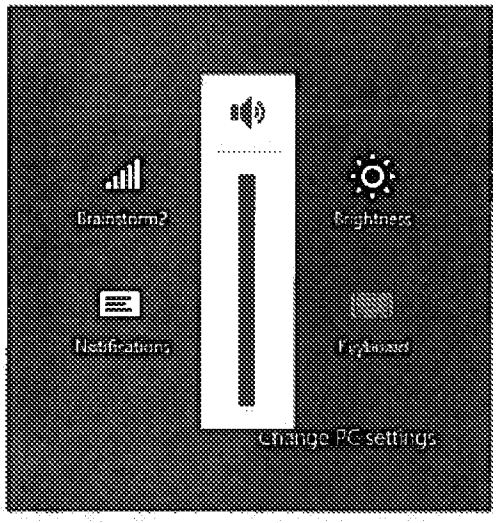
Adjust computer volume

Although most speakers have a volume control, you can also control speaker volume using Windows. The quickest way to change the speaker volume for your computer is to click the **Speakers** button in the notification area of the taskbar while in desktop view, and then to move the slider up or down to increase or decrease the speaker volume.



Computer volume control slider

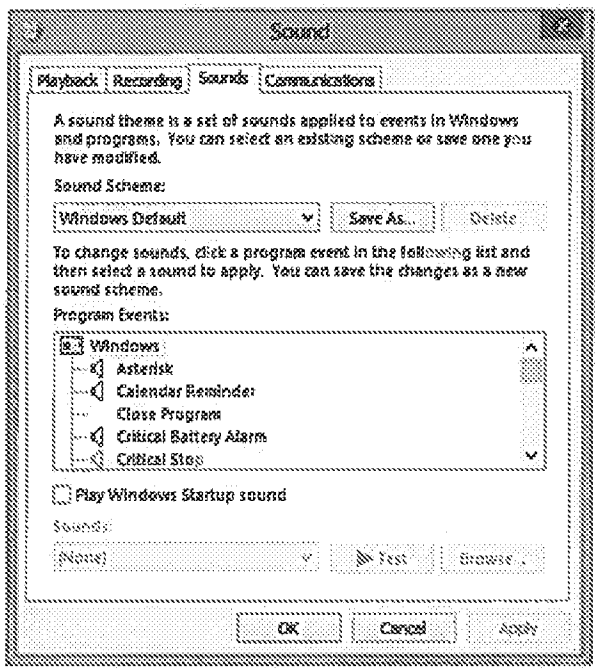
While on the Start screen, swipe in from the top right of the screen and select **Settings**. Then click the **Speakers** icon and adjust the slider bar up or down to increase or decrease the computer volume.



Volume control in Windows 8 Settings

Change computer sounds

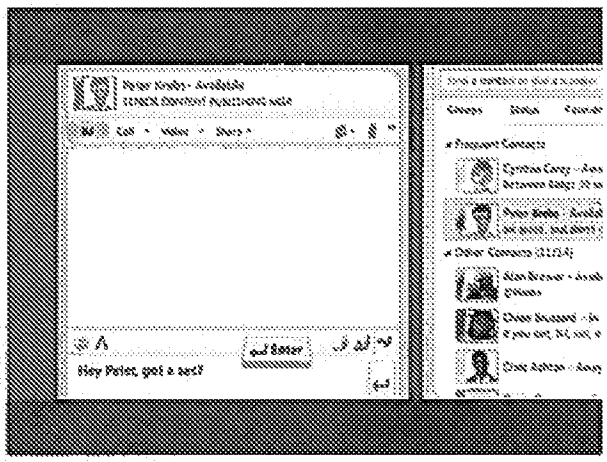
You can have your computer play a sound when certain events occur on your computer. (An event can be an action that you perform, such as logging on to your computer, or an action that your computer performs, such as alerting you when you receive new email.) Windows comes with several sound schemes (a collection of related sounds) for common events. Additionally, some desktop themes have their own sound schemes. To change sound schemes, press the **Windows logo key+U**, while in the desktop view to open the Ease of Access Center. Select **Use text or visual alternatives for sounds**. Then select **Audio Devices and Sounds**. In the **Sound** dialog box, select the **Sounds** tab. Select the program events and associated sounds you want to comprise a new sound scheme.



Sound dialog box open to the Sounds tab

Use Office features for hearing solutions

Depending on the learning or work environment, individuals may be able to use a combination of Windows, Microsoft Outlook, and Microsoft Lync, to communicate via text rather than spoken dialogue with classmates or workmates in real time.



Instant messaging using Lync

Microsoft Lync 2013 provides a single interface that unites voice communications, instant messaging, and audio, video, and web conferencing.

People who are deaf or have hearing impairments can communicate effectively using email, text messaging on phones and other devices, and communications interfaces such as Microsoft Lync.

Find assistive technology for hearing impairments

You can shop for assistive technology products compatible with Microsoft Windows made by independent assistive technology companies. People who

have hearing impairments may be interested in the following assistive technology:

- **Sign language interpretation** is useful for students and others with hearing impairments to enable them to actively communicate in the classroom and other settings.
- **Personal listening devices** and personal amplifying products can also be helpful for people with some hearing.
- **Sign language translators** such as iCommunicator which is a graphical sign language translator that converts speech to sign language in real time can enable people who are deaf to communicate more easily with hearing people.

Page 364 of 1087

Ford Ex. 1109

PCT/US2014/034098 15.09.2014

Samsung AllShare Cast Hub review:

Meet Samsung's version of Apple AirPlay

WHERE TO BUY / SEE ALL PRICES

Samsung AllShare Cast Hub

Part Number: EAD-T10JDEGSTA /

MSRP: $99.99

LOW PRICE: $54.99

Amazon.com $55.48 SEE IT

Best Buy $56.99 SEE IT

eBay

Page 365 of 1087

Ford Ex. 1109

PCT/US2014/034098 15.09.2014

0 / / / / / more +

Review Date: October 10, 2012 Updated on: October 10, 2012

The Good / The **Samsung AllShare Cast Hub** pushes phone media to HDTVs without wires. The device also mirrors what's displayed on phone screens for HDTV viewing.

The Bad / Setting up the Samsung AllShare Cast Hub isn't intuitive. The device only supports a few recent Samsung devices.

The Bottom Line / The Samsung AllShare Cast Hub is worthwhile only for select Samsung mobile device owners absolutely dying to view mobile content on their HDTVs.

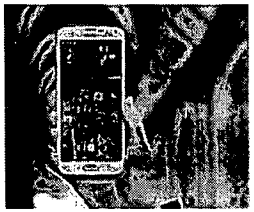
$54.99 SEE IT

Walmart.com

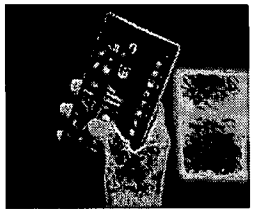
$56.61 SEE IT

See all prices »

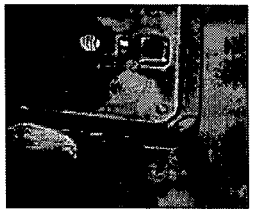
EDITORS' TOP PICKS SEE ALL



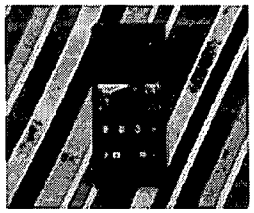
Samsung Galaxy S5
Starting at: **$99.00**



Nokia Lumia Icon (Verizon Wireless)
Starting at: **$149.99**



Samsung Galaxy S5 Active
Starting at: **$199.99**



Sony Xperia Z2
Starting at: **$548.14**

MSRP:
$99.99
LOW PRICE:
$54.99

Amazon.com [redacted]

Apple's AirPlay feature has bridged the living room/mobile handset divide for a while now, but Android smartphones have become extremely capable multimedia devices in their own right too. Equipped with high-resolution cameras, advanced audio and video players plus plenty of memory for storage, they now tackle the same multimedia tricks as the vaunted iPhone. Factor in how modern **Android phones** connect to myriad online

QUICK SPECIFICATIONS / SEE ALL

CE Product Type	Wireless media hub

ABOUT THE AUTHOR /

Brian Bennett

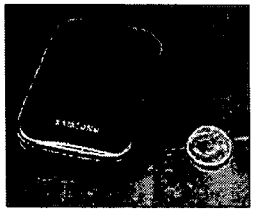
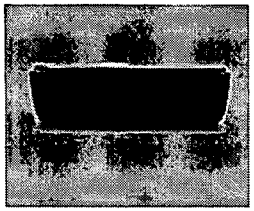
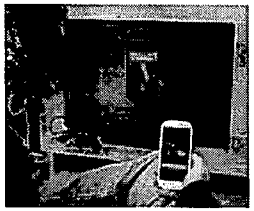
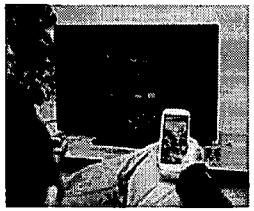
Brian Bennett is senior editor for appliances at CNET and reviews a wide range of household and smart-home products. These include everything from microwave ovens, blenders, ranges and coffee makers to personal weather stations. An NYC native, Brian now resides in bucolic Louisville, Kentucky where he dreams of someday owning the sparkling house of the future.

$55.48	SEE IT
Best Buy $56.99	SEE IT
eBay $54.99	SEE IT

See all prices »

entertainment services, and it's easy to see the appeal of a product like the $99.99 Samsung AllShare Cast Hub. The AllShare is built to push audio and video content from Samsung's latest handsets, including the Galaxy S III, to HDTVs without wires. While the accessory isn't cheap, and initial setup tricky, the AllShare Cast Hub gets the job done.

SAMSUNG'S ALLSHARE HUB MIRRORS PHONE MEDIA (PICTURES) SEE FULL GALLERY

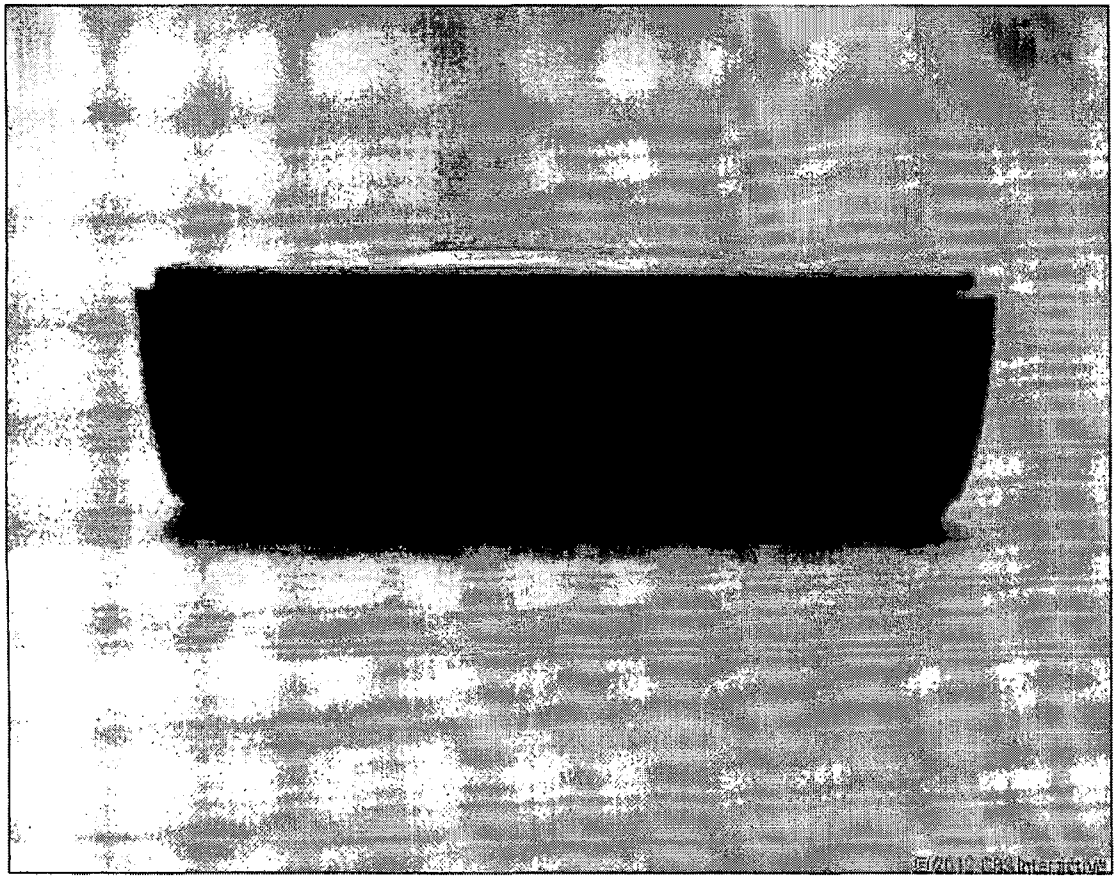





1 - 4 of 6 PREV | NEXT

Design

A rather nondescript black box, the small Samsung AllShare Cast Hub sports smoothly curved edges with no visible markings or controls. Weighing a mere 1.6 ounces, the AllShare's light weight could conceivably qualify it as a mobile product. A full-size HDMI port and connection to an AC power adapter around the back of the device though say otherwise. Also placed on back of the AllShare Cast is a tiny reset button and is the device's only physical control.

Ford Ex. 1109
PCT/US2014/034098 15.09.2014



On back is a lone HDMI port, power connecter, and reset button.

Sarah Tew/CNET

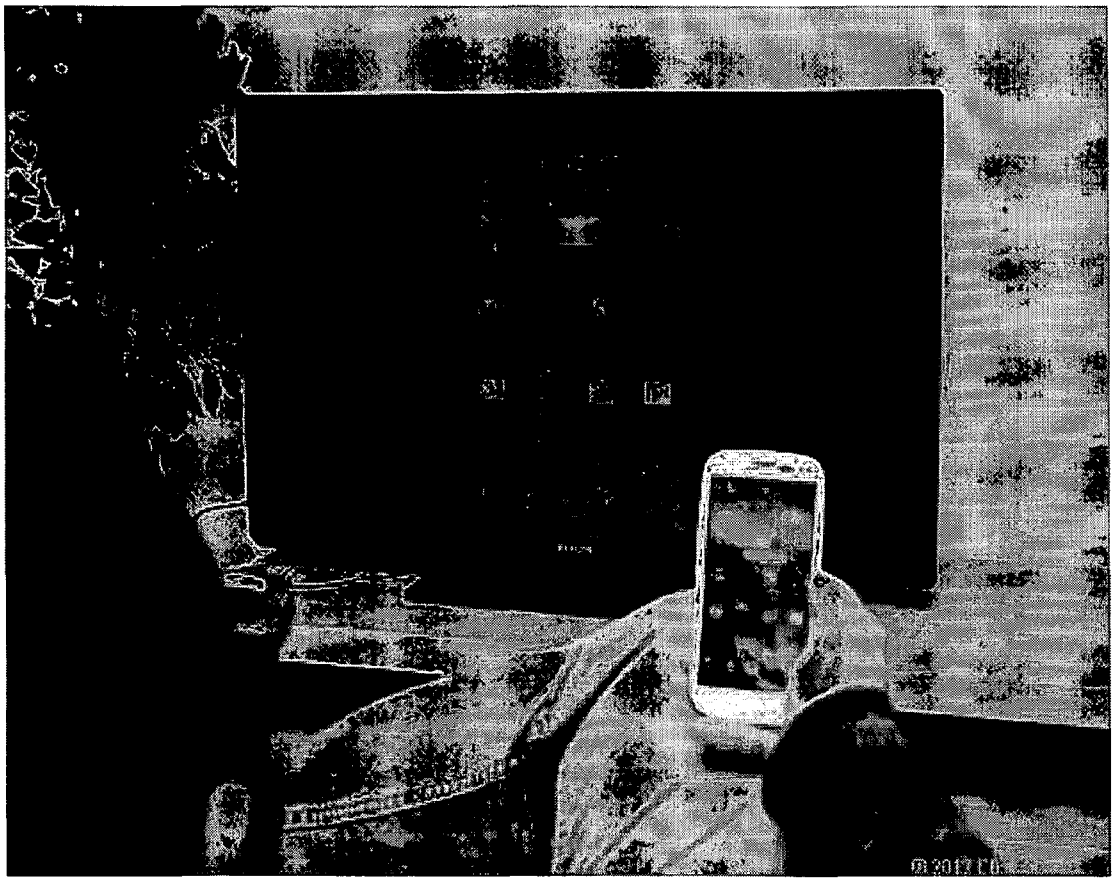
Features and performance

Essentially the AllShare Cast Hub is a very simple accessory made to accomplish one primary task. Using Wi-Fi direct technology, it mirrors what is displayed on the Samsung handset's screen to a compatible HDTV. The AllShare also does this in real time and without stringing wires between phone and display. Keep in mind that the product is only compatible with Samsung's **Galaxy S III**, **Galaxy Note 2**, and **Galaxy Note 10.1** devices.

Physically setting up the AllShare was a snap. First I connected the supplied AC adapter and HDMI cable to the back of the Hub. Next I plugged the Hub's power source to an AC outlet and then attached its HDMI cable to a free port on my test TV, the 55-inch Philips PFL5907.

Ford Ex. 1109

PCT/US2014/034098 15.09.2014



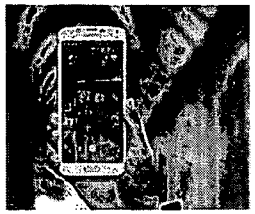
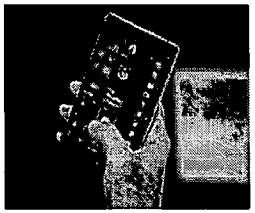
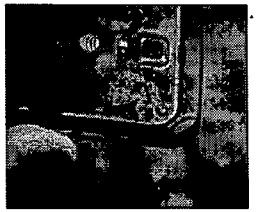
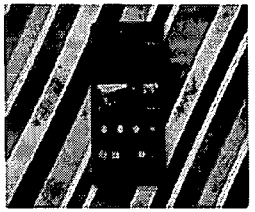
Mirror your Galaxy S3 interface on big HDTV screens.

Sarah Tew/CNET

CONTINUE TO NEXT PAGE

01 / 02

EDITORS' TOP PICKS — SEE ALL

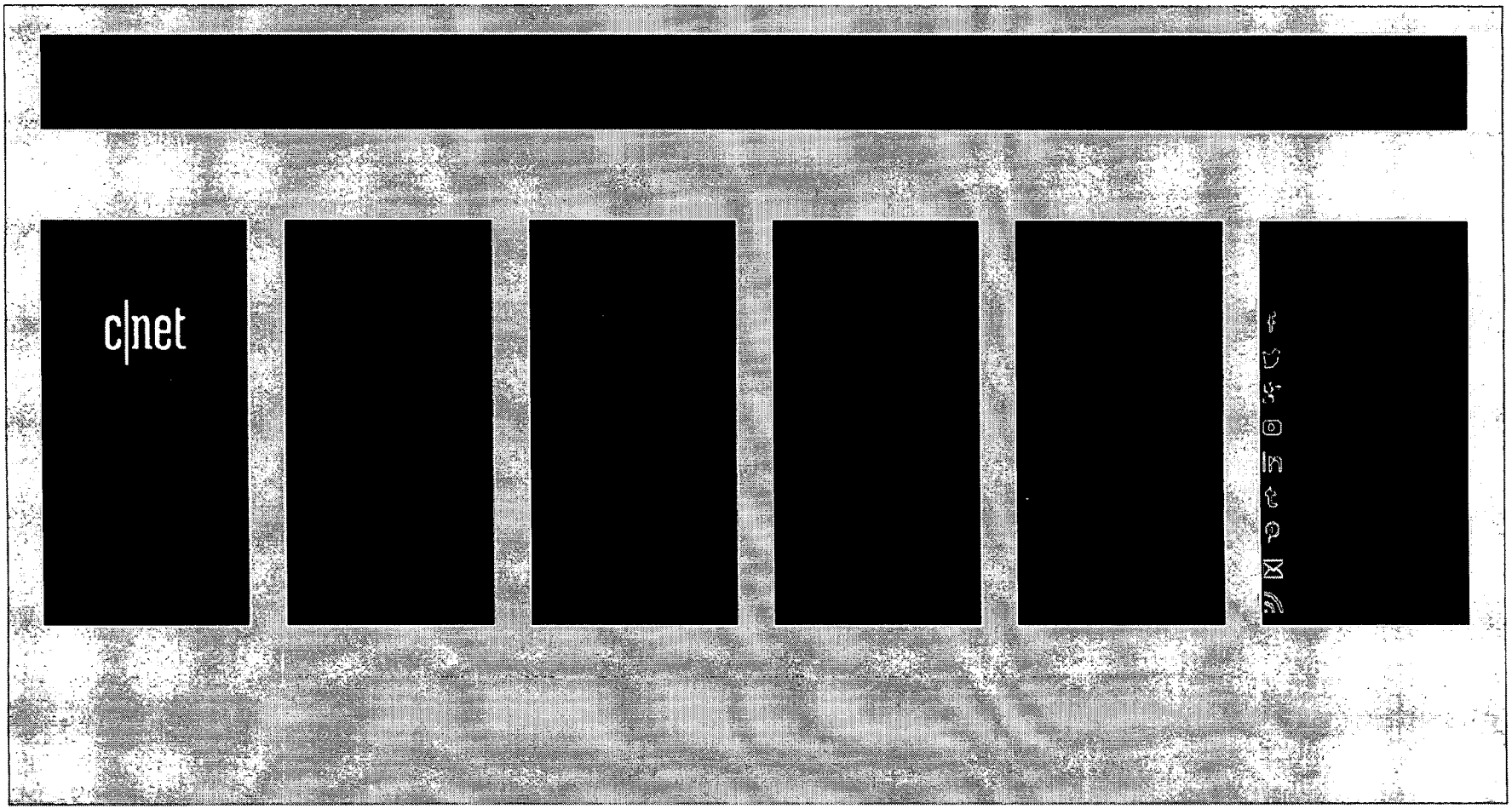
Ford Ex. 1109

PCT/US2014/034098 15.09.2014

Samsung Galaxy S5	Nokia Lumia Icon (Verizon Wireless)	Samsung Galaxy S5 Active	Sony Xperia Z2
Starting at: **$99.00**	Starting at: **$149.99**	Starting at: **$199.99**	Starting at: **$548.14**
★★★★½	★★★★☆	★★★★½	★★★★½

JOIN THE DISCUSSION

Conversation powered by Livefyre



Ford Ex. 1109

PCT/US2014/034098 15.09.2014

Page 370 of 1087

Connect with us

c|net

Reviews News Video How To Download Log In / Join US Edition

Samsung AllShare Cast Hub review:

Meet Samsung's version of Apple AirPlay

0 / / / / / more +

After I switched the TV set to the correct input, I was greeted by a slick setup animation that cycled through various steps to get the AllShare Cast Hub up and running. Unfortunately, while the graphics were stylish and clearly indicated what I had to do visually, their accompanying written captions were anything but straightforward.

For example I easily understood that I had to navigate to my Samsung Galaxy S III handset's settings menu to enable the AllShare wireless function. I found onscreen directions to "press the reset key of the dongle when the red indicator starts blinking" completely mystifying. No reason for doing this action was given aside from that it was, "To connect new AllShare device."

It wasn't until I consulted the included printed documents that I learned I had to press the reset button for almost 30 seconds until the AllShare Cast's indicator light shifted from a blinking red to a steady blue. It's then and only then that I could successfully link my phone to the Hub.

WHERE TO BUY / SEE ALL PRICES

Samsung AllShare Cast Hub
Part Number: EAD-T10JDEGSTA /

MSRP: $99.99
LOW PRICE: $54.99

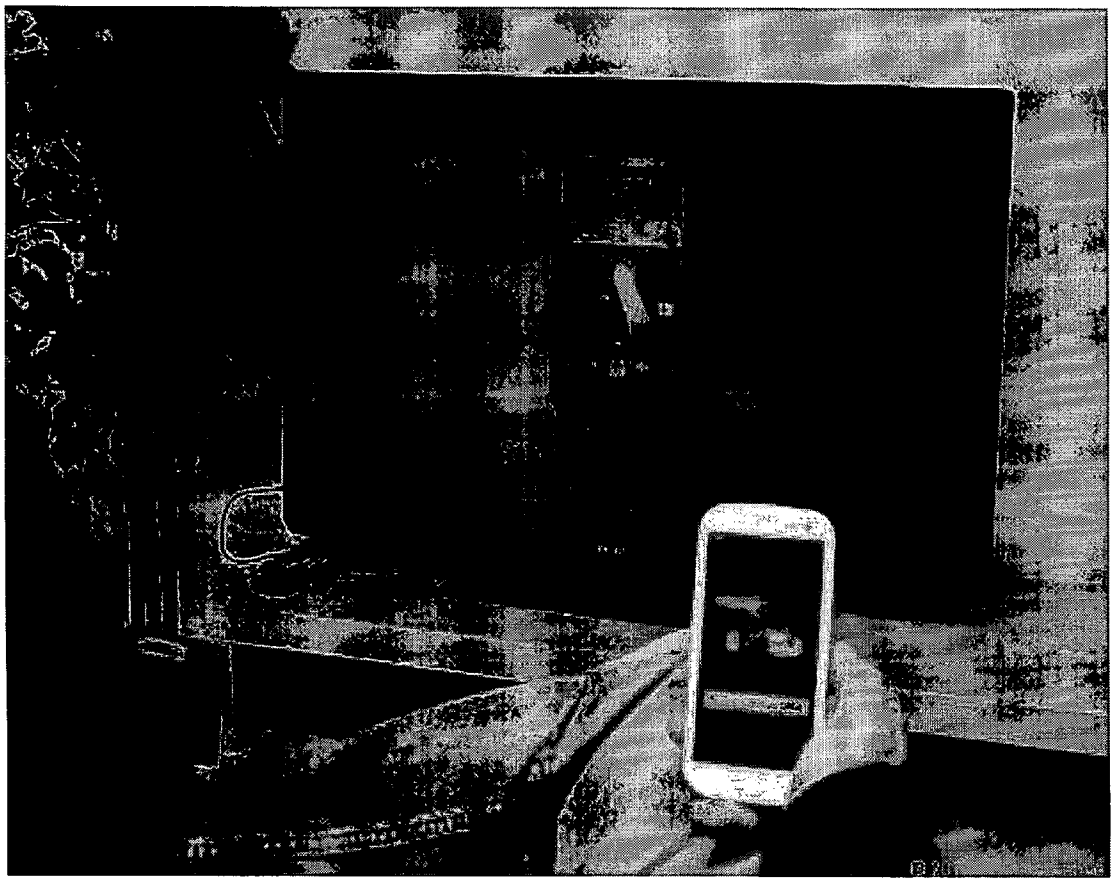
Amazon.com $55.48 SEE IT

Best Buy $56.99 SEE IT

eBay

Ford Ex. 1109

PCT/US2014/034098 15.09.2014



The Hub displays fancy setup instructions on your HDTV.

Sarah Tew/CNET

Once connected properly, I saw everything the Galaxy S III's screen displayed replicated on my HDTV. This included **Android** menus, apps, and even games. I successfully listened to music and HD video streamed to my TV screen via my test phone. It was also mildly entertaining to play a few rounds of Angry Birds across a 55-inch canvas. One potential issue, though, is that the AllShare Cast Hub lacks discrete audio ports of any kind, so connecting the gadget to older home theater receivers (non HDMI) isn't possible.

Video and audio quality was clean overall with clear high-resolution images and no hiccups. I did experience lag between phone screen and TV, though, especially within the Wi-Fi-saturated CNET offices in New York. In fact, a few times I lost the connection between phone and TV completely, forcing me to reconnect. Moving to a location with less Wi-Fi interference, however, cleared up the problem.

$54.99 SEE IT

Walmart.com

$56.61 SEE IT

See all prices »

QUICK SPECIFICATIONS / SEE ALL

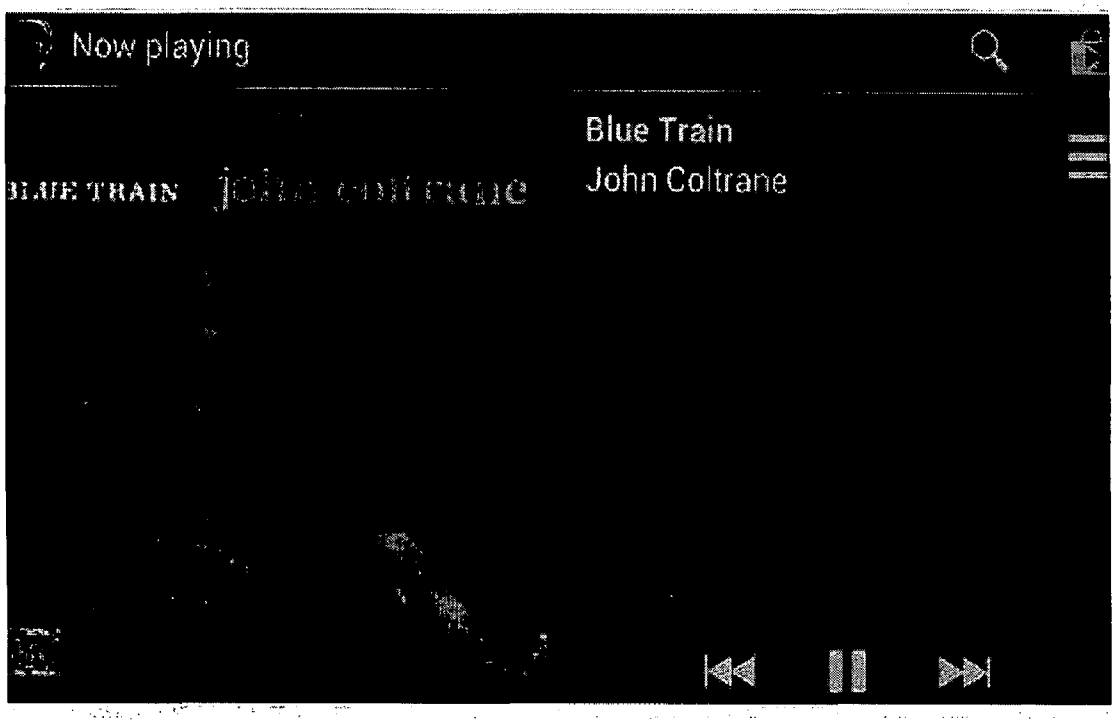
CE Product Type	Wireless media hub

ABOUT THE AUTHOR /

Brian Bennett

Brian Bennett is senior editor for appliances at CNET and reviews a wide range of household and smart-home products. These include everything from microwave ovens, blenders, ranges and coffee makers to personal weather stations. An NYC native, Brian now resides in bucolic Louisville, Kentucky where he dreams of someday owning the sparkling house of the future.

Page 372 of 1087



Enjoy phone-based music streamed to the living room sans wires.

Sarah Tew/CNET

Conclusion

While the Samsung AllShare Cast Hub performs its core function of porting smartphone content to HDTVs adequately, its $99.99 price isn't cheap. That premium is especially daunting considering the gadget only works with a handful of recent Samsung products. Also, if all you want to do is stream basic audio to living room components, the $39.99 **Logitech Wireless Speaker Adapter** tackles the job for a lot less. There's also the $49.99 **BlackBerry Music Gateway** that's built for RIM handsets but does work with any phone with using Bluetooth stereo audio. HTC also sells its $89.99 Media Link HD device that performs many of the same tricks but only for HTC handsets. Of course for owners of shiny new Galaxy S IIIs who want to enjoy both their phone's audio and video on the big screen, the AllShare Cast Hub is the only game in town.

WHAT YOU'LL PAY

Ford Ex. 1109

PCT/US2014/034098 15.09.2014

Page 373 of 1087

MSRP:
$99.99

LOW PRICE:
$54.99

AVERAGE PRICE:
$56.02

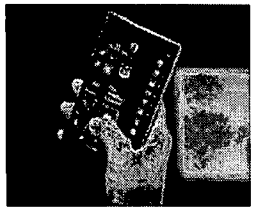
Amazon.com $55.48	Best Buy $56.99
eBay $54.99	Walmart.com $56.61

PREVIOUS PAGE

01 / 02

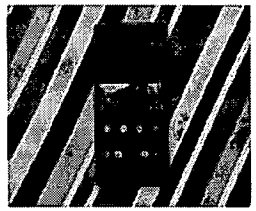
EDITORS' TOP PICKS — SEE ALL

Samsung Galaxy S5
Starting at: **$99.00**
★★★★½



Nokia Lumia Icon (Verizon Wireless)
Starting at: **$149.99**
★★★★☆

Samsung Galaxy S5 Active
Starting at: **$199.99**
★★★★½



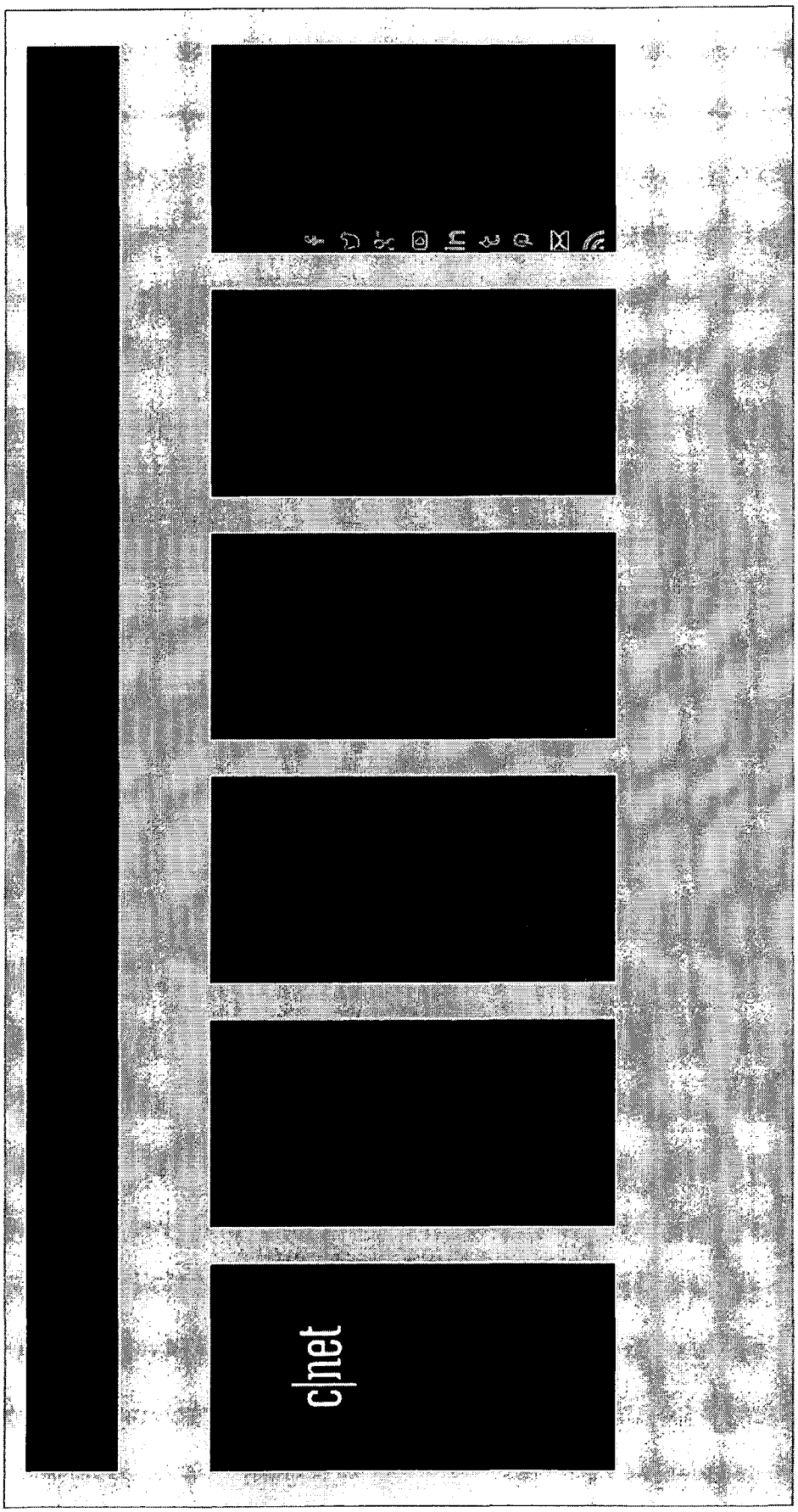
Sony Xperia Z2
Starting at: **$548.14**
★★★★½

JOIN THE DISCUSSION

Conversation powered by Livefyre

Ford Ex. 1109

PCT/US2014/034098 15.09.2014



Samsung AllShare Cast Hub review - Page 2 - CNET

PATENT COOPERATION TREATY

From the INTERNATIONAL SEARCHING AUTHORITY

To: THAINE LENNOX-GENTLE
SHERIDAN ROSS P.C.
1560 BROADWAY, SUITE 1200
DENVER, CO 80202

PCT

NOTIFICATION OF TRANSMITTAL OF THE INTERNATIONAL SEARCH REPORT AND THE WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY, OR THE DECLARATION

(PCT Rule 44.1)

	Date of mailing *(day/month/year)* 22 AUG 2014
Applicant's or agent's file reference 6583-543-PCT	**FOR FURTHER ACTION** See paragraphs 1 and 4 below
International application No. PCT/US2014/034092	International filing date *(day/month/year)* 15 April 2014
Applicant FLEXTRONICS AP, LLC	

1. ☒ The applicant is hereby notified that the international search report and the written opinion of the International Searching Authority have been established and are transmitted herewith.

   Filing of amendments and statement under Article 19:
   The applicant is entitled, if he so wishes, to amend the claims of the international application (see Rule 46):

   When? The time limit for filing such amendments is normally two months from the date of transmittal of the international search report.

   How? Directly to the International Bureau of WIPO preferably through ePCT or on paper to, 34 chemin des Colombettes 1211 Geneva 20, Switzerland, Facsimile No.: +41 22 338 82 70

   For more detailed instructions, see *PCT Applicant's Guide*, International Phase, paragraphs 9.004 – 9.011.

2. ☐ The applicant is hereby notified that no international search report will be established and that the declaration under Article 17(2)(a) to that effect and the written opinion of the International Searching Authority are transmitted herewith.

3. ☐ **With regard to any protest** against payment of (an) additional fee(s) under Rule 40.2, the applicant is notified that:
   ☐ the protest together with the decision thereon has been transmitted to the International Bureau together with any request to forward the texts of both the protest and the decision thereon to the designated Offices.
   ☐ no decision has been made yet on the protest; the applicant will be notified as soon as a decision is made.

4. **Reminders**

   The applicant may **submit comments on an informal basis on the written opinion of the International Searching Authority** to the International Bureau. These comments will be made available to the public after international publication. The International Bureau will send a copy of such comments to all designated Offices unless an international preliminary examination report has been or is to be established.

   Shortly after the expiration of **18 months from the priority date, the international application will be published** by the International Bureau. If the applicant wishes to avoid or postpone publication, a notice of withdrawal of the international application, or of the priority claim, must reach the International Bureau before the completion of the technical preparations for international publication (Rules 90*bis*.1 and 90*bis*.3).

   Within **19 months** from the priority date, but only in respect of some designated Offices, a demand for international preliminary examination must be filed if the applicant wishes to postpone the entry into the national phase **until 30 months** from the priority date (in some Offices even later); otherwise, the applicant must, **within 20 months** from the priority date, perform the prescribed acts for **entry into the national phase** before those designated Offices. In respect of other designated Offices, the time limit of **30 months** (or later) will apply even if no demand is filed within 19 months. For details about the applicable time limits, Office by Office, see www.wipo.int/pct/en/texts/time_limits.html and the *PCT Applicant's Guide*, National Chapters.

   Within **19 months from the priority date, the applicant may request that a supplementary international search be carried out** by a different International Searching Authority that offers this service (Rule 45*bis*.1). The procedure for requesting supplementary international search is described in the *PCT Applicant's Guide*, International Phase, paragraphs 8.006-8.032.

Name and mailing address of the ISA/ Mail Stop PCT, Attn: ISA/US Commissioner for Patents P.O. Box 1450, Alexandria, Virginia 22313-1450 Facsimile No. 571-273-3201	Authorized officer Blaine R. Copenheaver PCT Helpdesk: 571-272-4300 Telephone No. PCT OSP: 571-272-7774

Form PCT/ISA/220 (July 2014)

PATENT COOPERATION TREATY

PCT

INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference 6583-543-PCT	FOR FURTHER ACTION	see Form PCT/ISA/220 as well as, where applicable, item 5 below.
International application No. PCT/US2014/034092	International filing date *(day/month/year)* 15 April 2014	(Earliest) Priority Date *(day/month/year)* 15 April 2013
Applicant FLEXTRONICS AP, LLC		

This international search report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This international search report consists of a total of 2 sheets.

☐ It is also accompanied by a copy of each prior art document cited in this report.

1. **Basis of the report**

a. With regard to the **language**, the international search was carried out on the basis of:

☒ the international application in the language in which it was filed.

☐ a translation of the international application into _____ which is the language of a translation furnished for the purposes of international search (Rules 12.3(a) and 23.1(b)).

b. ☐ This international search report has been established taking into account the **rectification of an obvious mistake** authorized by or notified to this Authority under Rule 91 (Rule 43.6*bis*(a)).

c. ☐ With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, see Box No. I.

2. ☐ **Certain claims were found unsearchable** (see Box No. II).

3. ☐ **Unity of invention is lacking** (see Box No. III).

4. With regard to the **title**,

☒ the text is approved as submitted by the applicant.

☐ the text has been established by this Authority to read as follows:

5. With regard to the **abstract**,

☒ the text is approved as submitted by the applicant.

☐ the text has been established, according to Rule 38.2, by this Authority as it appears in Box No. IV. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.

6. With regard to the **drawings**,

a. the figure of the **drawings** to be published with the abstract is Figure No. 2

☒ as suggested by the applicant.

☐ as selected by this Authority, because the applicant failed to suggest a figure.

☐ as selected by this Authority, because this figure better characterizes the invention.

b. ☐ none of the figures is to be published with the abstract.

Form PCT/ISA/210 (first sheet) (July 2009)

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US2014/034092

A. CLASSIFICATION OF SUBJECT MATTER
IPC(8) - B60R 22/00 (2014.01)
USPC - 701/49
According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
IPC(8) - B60R 22/00; E05F 15/00; G05D 1/00, 3/00 (2014.01)
USPC - 701/1, 36, 45, 49

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched
CPC - B60N 2/0248, 2/0244, 2/0232, 2/0252 (2014.02)

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)
Orbit, Google Scholar,

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 2005/0261815 A1 (COWELCHUK et al) 24 November 2005 (24.11.2005) entire document	1-15
A	US 2010/0036560 A1 (WRIGHT et al) 11 February 2010 (11.02.2010) entire document	1-15
A	US 2010/0087987 A1 (HUANG et al) 08 April 2010 (08.04.2010) entire document	1-15
A	US 2012/0053793 A1 (SALA et al) 01 March 2012 (01.03.2012) entire document	1-15

☐ Further documents are listed in the continuation of Box C. ☐

* Special categories of cited documents:
"A" document defining the general state of the art which is not considered to be of particular relevance
"E" earlier application or patent but published on or after the international filing date
"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
"O" document referring to an oral disclosure, use, exhibition or other means
"P" document published prior to the international filing date but later than the priority date claimed
"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
31 July 2014	22 AUG 2014
Name and mailing address of the ISA/US Mail Stop PCT, Attn: ISA/US, Commissioner for Patents P.O. Box 1450, Alexandria, Virginia 22313-1450 Facsimile No. 571-273-3201	Authorized officer: Blaine R. Copenheaver PCT Helpdesk: 571-272-4300 PCT OSP: 571-272-7774

Form PCT/ISA/210 (second sheet) (July 2009)

PATENT COOPERATION TREATY

From the
INTERNATIONAL SEARCHING AUTHORITY

To: THAINE LENNOX-GENTLE
SHERIDAN ROSS P.C.
1560 BROADWAY, SUITE 1200
DENVER, CO 80202

PCT

WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY

(PCT Rule 43*bis*.1)

Date of mailing *(day/month/year)*	22 AUG 2014
Applicant's or agent's file reference 6583-543-PCT	**FOR FURTHER ACTION** See paragraph 2 below

International application No.	International filing date *(day/month/year)*	Priority date *(day/month/year)*
PCT/US2014/034092	15 April 2014	15 April 2013

International Patent Classification (IPC) or both national classification and IPC
IPC(8) - B60R 22/00 (2014.01)
USPC - 701/49

Applicant FLEXTRONICS AP, LLC

1. This opinion contains indications relating to the following items:

- ☒ Box No. I Basis of the opinion
- ☐ Box No. II Priority
- ☐ Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- ☐ Box No. IV Lack of unity of invention
- ☒ Box No. V Reasoned statement under Rule 43*bis*.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- ☐ Box No. VI Certain documents cited
- ☐ Box No. VII Certain defects in the international application
- ☐ Box No. VIII Certain observations on the international application

2. **FURTHER ACTION**

If a demand for international preliminary examination is made, this opinion will be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA") except that this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1*bis*(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of 3 months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

For further options, see Form PCT/ISA/220.

Name and mailing address of the ISA/US	Date of completion of this opinion	Authorized officer:
Mail Stop PCT, Attn: ISA/US Commissioner for Patents P.O. Box 1450, Alexandria, Virginia 22313-1450 Facsimile No. 571-273-3201	31 July 2014	Blaine R. Copenheaver PCT Helpdesk: 571-272-4300 PCT OSP: 571-272-7774

Form PCT/ISA/237 (cover sheet) (July 2011)

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY

International application No.
PCT/US2014/034092

Box No. I Basis of this opinion

1. With regard to the **language**, this opinion has been established on the basis of:

   ☒ the international application in the language in which it was filed.

   ☐ a translation of the international application into _____ which is the language of a translation furnished for the purposes of international search (Rules 12.3(a) and 23.1(b)).

2. ☐ This opinion has been established taking into account the **rectification of an obvious mistake** authorized by or notified to this Authority under Rule 91 (Rule 43*bis*.1(a))

3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, this opinion has been established on the basis of a sequence listing filed or furnished:

   a. (means)

   ☐ on paper

   ☐ in electronic form

   b. (time)

   ☐ in the international application as filed

   ☐ together with the international application in electronic form

   ☐ subsequently to this Authority for the purposes of search

4. ☐ In addition, in the case that more than one version or copy of a sequence listing has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.

5. Additional comments:

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY

International application No.
PCT/US2014/034092

Box No. V **Reasoned statement under Rule 43*bis*.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

1. Statement

Novelty (N)	Claims	3 and 12	YES
	Claims	1-2, 4-11 and 13-15	NO
Inventive step (IS)	Claims	None	YES
	Claims	1-15	NO
Industrial applicability (IA)	Claims	1-15	YES
	Claims	None	NO

2. Citations and explanations:

Claims 1-2, 4-11 and 13-15 lack novelty under PCT Article 33(2) as being anticipated by Cowelchuk et al. (US 2005/0261815 A1; hereinafter Cowelchuk).

Regarding claim 1, Cowelchuk discloses a method, comprising: receiving information associated with a user (Paragraph [0012]-[0013] and [0029]; The invention is to a system of receiving and storing custom user vehicle settings into one of multiple user profiles); determining whether at least some of the received information qualifies as user profile data (Paragraphs [0022]-[0023] and [0028]-[0029]; the system is equipped with various sensors for sensing driving conditions. Some of this sensed information such as mirror and seat positions can be stored in user profile settings); and storing, based at least partially on determining that the at least some of the received information qualifies as user profile data, the user profile data in a profile data memory associated with the user (Paragraph [0028]-[0030]; some of the sensed data can be saved in user profile settings. With the information being stored and associated with a driver number (e.g. "Driver 1" through "Driver ") through a memory preset button).

Regarding claim 2. Cowelchuk discloses the method of claim 1, wherein the user profile data includes at least one of vehicle settings, user preferences, user speech, data input at a device associated with a vehicle, and stored information (Paragraphs [0015] and [0030]; the vehicle settings that can be stored and customized include mirror and seat positions, audio data, voice matching and temperature controls).

Regarding claim 4. Cowelchuk discloses the method of claim 1, further comprising: receiving a request to access the user profile data associated with the user from the profile data memory (Paragraphs [0028]-[0030]; users can depress a memory preset button associated with a driver number to change, reset or delete any settings, with the settings being stored in a driver number (e.g., Driver 1 through Driver n)); determining whether the request is made by an authorized source (Paragraph [0030]; the system can use voice, fingerprint, or retinal matching or other biometric identification technology to associate a user profile with a particular user); and providing access to the user profile data stored in the profile data memory when the request is made by the authorized source (Paragraph [0030]; the system can use voice, fingerprint, or retinal matching or other biometric identification technology to associate a user profile with a particular user. An authorized user can change, reset, delete or recall customizable settings as previously mentioned).

Regarding claim 5. Cowelchuk discloses the method of claim 1, further comprising: receiving modifying information associated with the user (Paragraphs [0028]-[0030]; users can depress a memory preset button associated with a driver number to change, reset or delete any settings, with the settings being stored in a driver number (e.g., Driver 1 through Driver n)); modifying the user profile data in the profile data memory associated with the user to include the modifying information associated with the user (Paragraphs [0028]-[0030]; users can depress a memory preset button associated with a driver number to change, reset or delete any settings, with the settings being stored in a driver number (e.g., Driver 1 through Driver n)); and storing the modified user profile data in the profile data memory associated with the user (Paragraphs [0028]-[0030]; users can depress a memory preset button associated with a driver number to change, reset or delete any settings, with the settings being stored in a driver number (e.g., Driver 1 through Driver n)).

Regarding claim 6. Cowelchuk discloses the method of claim 5, wherein modifying the user profile data includes at least one of overwriting data, deleting data, and adding data (Paragraphs [0028]-[0030]; users can depress a memory preset button associated with a driver number to change, reset or delete any settings, with the settings being stored in a driver number (e.g., Driver 1 through Driver n)).

Regarding claim 7. Cowelchuk discloses the method of claim 1, wherein prior to storing the user profile data the method further comprises: determining at least one category associated with information in the user profile data (Paragraphs [0011]-[0012]; the settings categories include driver seat positions, audio and video presets, rearview and side mirror positions, temperature control settings, seat belt height, steering wheel positions, accelerator/brake positions, light colors and intensity, airbag activation and many other categories of settings.); and selecting, based at least partially on the determined at least one category, a specific data field in the profile data memory for storing the user profile data, wherein the specific data field corresponds to the determined at least one category (Paragraphs [0011]-[0012] and Paragraph [0029]; the system has a control unit interface which stores one or more of the various settings for the one or more above mentioned parameters (categories) into a user profile).

Form PCT/ISA/237 (Box No. V) (July 2011)

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY

International application No.
PCT/US2014/034092

Supplemental Box

In case **the space in any of the preceding boxes is not sufficient.**
Continuation of:

Regarding claim 8. Cowelchuk discloses the method of claim 1, further comprising: recognizing the user via one or more sensors associated with a vehicle (Paragraph [0030]; users can be recognized through voice, fingerprint, retinal, or other biometric sensors as well as through a key fob sensors or simply through a button sensor); and retrieving, from the profile data memory and based on the recognition, information in the user profile data associated with the user (Paragraphs [0030] and [0035]; the system can use voice, fingerprint, or retinal matching or other biometric identification technology to associate a user profile with a particular user. An authorized user can change, reset, delete or recall customizable settings stored in memory as previously mentioned).

Regarding claim 9. Cowelchuk discloses the method of claim 8, further comprising: configuring at least one setting of the vehicle based on the information retrieved from the profile data memory (Paragraph [0030]; through the driver identification device a user can depress a memory preset button to alert the control unit as to which settings the customizable parameters are to be recalled).

Regarding claim 10. Cowelchuk discloses a non-transitory computer readable medium having instructions stored thereon that, when executed by a processor (Paragraphs [0017] and [0033]; the system has processing means which are configured to read data from data sources (memory) or input devices to accomplish the invention means), perform a method comprising: receiving information associated with a user (Paragraph [0012]-[0013] and [0029]; The invention is to a system of receiving and storing custom user vehicle settings into one of multiple user profiles); determining whether at least some of the received information qualifies as user profile data (Paragraphs [0022]-[0023] and [0028]-[0029]; the system is equipped with various sensors for sensing driving conditions. Some of this sensed information such as mirror and seat positions can be stored in user profile settings); and storing, based at least partially on determining that the at least some of the received information qualifies as user profile data, the user profile data in a profile data memory associated with the user (Paragraph [0028]-[0030]; some of the sensed data can be saved in user profile settings. With the information being stored and associated with a driver number (e.g. "Driver 1" through "Driver ") through a memory preset button).

Regarding claim 11. Cowelchuk discloses the non-transitory computer readable medium of claim 10, wherein the user profile data includes at least one of vehicle settings, user preferences, user speech, data input at a device associated with a vehicle, and stored information (Paragraphs [0015] and [0030]; the vehicle settings that can be stored and customized include mirror and seat positions, audio data, voice matching and temperature controls).

Regarding claim 13. Cowelchuk discloses the non-transitory computer readable medium of claim 10, wherein prior to storing the user profile data the method further comprises: determining at least one category associated with information in the user profile data (Paragraphs [0011]-[0012]; the settings categories include driver seat positions, audio and video presets, rearview and side mirror positions, temperature control settings, seat belt height, steering wheel positions, accelerator/brake positions, light colors and intensity, airbag activation and many other categories of settings.); and selecting, based at least partially on the determined at least one category, a specific data field in the profile data memory for storing the user profile data, wherein the specific data field corresponds to the determined at least one category (Paragraphs [0011]-[0012] and Paragraph [0029]; the system has a control unit interface which stores one or more of the various settings for the one or more above mentioned parameters (categories) into a user profile).

Regarding claim 14. Cowelchuk discloses the non-transitory computer readable medium of claim 10, wherein the method further comprises: recognizing the user via one or more sensors associated with a vehicle (Paragraph [0030]; users can be recognized through voice, fingerprint, retinal, or other biometric sensors as well as through a key fob sensors or simply through a button sensor); retrieving, from the profile data memory and based on the recognition, information in the user profile data associated with the user (Paragraphs [0030] and [0035]; the system can use voice, fingerprint, or retinal matching or other biometric identification technology to associate a user profile with a particular user. An authorized user can change, reset, delete or recall customizable settings stored in memory as previously mentioned); and configuring at least one setting of the vehicle based on the information retrieved from the profile data memory (Paragraph [0030]; through the driver identification device a user can depress a memory preset button to alert the control unit as to which settings the customizable parameters are to be recalled).

Regarding claim 15. Cowelchuk discloses a user profile system (Paragraph [0012]-[0013] and [0029]; The invention is to a system of receiving and storing custom user vehicle settings into one of multiple user profiles), comprising: a profile identification module contained in a memory and executed by a processor of the user profile system Paragraphs [0028]-[0030]; users can depress a memory preset button associated with a driver number to change, reset or delete any settings, with the settings being stored in a driver number profile (e.g., Driver 1 through Driver n). Additionally Paragraphs [0017] and [0033]; the system has processing means which are configured to read data from data sources (memory) or input devices to accomplish the invention means), the profile identification module configured to receive information associated with a user (Paragraph [0012]-[0013] and [0029]; The invention is to a system of receiving and storing custom user vehicle settings into one of multiple user profiles), determine whether at least some of the received information qualifies as user profile data (Paragraphs [0022]-[0023] and [0028]-[0029]; the system is equipped with various sensors for sensing driving conditions. Some of this sensed information such as mirror and seat positions can be stored in user profile settings), and store, based at least partially on determining that the at least some of the received information qualifies as user profile data, the user profile data in a profile data memory associated with the user (Paragraph [0028]-[0030]; some of the sensed data can be saved in user profile settings. With the information being stored and associated with a driver number (e.g. "Driver 1" through "Driver ") through a memory preset button), wherein the information associated with the user includes input received at a device associated with a vehicle (Paragraphs [0028]-[0030]; through the driver identification device a user can depress a memory preset button to alert the control unit as to which settings the customizable parameters are to be recalled, changed, reset or deleted), and wherein the profile identification module is further configured to receive modifying information associated with the user, modify the user profile data in the profile data memory associated with the user to include the modifying information associated with the user, and store the modified user profile data in the profile data memory associated with the user (Paragraphs [0028]-[0030]; through the driver identification device a user can depress a memory preset button to alert the control unit as to which settings the customizable parameters are to be recalled, changed, reset or deleted).

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY

International application No.
PCT/US2014/034092

Supplemental Box

In case **the space in any of the preceding boxes is not sufficient.**
Continuation of:

Claims 3 and 12 lack an inventive step under PCT Article 33(3) as being obvious over Cowelchuk et al. (US 2005/0261815 A1; hereinafter Cowelchuk).

Regarding claim 3. Cowelchuk discloses the method of claim 1, wherein determining whether at least some of the received information qualifies as user profile data further comprises: referring to rules stored in a memory, wherein the rules include matching information corresponding to user profile data (Paragraph [0030]; the user can input physical characteristics such as height, etc. and seat, pedal and mirror positions can be "matched" to preset positioning data that matches the input characteristic). Cowelchuk does not explicitly disclose determining, based at least partially on the rules, whether a match exists between the received information and the matching information corresponding to user profile data; and indicating, when the match exists, that the received information qualifies as user profile data. However it would be necessary that the system would need to match up the received parameter inputs to a corresponding profile memory area for storing settings related to each vehicle parameter (Paragraphs [0015] and [0030]; the vehicle settings that can be stored and customized include mirror and seat positions, audio data, voice matching and temperature controls among others). Further Cowelchuk does disclose playing a sound which is assigned to the various customized parameters and therefore a sound can indicate a customized parameter has been set/matched to the profile data (Paragraph [0036]; the user can select and assign a audio sound to each of the various customizable parameters). Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to include determining, based at least partially on the rules, whether a match exists between the received information and the matching information corresponding to user profile data; and indicating, when the match exists, that the received information qualifies as user profile data in the invention of Cowelchuk, so the system can provide feedback to a driver or user that an action of operating a control is being carried out (Cowelchuk; Paragraph [0002]).

Regarding claim 12. Cowelchuk discloses the non-transitory computer readable medium of claim 10, wherein determining whether at least some of the received information qualifies as user profile data further comprises: referring to rules stored in a memory, wherein the rules include matching information corresponding to user profile data (Paragraph [0030]; the user can input physical characteristics such as height, etc. and seat, pedal and mirror positions can be "matched" to preset positioning data that matches the input characteristic). Cowelchuk does not explicitly disclose determining, based at least partially on the rules, whether a match exists between the received information and the matching information corresponding to user profile data; and indicating, when the match exists, that the received information qualifies as user profile data. However it would be necessary that the system would need to match up the received parameter inputs to a corresponding profile memory area for storing settings related to each vehicle parameter (Paragraphs [0015] and [0030]; the vehicle settings that can be stored and customized include mirror and seat positions, audio data, voice matching and temperature controls among others). Further Cowelchuk does disclose playing a sound which is assigned to the various customized parameters and therefore a sound can indicate a customized parameter has been set/matched to the profile data (Paragraph [0036]; the user can select and assign a audio sound to each of the various customizable parameters). Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to include determining, based at least partially on the rules, whether a match exists between the received information and the matching information corresponding to user profile data; and indicating, when the match exists, that the received information qualifies as user profile data in the invention of Cowelchuk, so the system can provide feedback to a driver or user that an action of operating a control is being carried out (Cowelchuk; Paragraph [0002]).

Claims 1-15 meet the criteria set out in PCT Article 33(4), and thus have industrial applicability because the subject matter claimed can be made or used in industry.

From the INTERNATIONAL SEARCHING AUTHORITY

To: JASON H. VICK
SHERIDAN ROSS P.C.
1560 BROADWAY, SUITE 1200
DENVER, CO 80202

PCT

NOTIFICATION OF TRANSMITTAL OF THE INTERNATIONAL SEARCH REPORT AND THE WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY, OR THE DECLARATION

(PCT Rule 44.1)

Date of mailing *(day/month/year)*	25 AUG 2014
Applicant's or agent's file reference: 6583-544-PCT	**FOR FURTHER ACTION** See paragraphs 1 and 4 below
International application No.: PCT/US2014/034099	International filing date *(day/month/year)*: 15 April 2014
Applicant: FLEXTRONICS AP, LLC	

1. ☒ The applicant is hereby notified that the international search report and the written opinion of the International Searching Authority have been established and are transmitted herewith.

Filing of amendments and statement under Article 19:
The applicant is entitled, if he so wishes, to amend the claims of the international application (see Rule 46):

When? The time limit for filing such amendments is normally two months from the date of transmittal of the international search report.

How? Directly to the International Bureau of WIPO preferably through ePCT or on paper to, 34 chemin des Colombettes 1211 Geneva 20, Switzerland, Facsimile No.: +41 22 338 82 70

For more detailed instructions, see *PCT Applicant's Guide*, International Phase, paragraphs 9.004 – 9.011.

2. ☐ The applicant is hereby notified that no international search report will be established and that the declaration under Article 17(2)(a) to that effect and the written opinion of the International Searching Authority are transmitted herewith.

3. ☐ **With regard to any protest** against payment of (an) additional fee(s) under Rule 40.2, the applicant is notified that:
   - ☐ the protest together with the decision thereon has been transmitted to the International Bureau together with any request to forward the texts of both the protest and the decision thereon to the designated Offices.
   - ☐ no decision has been made yet on the protest; the applicant will be notified as soon as a decision is made.

4. **Reminders**

The applicant may **submit comments on an informal basis on the written opinion of the International Searching Authority** to the International Bureau. These comments will be made available to the public after international publication. The International Bureau will send a copy of such comments to all designated Offices unless an international preliminary examination report has been or is to be established.

Shortly after the expiration of **18 months from the priority date, the international application will be published** by the International Bureau. If the applicant wishes to avoid or postpone publication, a notice of withdrawal of the international application, or of the priority claim, must reach the International Bureau before the completion of the technical preparations for international publication (Rules 90*bis*.1 and 90*bis*.3).

Within **19 months** from the priority date, but only in respect of some designated Offices, a demand for international preliminary examination must be filed if the applicant wishes to postpone the entry into the national phase **until 30 months** from the priority date (in some Offices even later); otherwise, the applicant must, **within 20 months** from the priority date, perform the prescribed acts for **entry into the national phase** before those designated Offices. In respect of other designated Offices, the time limit of **30 months** (or later) will apply even if no demand is filed within 19 months. For details about the applicable time limits, Office by Office, see www.wipo.int/pct/en/texts/time_limits.html and the *PCT Applicant's Guide*, National Chapters.

Within **19 months from the priority date, the applicant may request that a supplementary international search be carried out** by a different International Searching Authority that offers this service (Rule 45*bis*.1). The procedure for requesting supplementary international search is described in the *PCT Applicant's Guide*, International Phase, paragraphs 8.006-8.032.

Name and mailing address of the ISA/ Mail Stop PCT, Attn: ISA/US Commissioner for Patents P.O. Box 1450, Alexandria, Virginia 22313-1450 Facsimile No. 571-273-3201	Authorized officer Blaine R. Copenheaver PCT Helpdesk: 571-272-4300 Telephone No. PCT OSP: 571-272-7774

Form PCT/ISA/220 (July 2014)

PATENT COOPERATION TREATY

PCT

INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference 6583-544-PCT	FOR FURTHER ACTION	see Form PCT/ISA/220 as well as, where applicable, item 5 below.
International application No. PCT/US2014/034099	International filing date *(day/month/year)* 15 April 2014	(Earliest) Priority Date *(day/month/year)* 15 April 2013
Applicant FLEXTRONICS AP, LLC		

This international search report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This international search report consists of a total of 2 sheets.

☐ It is also accompanied by a copy of each prior art document cited in this report.

1. **Basis of the report**

a. With regard to the **language**, the international search was carried out on the basis of:

☒ the international application in the language in which it was filed.

☐ a translation of the international application into _____ which is the language of a translation furnished for the purposes of international search (Rules 12.3(a) and 23.1(b)).

b. ☐ This international search report has been established taking into account the **rectification of an obvious mistake** authorized by or notified to this Authority under Rule 91 (Rule 43.6*bis*(a)).

c. ☐ With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, see Box No. I.

2. ☐ **Certain claims were found unsearchable** (see Box No. II).

3. ☐ **Unity of invention is lacking** (see Box No. III).

4. With regard to the **title**,

☒ the text is approved as submitted by the applicant.

☐ the text has been established by this Authority to read as follows:

5. With regard to the **abstract**,

☒ the text is approved as submitted by the applicant.

☐ the text has been established, according to Rule 38.2, by this Authority as it appears in Box No. IV. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.

6. With regard to the **drawings**,

a. the figure of the **drawings** to be published with the abstract is Figure No. 20

☒ as suggested by the applicant.

☐ as selected by this Authority, because the applicant failed to suggest a figure.

☐ as selected by this Authority, because this figure better characterizes the invention.

b. ☐ none of the figures is to be published with the abstract.

Form PCT/ISA/210 (first sheet) (July 2009)

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US2014/034099

A. CLASSIFICATION OF SUBJECT MATTER
IPC(8) - B60N 2/02 (2014.01)
USPC - 701/36
According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
IPC(8) - B60N 2/02 (2014.01)
USPC - 700/17; 701/36, 49

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched
CPC - B60N 2/0248, 2/0296 (2014.02)

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)
PatBase, Google Patents, Google

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X ----- Y	US 2009/0284359 A1 (HUANG et al) 19 November 2009 (19.11.2009) entire document	1-4,6,7,11,12,14,15 ----- 5,8-10,13
Y	US 2005/0283284 A1 (GRENIER et al) 22 December 2005 (22.12.2005) entire document	5,8,13
Y	US 2010/0222939 A1 (NAMBURU et al) 02 September 2010 (02.09.2010) entire document	9,10,13
A	US 2003/0204290 A1 (SADLER et al) 30 October 2003 (30.10.2003) entire document	1-15
A	US 2011/0093438 A1 (POULSEN) 21 April 2011 (21.04.2011) entire document	1-15

☐ Further documents are listed in the continuation of Box C. ☐

* Special categories of cited documents:
"A" document defining the general state of the art which is not considered to be of particular relevance
"E" earlier application or patent but published on or after the international filing date
"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
"O" document referring to an oral disclosure, use, exhibition or other means
"P" document published prior to the international filing date but later than the priority date claimed
"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
02 August 2014	25 AUG 2014
Name and mailing address of the ISA/US Mail Stop PCT, Attn: ISA/US, Commissioner for Patents P.O. Box 1450, Alexandria, Virginia 22313-1450 Facsimile No. 571-273-3201	Authorized officer: Blaine R. Copenheaver PCT Helpdesk: 571-272-4300 PCT OSP: 571-272-7774

Form PCT/ISA/210 (second sheet) (July 2009)

PATENT COOPERATION TREATY

From the
INTERNATIONAL SEARCHING AUTHORITY

To: JASON H. VICK
SHERIDAN ROSS P.C.
1560 BROADWAY, SUITE 1200
DENVER, CO 80202

PCT

WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY

(PCT Rule 43*bis*.1)

Date of mailing *(day/month/year)*	25 AUG 2014
Applicant's or agent's file reference 6583-544-PCT	**FOR FURTHER ACTION** See paragraph 2 below

International application No.	International filing date *(day/month/year)*	Priority date *(day/month/year)*
PCT/US2014/034099	15 April 2014	15 April 2013

International Patent Classification (IPC) or both national classification and IPC
IPC(8) - B60N 2/02 (2014.01)
USPC - 701/36

Applicant FLEXTRONICS AP, LLC

1. This opinion contains indications relating to the following items:

- ☒ Box No. I Basis of the opinion
- ☐ Box No. II Priority
- ☐ Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- ☐ Box No. IV Lack of unity of invention
- ☒ Box No. V Reasoned statement under Rule 43*bis*.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- ☐ Box No. VI Certain documents cited
- ☐ Box No. VII Certain defects in the international application
- ☐ Box No. VIII Certain observations on the international application

2. **FURTHER ACTION**

If a demand for international preliminary examination is made, this opinion will be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA") except that this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1*bis*(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of 3 months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

For further options, see Form PCT/ISA/220.

Name and mailing address of the ISA/US	Date of completion of this opinion	Authorized officer:
Mail Stop PCT, Attn: ISA/US Commissioner for Patents P.O. Box 1450, Alexandria, Virginia 22313-1450 Facsimile No. 571-273-3201	02 August 2014	Blaine R. Copenheaver PCT Helpdesk: 571-272-4300 PCT OSP: 571-272-7774

Form PCT/ISA/237 (cover sheet) (July 2011)

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY

International application No.
PCT/US2014/034099

Box No. I Basis of this opinion

1. With regard to the **language**, this opinion has been established on the basis of:

   ☒ the international application in the language in which it was filed.

   ☐ a translation of the international application into _____ which is the language of a translation furnished for the purposes of international search (Rules 12.3(a) and 23.1(b)).

2. ☐ This opinion has been established taking into account the **rectification of an obvious mistake** authorized by or notified to this Authority under Rule 91 (Rule 43*bis*.1(a))

3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, this opinion has been established on the basis of a sequence listing filed or furnished:

   a. (means)

      ☐ on paper

      ☐ in electronic form

   b. (time)

      ☐ in the international application as filed

      ☐ together with the international application in electronic form

      ☐ subsequently to this Authority for the purposes of search

4. ☐ In addition, in the case that more than one version or copy of a sequence listing has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.

5. Additional comments:

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY

International application No.
PCT/US2014/034099

Box No. V **Reasoned statement under Rule 43*bis*.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

1. Statement

Novelty (N)	Claims	4-6,8-10,13	YES
	Claims	1-3,7,11,12,14,15	NO
Inventive step (IS)	Claims	None	YES
	Claims	1-15	NO
Industrial applicability (IA)	Claims	1-15	YES
	Claims	None	NO

2. Citations and explanations:

Claims 1-3,7,11,12,14,15 lack novelty under PCT Article 33(2) as being anticipated by Huang et al., hereinafter referred to as Huang.

Regarding claims 1,11, Huang teaches a system [claim 1] and a method [claim 11] to access one or more user profiles that govern one or more vehicle functions (system and method for identifying a person as an authorized driver of a vehicle, [abstract]; list of drivers authorized to drive the vehicle, [0034]; list of driver profiles, [0007]) comprising: a processor and verification module (HVI 14 includes a processing unit that processes signals from the controller 10 and signals provided by a driver intending to enter or drive the vehicle, [0022]) adapted to verify, using one or more of biometric information, gesture recognition, facial recognition and device identification information, that a user has authority to access the one or more user profiles, the one or more profiles being stored in one or more of a vehicle, a cloud and a communications device (the driver reselection page can provide the driver with an option to select a new driver from a list of drivers authorized to drive the vehicle wherein the HVI 14 provides the driver with an option to validate the selection of the driver using an identification code input wherein the identification code cam be in the form of biometric characteristic recognition, [0034]); and an edit module adapted to allow the user to make one or more edits to the one or more user profiles (the driver profile identified by the driver ID controller 10 is updated with the changed set of attributes, i.e. the stored set of attributes is replaced by the changed set of attributes, [0046]).

Regarding claims 14,15, Huang teaches a system [claim 14] and a non-transitory computer readable information storage media, having stored thereon instructions [claim 15] to access one or more user profiles that govern one or more vehicle functions (system and method for identifying a person as an authorized driver of a vehicle, [abstract]; list of drivers authorized to drive the vehicle, [0034]; list of driver profiles, [0007]; HVI 14 includes a processing unit that processes signals from the controller 10 and signals provided by a driver intending to enter or drive the vehicle, [0022]) comprising: means for verifying, using a processor, one or more of biometric information, gesture recognition, facial recognition and device identification information, that a user has authority to access the one or more user profiles, the one or more profiles being stored in one or more of a vehicle, a cloud and a communications device (the driver reselection page can provide the driver with an option to select a new driver from a list of drivers authorized to drive the vehicle wherein the HVI 14 provides the driver with an option to validate the selection of the driver using an identification code input wherein the identification code cam be in the form of biometric characteristic recognition, [0034]); and means for allowing the user to make one or more edits to the one or more user profiles (the driver profile identified by the driver ID controller 10 is updated with the changed set of attributes, i.e. the stored set of attributes is replaced by the changed set of attributes, [0046]).

Regarding claims 2,12, Huang teaches one or more templates on which the one or more user profiles are based (the HVI 14 provides the set of predefined fields to the driver ID controller 10, [0040]; the driver ID controller 10 creates a temporary driver profile to temporarily store the changed set of attributes, [0043]; the driver ID controller 10 also retrieves a driver ID corresponding to a last-known authorized driver or one default authorized driver of the vehicle or a "guest" driver with default settings, [0030]).

Regarding claim 3, Huang teaches the verification module further receives a request to access a specific user profile, the user profile storing preferences for the user that govern one or more of vehicle functions, vehicle preferences and vehicle infotainment settings (the LCM 18 retrieves a set of attributes stored for the corresponding driver ID and the LCM 18 adjusts the corresponding components of the vehicle according to the set of attributes retrieved, [0036]; Each LCM 18 controls an associated component of the vehicle, such as door locks 20, rear-view mirrors 22, a driving seat 24, a hand wheel 26, a radio 28 and a climate control system 30, [0022]).

Regarding claim 7, Huang teaches the one or more user profiles include one or more of: vehicle preferences, seat settings, HVAC settings, recorded settings, geographic location information, mobile device information, mobile device electronic addresses, Internet browsing history and content, application store selections, user settings, enabled features, disabled features, private information, social network information, user presence information, user business account information, secure data, biometric information, audio information from on board microphones, video information from on board cameras, Internet browsing history and browsed content from using an on board computer, local area network settings, electronic map information, user purchasing preferences, user driving behavior and preferences, user behavior with respect to a selected object, user socioeconomic status, user residence and business addresses, user communication devices and electronic addresses therefor, user biometric information and other user identification information, user family members and, for each family member, the foregoing information (Each LCM 18 controls an associated component of the vehicle, such as door locks 20, rear-view mirrors 22, a driving seat 24, a hand wheel 26, a radio 28 and a climate control system 30, [0022]).

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY

International application No. PCT/US2014/034099

Supplemental Box

In case **the space in any of the preceding boxes is not sufficient.**
Continuation of:

Claims 4,6 lack an inventive step under PCT Article 33(3) as being obvious over Huang.

Regarding claims 4,6, Huang does not disclose an encryption module adapted to perform authentication of the user [claim 4] wherein the one or more user profiles are at least partially encrypted [claim 6]. However, it is extremely well known to perform encryption during user authentication. It would have been obvious to one of ordinary skill in the art at the time of the invention to encrypt a user profile and use an encryption module to authenticate a user since the provision of adjustability, where needed, is a matter of routine skill in the art and in order to ensure the security of a vehicle is not compromised.

Claims 5,8 lack an inventive step under PCT Article 33(3) as being obvious over Huang in view of Grenier et al., hereinafter referred to as Grenier.

Regarding claim 5, Huang does not disclose a profile subsystem adapted to resolve conflicts between the one or more edits and the one or more user profiles. However, Grenier is in the field of managing a fleet of vehicles and user profiles ([abstract]) and further teaches a profile subsystem adapted to resolve conflicts between one or more edits and one or more user profiles (Conflict resolution data assists the system 100 manage technological as well as operational conflicts between different services 106 and devices 104, [0056-0057]; [0079]). It would have been obvious to one of ordinary skill in the art at the time of the invention to provide conflict resolution services as taught by Grenier in the invention of Huang in order to ensure two services which require the use of the same device do not overlap (Grenier, [0079]).

Regarding claim 8, Huang teaches at least one of the one or more user templates (the HVI 14 provides the set of predefined fields to the driver ID controller 10, [0040]; the driver ID controller 10 creates a temporary driver profile to temporarily store the changed set of attributes, [0043]; the driver ID controller 10 also retrieves a driver ID corresponding to a last-known authorized driver or one default authorized driver of the vehicle or a "guest" driver with default settings, [0030]), but does not explicitly teach the template is based on a global standard template, wherein the global standard template is common among one or more of vehicle manufacturers, company vehicles and a geographic area. However, Grenier does disclose services for a vehicle or fleet of vehicles can be ordered, renewed, modified, managed, configured, and/or cancelled through a common interface ([abstract]). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to provide a global standard template common to company vehicles in order to allow a fleet of vehicles to be managed (Grenier, [abstract]).

Claims 9,10 lack an inventive step under PCT Article 33(3) as being obvious over Huang in view of Namburu et al., hereinafter referred to as Namburu.

Regarding claims 9,10, Huang teaches device-to-car transfer (transceiver 12 receives an entry signal from an entry device associated with the vehicle, such as a key fob, an RFID device, etc., and sends the received signal to the driver ID controller 10 for identification, [0022]; local controller 36, in turn, reports to the driver ID controller 10 via the BCM 16 through a communications network 34 wherein the controller 10 stores the driver ID and setting information in a table, where each set of attributes corresponds to an authorized driver of the vehicle, [0025]), but does not disclose the one or more user profiles can be transferred from one or more of car-to-car, device-to-car, car-to-device, car-to-cloud, and cloud-to-car [claim 9] wherein the device is a mobile communications device [claim 10]. However, Namburu is in the field of managing a vehicle ([abstract]) and further teaches one or more user profiles can be transferred from one or more of car-to-car, device-to-car, car-to-device, car-to-cloud, and cloud-to-car wherein the device is a mobile communications device (in addition to the ID code, the remote device may transmit user profile data to the vehicle, [0031]). It would have been obvious to one of ordinary skill in the art at the time of the invention to perform device-to-car transfer as taught by Namburu in the invention of Huang in order to allow a user to transfer profile information to multiple vehicles.

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY

International application No. PCT/US2014/034099

Supplemental Box

In case **the space in any of the preceding boxes is not sufficient.**
Continuation of:

Claim 13 lacks an inventive step under PCT Article 33(3) as being obvious over Huang in view of Grenier and further in view of Namburu.

Regarding claim 13, modified Huang teaches the one or more user profiles are at least partially encrypted, as per above discussion, and Huang further teaches receiving a request to access a specific user profile (the driver reselection page can provide the driver with an option to select a new driver from a list of drivers authorized to drive the vehicle wherein the HVI 14 provides the driver with an option to validate the selection of the driver using an identification code input wherein the identification code cam be in the form of biometric characteristic recognition, [0034]), the user profile storing preferences for the user that govern one or more of vehicle functions, vehicle preferences and vehicle infotainment settings (the LCM 18 retrieves a set of attributes stored for the corresponding driver ID and the LCM 18 adjusts the corresponding components of the vehicle according to the set of attributes retrieved, [0036]; Each LCM 18 controls an associated component of the vehicle, such as door locks 20, rear-view mirrors 22, a driving seat 24, a hand wheel 26, a radio 28 and a climate control system 30, [0022]), performing authentication of the user (the driver reselection page can provide the driver with an option to select a new driver from a list of drivers authorized to drive the vehicle wherein the HVI 14 provides the driver with an option to validate the selection of the driver using an identification code input wherein the identification code cam be in the form of biometric characteristic recognition, [0034]), wherein the one or more user profiles include one or more of: vehicle preferences, seat settings, HVAC settings, recorded settings, geographic location information, mobile device information, mobile device electronic addresses, Internet browsing history and content, application store selections, user settings, enabled features, disabled features, private information, social network information, user presence information, user business account information, secure data, biometric information, audio information from on board microphones, video information from on board cameras, Internet browsing history and browsed content from using an on board computer, local area network settings, electronic map information, user purchasing preferences, user driving behavior and preferences, user behavior with respect to a selected object, user socioeconomic status, user residence and business addresses, user communication devices and electronic addresses therefor, user biometric information and other user identification information, user family members and, for each family member, the foregoing information (Each LCM 18 controls an associated component of the vehicle, such as door locks 20, rear-view mirrors 22, a driving seat 24, a hand wheel 26, a radio 28 and a climate control system 30, [0022]), but does not disclose resolving conflicts between the one or more edits and the one or more user profiles wherein in at least one of the one or more user templates is based on a global standard template, wherein the global standard template is common among one or more of vehicle manufacturers, company vehicles and a geographic area, wherein the one or more user profiles can be transferred from one or more of car-to-car, device-to-car, car-to-device, car-to-cloud, and cloud-to-car, and/or wherein the device is a mobile communications device. However, Grenier is in the field of managing a fleet of vehicles and user profiles ([abstract]) and further teaches a profile subsystem adapted to resolve conflicts between one or more edits and one or more user profiles (Conflict resolution data assists the system 100 manage technological as well as operational conflicts between different services 106 and devices 104, [0056-0057]; [0079]). It would have been obvious to one of ordinary skill in the art at the time of the invention to provide conflict resolution services as taught by Grenier in the invention of Huang in order to ensure two services which require the use of the same device do not overlap (Grenier, [0079]). Modified Huang still does not disclose at least one of the one or more user templates is based on a global standard template, wherein the global standard template is common among one or more of vehicle manufacturers, company vehicles and a geographic area, wherein the one or more user profiles can be transferred from one or more of car-to-car, device-to-car, car-to-device, car-to-cloud, and cloud-to-car, and/or wherein the device is a mobile communications device. However, Namburu is in the field of managing a vehicle ([abstract]) and further teaches one or more user profiles can be transferred from one or more of car-to-car, device-to-car, car-to-device, car-to-cloud, and cloud-to-car, and/or wherein the device is a mobile communications device (in addition to the ID code, the remote device may transmit user profile data to the vehicle, [0031]). It would have been obvious to one of ordinary skill in the art at the time of the invention to perform device-to-car transfer as taught by Namburu in the invention of Huang in order to allow a user to transfer profile information to multiple vehicles. Modified Huang still does not disclose at least one of the one or more user templates is based on a global standard template, wherein the global standard template is common among one or more of vehicle manufacturers, company vehicles and a geographic area. However, Grenier does disclose services for a vehicle or fleet of vehicles can be ordered, renewed, modified, managed, configured, and/or cancelled through a common interface ([abstract]). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to provide a global standard template common to company vehicles in order to allow a fleet of vehicles to be managed (Grenier, [abstract]).

Claims 1-15 meet the criteria set out in PCT Article 33(4), and thus have industrial applicability because the subject matter claimed can be made or used in industry.

From the INTERNATIONAL SEARCHING AUTHORITY

To: THAINE LENNOX-GENTLE
SHERIDAN ROSS P.C.
1560 BROADWAY, SUITE 1200
DENVER, CO 80202

PCT

NOTIFICATION OF TRANSMITTAL OF THE INTERNATIONAL SEARCH REPORT AND THE WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY, OR THE DECLARATION

(PCT Rule 44.1)

Applicant's or agent's file reference 6583-547-PCT	Date of mailing *(day/month/year)* 22 AUG 2014 **FOR FURTHER ACTION** See paragraphs 1 and 4 below
International application No. PCT/US2014/034087	International filing date *(day/month/year)* 15 April 2014
Applicant FLEXTRONICS AP, LLC	

1. ☒ The applicant is hereby notified that the international search report and the written opinion of the International Searching Authority have been established and are transmitted herewith.

   Filing of amendments and statement under Article 19:
   The applicant is entitled, if he so wishes, to amend the claims of the international application (see Rule 46):

   When? The time limit for filing such amendments is normally two months from the date of transmittal of the international search report.

   How? Directly to the International Bureau of WIPO preferably through ePCT or on paper to, 34 chemin des Colombettes 1211 Geneva 20, Switzerland, Facsimile No.: +41 22 338 82 70

   For more detailed instructions, see *PCT Applicant's Guide*, International Phase, paragraphs 9.004 – 9.011.

2. ☐ The applicant is hereby notified that no international search report will be established and that the declaration under Article 17(2)(a) to that effect and the written opinion of the International Searching Authority are transmitted herewith.

3. ☐ **With regard to any protest** against payment of (an) additional fee(s) under Rule 40.2, the applicant is notified that:
   ☐ the protest together with the decision thereon has been transmitted to the International Bureau together with any request to forward the texts of both the protest and the decision thereon to the designated Offices.
   ☐ no decision has been made yet on the protest; the applicant will be notified as soon as a decision is made.

4. **Reminders**

   The applicant may **submit comments on an informal basis on the written opinion of the International Searching Authority** to the International Bureau. These comments will be made available to the public after international publication. The International Bureau will send a copy of such comments to all designated Offices unless an international preliminary examination report has been or is to be established.

   Shortly after the expiration of **18 months from the priority date, the international application will be published** by the International Bureau. If the applicant wishes to avoid or postpone publication, a notice of withdrawal of the international application, or of the priority claim, must reach the International Bureau before the completion of the technical preparations for international publication (Rules 90*bis*.1 and 90*bis*.3).

   Within **19 months** from the priority date, but only in respect of some designated Offices, a demand for international preliminary examination must be filed if the applicant wishes to postpone the entry into the national phase **until 30 months** from the priority date (in some Offices even later); otherwise, the applicant must, **within 20 months** from the priority date, perform the prescribed acts for **entry into the national phase** before those designated Offices. In respect of other designated Offices, the time limit of **30 months** (or later) will apply even if no demand is filed within 19 months. For details about the applicable time limits, Office by Office, see www.wipo.int/pct/en/texts/time_limits.html and the *PCT Applicant's Guide*, National Chapters.

   Within **19 months from the priority date, the applicant may request that a supplementary international search be carried out** by a different International Searching Authority that offers this service (Rule 45*bis*.1). The procedure for requesting supplementary international search is described in the *PCT Applicant's Guide*, International Phase, paragraphs 8.006-8.032.

Name and mailing address of the ISA/ Mail Stop PCT, Attn: ISA/US Commissioner for Patents P.O. Box 1450, Alexandria, Virginia 22313-1450 Facsimile No. 571-273-3201	Authorized officer Blaine R. Copenheaver PCT Helpdesk: 571-272-4300 Telephone No. PCT OSP: 571-272-7774

Form PCT/ISA/220 (July 2014)

PATENT COOPERATION TREATY

PCT

INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference 6583-547-PCT	FOR FURTHER ACTION	see Form PCT/ISA/220 as well as, where applicable, item 5 below.
International application No. PCT/US2014/034087	International filing date *(day/month/year)* 15 April 2014	(Earliest) Priority Date *(day/month/year)* 15 April 2013
Applicant FLEXTRONICS AP, LLC		

This international search report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This international search report consists of a total of 2 sheets.

☐ It is also accompanied by a copy of each prior art document cited in this report.

1. **Basis of the report**

a. With regard to the **language**, the international search was carried out on the basis of:

☒ the international application in the language in which it was filed.

☐ a translation of the international application into _____ which is the language of a translation furnished for the purposes of international search (Rules 12.3(a) and 23.1(b)).

b. ☐ This international search report has been established taking into account the **rectification of an obvious mistake** authorized by or notified to this Authority under Rule 91 (Rule 43.6*bis*(a)).

c. ☐ With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, see Box No. I.

2. ☐ **Certain claims were found unsearchable** (see Box No. II).

3. ☐ **Unity of invention is lacking** (see Box No. III).

4. With regard to the **title**,

☒ the text is approved as submitted by the applicant.

☐ the text has been established by this Authority to read as follows:

5. With regard to the **abstract**,

☒ the text is approved as submitted by the applicant.

☐ the text has been established, according to Rule 38.2, by this Authority as it appears in Box No. IV. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.

6. With regard to the **drawings**,

a. the figure of the **drawings** to be published with the abstract is Figure No. 20

☒ as suggested by the applicant.

☐ as selected by this Authority, because the applicant failed to suggest a figure.

☐ as selected by this Authority, because this figure better characterizes the invention.

b. ☐ none of the figures is to be published with the abstract.

Form PCT/ISA/210 (first sheet) (July 2009)

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US2014/034087

A. CLASSIFICATION OF SUBJECT MATTER
IPC(8) - B06R 25/25 (2014.01)
USPC - 340/5.82
According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
IPC(8) - B60R 25/00; 25/20; 25/25; 25/31 (2014.01)
USPC - 180/287; 307/10.2; 340/5.82

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched
CPC - B60R 25/241; 25/252; 25/255; 25/257 (2014.02)

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)
Orbit, Google Patents, Google Scholar, Google

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 2004/0217850 A1 (PERTTUNEN et al) 04 NOVEMBER 2004 (04.11.2004) entire document	1-6, 9-13 and 15
..... Y		..... 7, 8 and 14
Y	US 2006/0036358 A1 (HALE et al) 16 FEBRUARY 2006 (16.02.2006) entire document	7, 8 and 14
A	US 4,754,255 (SANDERS et al) 28 JUNE 1988 (28.06.1988) entire document	1-15

☐ Further documents are listed in the continuation of Box C. ☐

* Special categories of cited documents:
"A" document defining the general state of the art which is not considered to be of particular relevance
"E" earlier application or patent but published on or after the international filing date
"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
"O" document referring to an oral disclosure, use, exhibition or other means
"P" document published prior to the international filing date but later than the priority date claimed
"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
01 AUG 2014	22 AUG 2014
Name and mailing address of the ISA/US Mail Stop PCT, Attn: ISA/US, Commissioner for Patents P.O. Box 1450, Alexandria, Virginia 22313-1450 Facsimile No. 571-273-3201	Authorized officer: Blaine R. Copenheaver PCT Helpdesk: 571-272-4300 PCT OSP: 571-272-7774

Form PCT/ISA/210 (second sheet) (July 2009)

PATENT COOPERATION TREATY

From the
INTERNATIONAL SEARCHING AUTHORITY

To: THAINE LENNOX-GENTLE
SHERIDAN ROSS P.C.
1560 BROADWAY, SUITE 1200
DENVER, CO 80202

PCT

WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY

(PCT Rule 43*bis*.1)

Date of mailing *(day/month/year)*	22 AUG 2014
Applicant's or agent's file reference 6583-547-PCT	**FOR FURTHER ACTION** See paragraph 2 below

International application No.	International filing date *(day/month/year)*	Priority date *(day/month/year)*
PCT/US2014/034087	15 April 2014	15 April 2013

International Patent Classification (IPC) or both national classification and IPC
IPC(8) - B60R 25/25 (2014.01)
USPC - 340/5.82

Applicant FLEXTRONICS AP, LLC

1. This opinion contains indications relating to the following items:

- [x] Box No. I Basis of the opinion
- [ ] Box No. II Priority
- [ ] Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- [ ] Box No. IV Lack of unity of invention
- [x] Box No. V Reasoned statement under Rule 43*bis*.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- [ ] Box No. VI Certain documents cited
- [ ] Box No. VII Certain defects in the international application
- [ ] Box No. VIII Certain observations on the international application

2. **FURTHER ACTION**

If a demand for international preliminary examination is made, this opinion will be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA") except that this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1*bis*(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of 3 months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

For further options, see Form PCT/ISA/220.

Name and mailing address of the ISA/US	Date of completion of this opinion	Authorized officer:
Mail Stop PCT, Attn: ISA/US Commissioner for Patents P.O. Box 1450, Alexandria, Virginia 22313-1450 Facsimile No. 571-273-3201	01 AUG 2014	Blaine R. Copenheaver PCT Helpdesk: 571-272-4300 PCT OSP: 571-272-7774

Form PCT/ISA/237 (cover sheet) (July 2011)

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY

International application No.
PCT/US2014/034087

Box No. I Basis of this opinion

1. With regard to the **language**, this opinion has been established on the basis of:

   ☒ the international application in the language in which it was filed.

   ☐ a translation of the international application into _____ which is the language of a translation furnished for the purposes of international search (Rules 12.3(a) and 23.1(b)).

2. ☐ This opinion has been established taking into account the **rectification of an obvious mistake** authorized by or notified to this Authority under Rule 91 (Rule 43*bis*.1(a))

3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, this opinion has been established on the basis of a sequence listing filed or furnished:

   a. (means)

      ☐ on paper

      ☐ in electronic form

   b. (time)

      ☐ in the international application as filed

      ☐ together with the international application in electronic form

      ☐ subsequently to this Authority for the purposes of search

4. ☐ In addition, in the case that more than one version or copy of a sequence listing has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.

5. Additional comments:

Form PCT/ISA/237 (Box No. I) (July 2011)

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY

International application No.
PCT/US2014/034087

Box No. V **Reasoned statement under Rule 43*bis*.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

1. Statement

Novelty (N)	Claims	7, 8 and 14	YES
	Claims	1-6, 9-13 and 15	NO
Inventive step (IS)	Claims	NONE	YES
	Claims	1-15	NO
Industrial applicability (IA)	Claims	1-15	YES
	Claims	NONE	NO

2. Citations and explanations:

Claims 1-6, 9-13 and 15 lack novelty under PCT Article 33(2) as being anticipated by Perttunen et al (US 2004/0217850 A1), hereinafter, "Perttunen".

Regarding claims 1 and 9, Perttunen discloses a method (Fig 2A and 2B method) and a non-transitory computer readable medium having instructions stored thereon that (Fig 1 #22 controller), when executed by a processor, perform a method comprising:
detecting a presence of at least one user in a vehicle ([0015] detecting the presence of the user 13; Fig 2A #106);
determining an identity of the at least one user ([0015] stage two unlocks the doors if the user is authorized to enter the vehicle);
receiving data associated with the at least one user, wherein the data includes biometric information ([0024] checks for a match between the biometric characteristic detected by the sensor 18);
detecting a deviation between the received data and an established baseline biometric profile associated with the at least one user;
([0024] checks for a match between the biometric characteristic detected by the sensor 18 and that of an authorized user stored... if there is no match between the detected biometric characteristic and the stored value);
and determining, based at least partially on the detected deviation, to provide an output configured to address the deviation ([0024] then the controller 22 disables all features of the vehicle 20).

Regarding claims 2 and 10, Perttunen further discloses, wherein prior to receiving data associated with the at least one user the method further comprises: determining the baseline biometric profile associated with the at least one user ([0024] checks for a match between the biometric characteristic detected by the sensor 18 and that of an authorized user stored); and storing the determined baseline biometric profile in a user profile memory associated with the at least one user ([0024] that of an authorized user stored, for example, in the memory of the controller 22).

Regarding claims 3 and 11, Perttunen further discloses, wherein determining the presence of the at least one user inside the vehicle further comprises: detecting a person via at least one image sensor associated with the vehicle ([0016] the biometric sensor 18 can be one or more of a number of different types of sensors. For example, the biometric sensor 18 may be a voice recognition sensor, a fingerprint identification sensor, or a sensor for iris identification, retina scanning, handprint, lightprint, or face recognition).

Regarding claims 4 and 12, Perttunen further discloses, wherein determining the identity of the at least one user further comprises: identifying facial features associated with the person detected via the at least one image sensor ([0016] the biometric sensor 18 can be one or more of a number of different types of sensors. For example, the biometric sensor 18 may be...face recognition); and determining whether the identified facial features associated with the person match user characteristics stored in a memory ([0024] checks for a match between the biometric characteristic detected by the sensor 18 and that of an authorized user stored in the memory of the controller 22).

Regarding claims 5 and 13, Perttunen further discloses, wherein the output configured to address the deviation is provided by the vehicle, and wherein addressing the deviation includes adjusting one or more settings associated with the vehicle ([0024] then the controller 22 disables all features of the vehicle 20 [disable is adjustment]).

Regarding claim 6, Perttunen further discloses, wherein the one or more settings include at least one of a vehicle interior environment, temperature, air composition, oxygen level, sound level, window position, seat position, and lighting level ([0022] For example, the desired function may be the operation of certain comfort features, such as the seat settings, the climate control).

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY

International application No.
PCT/US2014/034087

Supplemental Box

In case **the space in any of the preceding boxes is not sufficient.**
Continuation of:

Regarding claim 15, Perttunen discloses a vehicle control system ([0013] multistage vehicle security system), comprising:
a profile identification module contained in a memory and executed by a processor of the vehicle control system ([0024] memory of the controller 22),
the profile identification module configured to
detect a presence of at least one user in a vehicle ([0015] detecting the presence of the user 13; Fig 2A #106),
determine an identity of the at least one user ([0015] stage two unlocks the doors if the user is authorized to enter the vehicle),
receive data associated with the at least one user, wherein the data includes biometric information ([0024] checks for a match between the biometric characteristic detected by the sensor 18),
detect a deviation between the received data and an established baseline biometric profile associated with the at least one user ([0024] checks for a match between the biometric characteristic detected by the sensor 18 and that of an authorized user stored... if there is no match between the detected biometric characteristic and the stored value),
and determine, based at least partially on the detected deviation, to provide an output configured to address the deviation ([0024] then the controller 22 disables all features of the vehicle 20),
and wherein prior to receiving data associated with the at least one user the profile identification module is further configured to determine the baseline biometric profile associated with the at least one user ([0024] biometric characteristic detected by the sensor 18 and that of an authorized user stored),
and store the determined baseline biometric profile in a user profile memory associated with the at least one user ([0024] that of an authorized user stored, for example, in the memory of the controller 22).

Claims 7, 8 and 14 lack an inventive step under PCT Article 33(3) as being obvious over Perttunen, in view of, Hale et al (US 2006/0036358 A1), hereinafter, "Hale".

Regarding claims 7 and 14, Perttunen does not explicitly disclose: detecting a vehicle incident via one or more sensors associated with the vehicle; collecting, based at least partially on the detected vehicle incident, the data associated with the at least one user; and sending the established baseline biometric profile and collected data associated with the at least one user to a third party.
However Perttunen teaches detecting a vehicle incident via one or more sensors associated with the vehicle ([0024] checks for a match between the biometric characteristic detected by the sensor 18); collecting, based at least partially on the detected vehicle incident, the data associated with the at least one user ([0024] checks for a match between the biometric characteristic detected by the sensor 18 and that of an authorized user stored); and sending the established baseline biometric profile and collected data associated with the at least one user to the controller ([0024] If the controller 22 determines that there is a match, the process 100 enables all high level operational features of the vehicle 20).
Hale et al is also in the field of vehicle control systems ([0003] systems, devices, and methods for inhibiting potential impaired operators and unauthorized persons from operating a motor vehicle) and discloses detecting a vehicle incident via one or more sensors associated with the vehicle ([0060] system 110 is designed to biometrically identify the operator through fingerprint, thumbprint, iris, voice or any other form of biometric recognition; [0064] and the selected vehicle function devices be energized in the predetermined sequence, but the sequence must be performed within a predetermined time period as well); collecting, based at least partially on the detected vehicle incident, the data associated with the at least one user ([0067] After the operator as has been identified, the time frame for the operator to complete the sequence of vehicle inputs is controlled by microcontroller 34. The timing is calculated by microcontroller 34 using the average time of the last five successful starts by that individuals); and sending the established baseline biometric profile and collected data associated with the at least one user to a third party ([0075] Such operator data can be stored and/or downloaded to another computer via connection ports for a variety of uses. For example, if the disclosed system were used as part of a law enforcement program, compliance with a court order could be readily monitored).
Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate sending the data to a third party, as taught in Hale, within the invention of Perttunen because it adds robustness to the system.

Regarding claim 8, Perttunen does not explicitly disclose, wherein the data associated with the at least one user is received at a first data rate in the absence of a detected vehicle incident and collected at a higher second data rate upon detecting the vehicle incident.
However Perttunen teaches data associated with the at least one user being received ([0024] checks for a match between the biometric characteristic detected by the sensor 18 and that of an authorized user stored).
Hale discloses wherein the data associated with the at least one user is received at a first data rate in the absence of a detected vehicle incident (the time frame for the operator to complete the sequence of vehicle inputs is controlled by microcontroller 34. The timing is calculated by microcontroller 34 using the average time of the last five successful starts by that individuals); and collected at a higher second data-rate upon detecting the vehicle incident ([0069] If the timer mechanism times out before the potential operator performs the proper vehicle functions in sequence; [0064] thus, an impaired potential operator, who knows the proper sequence, may be inhibited from starting the motor vehicle due to the presence of timer mechanism within microcontroller 34. A potential operator, whose motor skills are diminished due to excessive alcohol consumption, or drug use, or lack of sleep, or onset of dementia may not be able to properly perform the function sequence within the predetermined time period).
Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate data, as taught in Hale, within the invention of Perttunen because it adds robustness to the system.

Claims 1-15 meet the criteria set out in PCT Article 33(4), and thus have industrial applicability because the subject matter claimed can be made or used in industry.

PATENT COOPERATION TREATY

From the INTERNATIONAL SEARCHING AUTHORITY

To: Tadd F. Wilson
Sheridan Ross, P.C.
1560 Broadway, Suite 1200
Denver, CO 80202
United States of America

PCT

NOTIFICATION OF TRANSMITTAL OF THE INTERNATIONAL SEARCH REPORT AND THE WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY, OR THE DECLARATION

(PCT Rule 44.1)

Applicant's or agent's file reference 6583-550-PCT	Date of mailing *(day/month/year)* 15 SEP 2014 **FOR FURTHER ACTION** See paragraphs 1 and 4 below
International application No. PCT/US14/34232	International filing date *(day/month/year)* 15 April 2014 (15.04.2014)
Applicant FLEXTRONICS AP, LLC	

1. ☒ The applicant is hereby notified that the international search report and the written opinion of the International Searching Authority have been established and are transmitted herewith.

Filing of amendments and statement under Article 19:
The applicant is entitled, if he so wishes, to amend the claims of the international application (see Rule 46):

When? The time limit for filing such amendments is normally two months from the date of transmittal of the international search report.

How? Directly to the International Bureau of WIPO preferably through ePCT or on paper to, 34 chemin des Colombettes 1211 Geneva 20, Switzerland, Facsimile No.: +41 22 338 82 70

For more detailed instructions, see *PCT Applicant's Guide*, International Phase, paragraphs 9.004 – 9.011.

2. ☐ The applicant is hereby notified that no international search report will be established and that the declaration under Article 17(2)(a) to that effect and the written opinion of the International Searching Authority are transmitted herewith.

3. ☐ **With regard to any protest** against payment of (an) additional fee(s) under Rule 40.2, the applicant is notified that:
   - ☐ the protest together with the decision thereon has been transmitted to the International Bureau together with any request to forward the texts of both the protest and the decision thereon to the designated Offices.
   - ☐ no decision has been made yet on the protest; the applicant will be notified as soon as a decision is made.

4. **Reminders**

The applicant may **submit comments on an informal basis on the written opinion of the International Searching Authority** to the International Bureau. These comments will be made available to the public after international publication. The International Bureau will send a copy of such comments to all designated Offices unless an international preliminary examination report has been or is to be established.

Shortly after the expiration of **18 months from the priority date, the international application will be published** by the International Bureau. If the applicant wishes to avoid or postpone publication, a notice of withdrawal of the international application, or of the priority claim, must reach the International Bureau before the completion of the technical preparations for international publication (Rules 90*bis*.1 and 90*bis*.3).

Within **19 months** from the priority date, but only in respect of some designated Offices, a demand for international preliminary examination must be filed if the applicant wishes to postpone the entry into the national phase **until 30 months** from the priority date (in some Offices even later); otherwise, the applicant must, **within 20 months** from the priority date, perform the prescribed acts for **entry into the national phase** before those designated Offices. In respect of other designated Offices, the time limit of **30 months** (or later) will apply even if no demand is filed within 19 months. For details about the applicable time limits, Office by Office, see www.wipo.int/pct/en/texts/time_limits.html and the *PCT Applicant's Guide*, National Chapters.

Within **19 months from the priority date, the applicant may request that a supplementary international search be carried out** by a different International Searching Authority that offers this service (Rule 45*bis*.1). The procedure for requesting supplementary international search is described in the *PCT Applicant's Guide*, International Phase, paragraphs 8.006-8.032.

Name and mailing address of the ISA/ Mail Stop PCT, Attn: ISA/US Commissioner for Patents P.O. Box 1450, Alexandria, Virginia 22313-1450 Facsimile No. 571-273-3201	Authorized officer Shane Thomas PCT Helpdesk: 571-272-4300 Telephone No. PCT OSP: 571-272-7774

Form PCT/ISA/220 (July 2014)

PATENT COOPERATION TREATY

PCT

INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference 6583-550-PCT	**FOR FURTHER ACTION**	see Form PCT/ISA/220 as well as, where applicable, item 5 below.
International application No. PCT/US14/34232	International filing date *(day/month/year)* 15 April 2014 (15.04.2014)	(Earliest) Priority Date *(day/month/year)* 15 April 2013 (15.04.2013)
Applicant FLEXTRONICS AP, LLC		

This international search report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This international search report consists of a total of 2 sheets.

☐ It is also accompanied by a copy of each prior art document cited in this report.

1. **Basis of the report**

a. With regard to the **language**, the international search was carried out on the basis of:

☒ the international application in the language in which it was filed.

☐ a translation of the international application into _____ which is the language of a translation furnished for the purposes of international search (Rules 12.3(a) and 23.1(b)).

b. ☐ This international search report has been established taking into account the **rectification of an obvious mistake** authorized by or notified to this Authority under Rule 91 (Rule 43.6*bis*(a)).

c. ☐ With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, see Box No. I.

2. ☐ **Certain claims were found unsearchable** (see Box No. II).

3. ☐ **Unity of invention is lacking** (see Box No. III).

4. With regard to the **title**,

☐ the text is approved as submitted by the applicant.

☒ the text has been established by this Authority to read as follows:

ALTERED MAP ROUTES BASED ON USER PROFILE INFORMATION

5. With regard to the **abstract**,

☒ the text is approved as submitted by the applicant.

☐ the text has been established, according to Rule 38.2, by this Authority as it appears in Box No. IV. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.

6. With regard to the **drawings**,

a. the figure of the **drawings** to be published with the abstract is Figure No. 20

☒ as suggested by the applicant.

☐ as selected by this Authority, because the applicant failed to suggest a figure.

☐ as selected by this Authority, because this figure better characterizes the invention.

b. ☐ none of the figures is to be published with the abstract.

Form PCT/ISA/210 (first sheet) (July 2009)

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US14/34232

A. CLASSIFICATION OF SUBJECT MATTER
IPC(8) - G01C 21/34; B60W 40/08; G06K 9/62 (2014.01)
CPC - G08G 1/09, 1/143; B60W 40/09
According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
IPC(8) Classification(s): G01C 21/34; B60W 40/08; G06N 3/08; B60W 40/08; G06K 9/62 (2014.01)
CPC Classification(s): G08G 1/09, 1/143; G06Q 30/0265; G06N 5/02; B60W 40/09; B60T 2220/02; G06K 9/00818

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)
MicroPatent (US-G, US-A, EP-A, EP-B, WO, JP-bib, DE-C, B, DE-A, DE-T, DE-U, GB-A, FR-A); ProQuest; IEEE/IEEEXplore; Google/Google Scholar; KEYWORDS: pattern, route, context, plan, behavior, track

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X --- Y	US 2008/0104227 A1 (BIRNIE, P et al.) 01 May 2008; Figures 1-5, 10, 12, 13; Paragraphs [0036], [0065], [0076], [0077], [0089], [0105], [0108], [0115], [0132], [0139], [0140], [0162].	1-7, 11-14, 16-19 --- 8-10, 15, 20
Y	US 2013/0079964 A1 (SUKKARIE, A et al.) 28 March 2013; Abstract; Paragraph [0125].	8-10, 15, 20
A	US 2009/0157312 A1 (BLACK, N et al.) 18 June 2009; entire document.	1-20

☐ Further documents are listed in the continuation of Box C. ☐

* Special categories of cited documents:
"A" document defining the general state of the art which is not considered to be of particular relevance
"E" earlier application or patent but published on or after the international filing date
"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
"O" document referring to an oral disclosure, use, exhibition or other means
"P" document published prior to the international filing date but later than the priority date claimed
"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
6 August 2014 (06.08.2014)	15 SEP 2014
Name and mailing address of the ISA/US Mail Stop PCT, Attn: ISA/US, Commissioner for Patents P.O. Box 1450, Alexandria, Virginia 22313-1450 Facsimile No. 571-273-3201	Authorized officer: Shane Thomas PCT Helpdesk: 571-272-4300 PCT OSP: 571-272-7774

Form PCT/ISA/210 (second sheet) (July 2009)

PATENT COOPERATION TREATY

From the
INTERNATIONAL SEARCHING AUTHORITY

To: Tadd F. Wilson
Sheridan Ross, P.C.
1560 Broadway, Suite 1200
Denver, CO 80202
United States of America

PCT

WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY

(PCT Rule 43*bis*.1)

Date of mailing *(day/month/year)*	15 SEP 2014
Applicant's or agent's file reference 6583-550-PCT	**FOR FURTHER ACTION** See paragraph 2 below

International application No.	International filing date *(day/month/year)*	Priority date *(day/month/year)*
PCT/US14/34232	15 April 2014 (15.04.2014)	15 April 2013 (15.04.2013)

International Patent Classification (IPC) or both national classification and IPC
IPC(8) - G01C 21/34; B60W 40/08; G06K 9/62 (2014.01)
CPC - G08G1/09; G08G1/143; B60W40/09

Applicant FLEXTRONICS AP, LLC

1. This opinion contains indications relating to the following items:

- ☒ Box No. I Basis of the opinion
- ☐ Box No. II Priority
- ☐ Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- ☐ Box No. IV Lack of unity of invention
- ☒ Box No. V Reasoned statement under Rule 43*bis*.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- ☐ Box No. VI Certain documents cited
- ☐ Box No. VII Certain defects in the international application
- ☐ Box No. VIII Certain observations on the international application

2. **FURTHER ACTION**

If a demand for international preliminary examination is made, this opinion will be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA") except that this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1 *bis*(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to th IPEA a written reply together, where appropriate, with amendments, before the expiration of 3 months from the date of mailing of Fom PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

For further options, see Form PCT/ISA/220.

Name and mailing address of the ISA/US	Date of completion of this opinion	Authorized officer:
Mail Stop PCT, Attn: ISA/US Commissioner for Patents P.O. Box 1450, Alexandria, Virginia 22313-1450 Facsimile No. 571-273-3201	6 August 2014 (06.08.2014)	Shane Thomas PCT Helpdesk: 571-272-4300 PCT OSP: 571-272-7774

Form PCT/ISA/237 (cover sheet) (July 2011)

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY

International application No.
PCT/US14/34232

Box No. I Basis of this opinion

1. With regard to the **language**, this opinion has been established on the basis of:

   ☒ the international application in the language in which it was filed.

   ☐ a translation of the international application into _____ which is the language of a translation furnished for the purposes of international search (Rules 12.3(a) and 23.1(b)).

2. ☐ This opinion has been established taking into account the **rectification of an obvious mistake** authorized by or notified to this Authority under Rule 91 (Rule 43*bis*.1(a))

3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, this opinion has been established on the basis of a sequence listing filed or furnished:

   a. (means)

      ☐ on paper

      ☐ in electronic form

   b. (time)

      ☐ in the international application as filed

      ☐ together with the international application in electronic form

      ☐ subsequently to this Authority for the purposes of search

4. ☐ In addition, in the case that more than one version or copy of a sequence listing has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.

5. Additional comments:

Form PCT/ISA/237 (Box No. I) (July 2011)

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY

International application No.
PCT/US14/34232

Box No. V **Reasoned statement under Rule 43*bis*.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

1. Statement

Novelty (N)	Claims	8-10, 15, 20	YES
	Claims	1-7, 11-14, 16-19	NO
Inventive step (IS)	Claims	NONE	YES
	Claims	1-20	NO
Industrial applicability (IA)	Claims	1-20	YES
	Claims	NONE	NO

2. Citations and explanations:

Claims 1-7, 11-14, and 16-19 lack novelty under PCT Article 33(2) as being anticipated by US 2008/0104227 A1 to BIRNIE et al. (hereinafter 'Birnie').

As per claim 1, Birnie discloses a method for providing navigation information for a conveyance (providing location information over a social network and determining a route to provide to a client device; Abstract), comprising: a vehicle control system, including a processor, receiving route information for two or more routes (central processing unit 312 (processor), a route mapper module, RM 357, provides route information from a given start and end location takes into account intermediate locations (two or more routes); Figure 3; paragraphs [0065], [0105]); the vehicle control system determining the context associated with route information (RM 357 requests from a location information service, LIS 354, location descriptions such as location names for determining a location of interest (context); Figures 3, 10; paragraphs [0036], [0105]); the vehicle control system storing the route information and the context (the networked client device receives and stores data in mass memory 230, including location information, route data and social networking data of the user account used as context; Figure 2; paragraphs [0077], [0139]); the vehicle control system identifying a pattern associated with the route information and context (searches and filters results to determine relevancy corresponding to the representation (pattern) of start and end locations as GPS coordinates and retrieved location name; Figures 4, 12; paragraph [0115]); and the vehicle control system providing pattern information to plan a next route (based in part on patterns identified in the social networks, a route is provided (for next route) at step 512 along with reviews, schedules, or sponsored messages; Figures 5, 13; paragraphs [0132], [0140]).

As per claim 11, Birnie discloses a conveyance comprising: a processor operable to execute one or more modules, the modules comprising: a route integration module operable to: receive route information for two or more routes (system distributed across a plurality of computing devices, includes a central processing unit 312 (processor) to execute a route mapper module, RM 357 (a route integration module), that accesses a street map from a data store and provides route information from a given start and end location through intermediate locations (two or more routes); Figure 3; paragraphs [0065], [0076]); determine the context associated with route information (RM 357 requests from a location information service, LIS 354, location descriptions such as location names for determining a location of interest (determine the context associated with route information); Figures 3, 10; paragraphs [0036], [0105]); store the route information and the context (the networked client device receives and stores data in mass memory 230, including location information, route data and social networking data of the user account used as context; Figure 2; paragraphs [0077], [0139]); a pattern recognition module operable to identify a pattern associated with the route information and context (GSS 106 (a pattern recognition module) searches and filters results to determine relevancy (pattern) corresponding to the representation of start and end locations as GPS coordinates and retrieved location name; Figures 1, 4; paragraphs [0108], [0115]); and a route suggestion module operable to provide a next route based on pattern information (based in part on patterns identified in the social networks, a (next) route is provided in process 500 implemented within GSS 106 (a route suggestion module) along with reviews, schedules, or sponsored messages; Figures 5, 13; paragraphs [0132], [0140]).

As per claim 16, Birnie discloses a non-transitory computer readable medium stored on a storage medium and having instructions that when executed by a processor cause the processor to perform a method (non-volatile computer-readable storage media as mass memory storing computer readable instructions provided to a processor to implement actions (instructions); paragraphs [0089], [0162]), the instructions comprising: instructions to receive route information for two or more routes (the module implementation RM 357, accesses a street map from a data store and provides route information from a given start and end location through intermediate locations (instructions to receive route information for two or more routes); Figure 3; paragraphs [0065], [0076]); instructions to determine the context associated with route information (RM 357 requests from a location information service, LIS 354, location descriptions such as location names for determining a location of interest (to determine the context associated with route information); Figures 3, 10; paragraphs [0036], [0105]); instructions to store the route information and the context (the networked client device is configured to receive and store data in mass memory 230, including location information, route data and social networking data of the user account used as context; Figure 2; paragraphs [0077], [0139]); instructions to identify a pattern associated with the route information and context (GSS 106 searches and filters results to determine relevancy (pattern) corresponding to the representation of start and end locations as GPS coordinates and retrieved location name; Figures 1, 4; paragraphs [0108], [0115]); and instructions to provide a next route based on pattern information (based in part on patterns identified in the social networks, a (next) route is provided in process 500 implemented within GSS 106, along with reviews, schedules, or sponsored messages; Figures 5, 13; paragraphs [0132], [0140]).

As per claim 2, Birnie discloses the method of claim 1. Birnie additionally discloses, wherein the route information includes at least an origin location and a destination (the received information includes a start and end location at step 502 (the route information includes at least an origin location and a destination); Abstract; Figure 5).

-***-Continued Within the Next Supplemental Box-***-

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY

International application No.
PCT/US14/34232

Supplemental Box

In case **the space in any of the preceding boxes is not sufficient.**
Continuation of:

-***-Continued from Previous Supplemental Box-***-

As per claim 3, Birnie discloses the method of claim 2. Birnie additionally discloses, wherein at least one route was generated by a navigation system (the route is provided at step 512 of process 500 by the geo-location search server (at least one route was generated by a navigation system); Figure 5; paragraph [0132]).

As per claim 4, Birnie discloses the method of claim 3. Birnie additionally discloses, wherein the context includes information indicating a reason why a driver followed the route (the location of interest that provides context (the context includes information) indicates the user searched a location name or members of the user's community share the interest (indicating a reason why a driver followed the route); paragraphs [0036], [0134]).

As per claim 5, 13, and 18, Birnie discloses the method of claim 4, the conveyance of claim 12, and the computer readable medium of claim 17, respectively. Birnie additionally discloses, wherein two or more drivers in two or more conveyances provided the route information (members in a social network using client devices 102 and 103 to update location information as GPS coordinates while traveling on a route from A to B (two or more drivers in two or more conveyances provided the route information); Figures 1, 10; paragraphs [0140], [0141]).

As per claim 6, 14, and 19, Birnie discloses the method of claim 5, the conveyance of claim 13, and the computer readable medium of claim 18, respectively. Birnie additionally discloses, wherein the pattern information includes one or more of destinations arrived at certain time periods, routes driven on certain days, or ofte•Ltraveled routes (the display 1200 of destinations is pushed to the client device based on input conditions (the pattern information) includes a time period (destinations arrived at certain time periods); Figure 12; paragraph [0197]).

As per claim 7, Birnie discloses the method of claim 6. Birnie discloses, wherein the pattern information is provided to a third driver to plan a route (the location information included in a search result record is provided to any member of the social network or third-party user who paid for the description to be included in the search results (the pattern information is provided to a third driver to plan a route); paragraph [0116]).

As per claim 12 and 17, Birnie discloses the conveyance of claim 11 and the computer readable medium of claim 16, respectively. Birnie additionally discloses, wherein the route information includes at least an origin location and a destination (the received information includes a start and end location at step 502 (the route information includes at least an origin location and a destination); Abstract; Figure 5), wherein at least one route was generated by a navigation system (the route is provided at step 512 of process 500 by the geo-location search server (at least one route was generated by a navigation system); Figure 5; paragraph [0132]), and wherein the context includes information indicating a reason why a driver followed the route wherein the context includes information indicating a reason why a driver followed the route (the location of interest that provides context (the context includes information) indicates the user searched a location name or members of the user's community share the interest (indicating a reason why a driver followed the route); paragraphs [0036], [0134]).

Claims 8-10, 15, and 20 lack an inventive step under PCT Article 33(3) as being obvious over Birnie in view of US 2013/0079964 A1 to SUKKARIE et al. (hereinafter 'Sukkarie').

As per claim 8, Birnie discloses the method of claim 7. Birnie does not disclose, wherein the third driver is unfamiliar with an area surrounding the planned route. Sukkarie discloses, wherein the third driver is unfamiliar with an area surrounding the planned route (a vehicle centric system on a planned route path in a communication network that utilizes specific user patterns and integrates with shared features to enable the driver previously unfamiliar with an area to take an efficient route (wherein the third driver is unfamiliar with an area surrounding the planned route); Abstract; paragraph [0125]). It would have been obvious to a person of ordinary skill in the art, at the time of the invention, to modify the method of Birnie with the teaching of Sukkarie, because by doing so, the method of Birnie would provide a communication network for the driver that integrates shared features and uses clustering-analysis to provide interactive and adaptive routing.

As per claim 9, Birnie in combination with Sukkarie discloses the method of claim 8. Birnie additionally discloses, wherein the route information and context are stored remotely (member information travels between client devices over the network 145 and is stored in database tables (the route information and context are stored remotely); Figure 1; paragraphs [0148], [0159]).

As per claim 10, Birnie in combination with Sukkarie discloses the method of claim 9. Birnie additionally discloses, wherein the planned route is associated with information in a user profile of the third driver (the end location is determined based on the identity of the member of the social network such as by member interests or preferences (wherein the planned route is associated with information in a user profile of the third driver); paragraphs [0116], [0134]).

I

-***-Continued Within the Next Supplemental Box-***-

Form PCT/ISA/237 (Supplemental Box) (July 2011)

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY

International application No.
PCT/US14/34232

Supplemental Box

In case **the space in any of the preceding boxes is not sufficient.**
Continuation of:
-***-Continued from Previous Supplemental Box-***-

As per claim 15 and 20, Birnie discloses the conveyance of claim 14 and the computer readable medium of claim 19, respectively. Birnie additionally discloses, wherein the pattern information is provided to a third driver to plan a route (the location information included in a search result record is provided to any member of the social network or third-party who paid for the description to be included in the search results (the pattern information is provided to a third driver to plan a route); paragraph [0116]). Birnie does not disclose, and wherein the third driver is unfamiliar with an area surrounding the planned route. Sukkarie discloses, and wherein the third driver is unfamiliar with an area surrounding the planned route (a vehicle centric system on a planned route path in a communication network that utilizes specific user patterns and integrates with shared features to enable the driver previously unfamiliar with an area to take an efficient route (and wherein the third driver is unfamiliar with an area surrounding the planned route); Abstract; paragraph [0125]). It would have been obvious to a person of ordinary skill in the art, at the time of the invention, to modify the conveyance of Birnie with the teaching of Sukkarie, because by doing so, the conveyance of Birnie would provide a communication network for the driver that integrates shared features and clustering analysis to provide interactive and adaptive routing.

Claims 1-20 have industrial applicability as defined by PCT Article 33(4) because the subject matter can be made or used in industry.

PATENT COOPERATION TREATY

From the INTERNATIONAL SEARCHING AUTHORITY

To: Dean N. Reinhardt
Sheridan Ross P.C.
1560 Broadway, Suite 1200
Denver, CO 80202
United States of America

PCT

NOTIFICATION OF TRANSMITTAL OF THE INTERNATIONAL SEARCH REPORT AND THE WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY, OR THE DECLARATION

(PCT Rule 44.1)

Date of mailing *(day/month/year)*	15 SEP 2014
Applicant's or agent's file reference: 6583-556-PCT	**FOR FURTHER ACTION** See paragraphs 1 and 4 below
International application No.: PCT/US14/34098	International filing date *(day/month/year)*: 15 April 2014 (15.04.2014)
Applicant: Flextronics AP, LLC	

1. ☒ The applicant is hereby notified that the international search report and the written opinion of the International Searching Authority have been established and are transmitted herewith.

Filing of amendments and statement under Article 19:
The applicant is entitled, if he so wishes, to amend the claims of the international application (see Rule 46):

When? The time limit for filing such amendments is normally two months from the date of transmittal of the international search report.

How? Directly to the International Bureau of WIPO preferably through ePCT or on paper to, 34 chemin des Colombettes 1211 Geneva 20, Switzerland, Facsimile No.: +41 22 338 82 70

For more detailed instructions, see *PCT Applicant's Guide*, International Phase, paragraphs 9.004 – 9.011.

2. ☐ The applicant is hereby notified that no international search report will be established and that the declaration under Article 17(2)(a) to that effect and the written opinion of the International Searching Authority are transmitted herewith.

3. ☐ **With regard to any protest** against payment of (an) additional fee(s) under Rule 40.2, the applicant is notified that:
   - ☐ the protest together with the decision thereon has been transmitted to the International Bureau together with any request to forward the texts of both the protest and the decision thereon to the designated Offices.
   - ☐ no decision has been made yet on the protest; the applicant will be notified as soon as a decision is made.

4. **Reminders**

The applicant may **submit comments on an informal basis on the written opinion of the International Searching Authority** to the International Bureau. These comments will be made available to the public after international publication. The International Bureau will send a copy of such comments to all designated Offices unless an international preliminary examination report has been or is to be established.

Shortly after the expiration of **18 months from the priority date, the international application will be published** by the International Bureau. If the applicant wishes to avoid or postpone publication, a notice of withdrawal of the international application, or of the priority claim, must reach the International Bureau before the completion of the technical preparations for international publication (Rules 90*bis*.1 and 90*bis*.3).

Within **19 months** from the priority date, but only in respect of some designated Offices, a demand for international preliminary examination must be filed if the applicant wishes to postpone the entry into the national phase **until 30 months** from the priority date (in some Offices even later); otherwise, the applicant must, **within 20 months** from the priority date, perform the prescribed acts for **entry into the national phase** before those designated Offices. In respect of other designated Offices, the time limit of **30 months** (or later) will apply even if no demand is filed within 19 months. For details about the applicable time limits, Office by Office, see www.wipo.int/pct/en/texts/time_limits.html and the *PCT Applicant's Guide*, National Chapters.

Within **19 months from the priority date, the applicant may request that a supplementary international search be carried out** by a different International Searching Authority that offers this service (Rule 45*bis*.1). The procedure for requesting supplementary international search is described in the *PCT Applicant's Guide*, International Phase, paragraphs 8.006-8.032.

Name and mailing address of the ISA/ Mail Stop PCT, Attn: ISA/US Commissioner for Patents P.O. Box 1450, Alexandria, Virginia 22313-1450 Facsimile No. 571-273-3201	Authorized officer Shane Thomas Telephone No. PCT Helpdesk: 571-272-4300 PCT OSP: 571-272-7774

Form PCT/ISA/220 (July 2014)

PATENT COOPERATION TREATY

PCT

INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference 6583-556-PCT	FOR FURTHER ACTION	see Form PCT/ISA/220 as well as, where applicable, item 5 below.
International application No. PCT/US14/34098	International filing date *(day/month/year)* 15 April 2014 (15.04.2014)	(Earliest) Priority Date *(day/month/year)* 15 April 2013 (15.04.2013)
Applicant Flextronics AP, LLC		

This international search report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This international search report consists of a total of 2 sheets.

☒ It is also accompanied by a copy of each prior art document cited in this report.

1. **Basis of the report**

a. With regard to the **language**, the international search was carried out on the basis of:

☒ the international application in the language in which it was filed.

☐ a translation of the international application into _____ which is the language of a translation furnished for the purposes of international search (Rules 12.3(a) and 23.1(b)).

b. ☐ This international search report has been established taking into account the **rectification of an obvious mistake** authorized by or notified to this Authority under Rule 91 (Rule 43.6*bis*(a)).

c. ☐ With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, see Box No. I.

2. ☐ **Certain claims were found unsearchable** (see Box No. II).

3. ☐ **Unity of invention is lacking** (see Box No. III).

4. With regard to the **title**,

☒ the text is approved as submitted by the applicant.

☐ the text has been established by this Authority to read as follows:

5. With regard to the **abstract**,

☒ the text is approved as submitted by the applicant.

☐ the text has been established, according to Rule 38.2, by this Authority as it appears in Box No. IV. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.

6. With regard to the **drawings**,

a. the figure of the **drawings** to be published with the abstract is Figure No. 20A

☒ as suggested by the applicant.

☐ as selected by this Authority, because the applicant failed to suggest a figure.

☐ as selected by this Authority, because this figure better characterizes the invention.

b. ☐ none of the figures is to be published with the abstract.

Form PCT/ISA/210 (first sheet) (July 2009)

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US14/34098

A. CLASSIFICATION OF SUBJECT MATTER
IPC(8) - G05B 15/02; G05D 23/19; G06F 15/177 (2014.01)
CPC - H04L 12/2803, 12/2807, 12/2812
According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
IPC(8) Classification(s): G05B 15/02; G05D 23/19; G06F 15/177 (2014.01)
CPC Classification(s): H04L 12/2803, 12/2807, 12/2812 ; USPC Classification(s): 700/19; 715/733, 744

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)
MicroPatent (US-G, US-A, EP-A, EP-B, WO, JP-bib, DE-C,B, DE-A, DE-T, DE-U, GB-A, FR-A); Google; Google/Scholar; ProQuest; Keywords: vehicle*, car*, automo*, software*, *processor*, CPU, comput*, home*, residen*, server*, connect*, access*, home*, automation*, occupant*, person*, user*, driver*, passenger*, ident*, profil*, subscription*, registration*, credential*, authentication*, login

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X ------- Y	US 2010/0289643 A1 (TRUNDLE SS et al.) November 18, 2010; figures 2, 6, 10, 12; paragraphs [0043], [0049], [0054], [0064], [0065], [0073], [0075], [0076], [0114], [0125], [0130], [0131], [0139]-[0141], [0148], [0149], [0154]	1-7, 9-15 --------- 8
X	US 2013/0083805 A1 (LU J et al.) April 4, 2013; paragraphs [0123]-[0125], [0165], [0205], [0232], [0233], [0241]-[0245]	1, 4
Y	Meet Samsung's version of Apple AirPlay. CNET.com; October 10, 2012 [retrieved on 2014-08-14]; retrieved from the Internet: <URL: http://www.cnet.com/products/samsung-allshare-cast-hub-eadt10jdegsta/>	8
P/X	US 2013/0231784 A1 (ROVIK CL et al.) September 5, 2013; entire document	1, 12
A	US 7,526,539 B1 (HSU G) April 28, 2009; entire document	1-15
A	US 2011/0309953 A1 (PETITE TD et al.) December 22, 2011; entire document	1-15
A	US 2010/0321151 A1 (MATSUURA C et al.) December 23, 2010; entire document	1-15
A	US 2010/0125387 A1 (PARK S et al.) May 20, 2010; entire document	1-15
A	US 2007/0192486 A1 (WILSON BB et al.) August 16, 2007; entire document	1-15

☐ Further documents are listed in the continuation of Box C. ☐

* Special categories of cited documents:
"A" document defining the general state of the art which is not considered to be of particular relevance
"E" earlier application or patent but published on or after the international filing date
"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
"O" document referring to an oral disclosure, use, exhibition or other means
"P" document published prior to the international filing date but later than the priority date claimed
"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
24 August 2014 (24.08.2014)	15 SEP 2014
Name and mailing address of the ISA/US Mail Stop PCT, Attn: ISA/US, Commissioner for Patents P.O. Box 1450, Alexandria, Virginia 22313-1450 Facsimile No. 571-273-3201	Authorized officer: Shane Thomas PCT Helpdesk: 571-272-4300 PCT OSP: 571-272-7774

Form PCT/ISA/210 (second sheet) (July 2009)

PATENT COOPERATION TREATY

From the
INTERNATIONAL SEARCHING AUTHORITY

To: Dean N. Reinhardt
Sheridan Ross P.C.
1560 Broadway, Suite 1200
Denver, CO 80202
United States of America

PCT

WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY

(PCT Rule 43*bis*.1)

Date of mailing *(day/month/year)*	15 SEP 2014
Applicant's or agent's file reference 6583-556-PCT	**FOR FURTHER ACTION** See paragraph 2 below

International application No.	International filing date *(day/month/year)*	Priority date *(day/month/year)*
PCT/US14/34098	15 April 2014 (15.04.2014)	15 April 2013 (15.04.2013)

International Patent Classification (IPC) or both national classification and IPC
IPC(8) - G05B 15/02; G05D 23/19; G06F 15/177 (2014.01)
CPC - H04L 12/2803, 12/2807, 12/2812

Applicant Flextronics AP, LLC

1. This opinion contains indications relating to the following items:

- ☒ Box No. I Basis of the opinion
- ☐ Box No. II Priority
- ☐ Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- ☐ Box No. IV Lack of unity of invention
- ☒ Box No. V Reasoned statement under Rule 43*bis*.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- ☒ Box No. VI Certain documents cited
- ☐ Box No. VII Certain defects in the international application
- ☐ Box No. VIII Certain observations on the international application

2. **FURTHER ACTION**

If a demand for international preliminary examination is made, this opinion will be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA") except that this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1 *bis*(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to th IPEA a written reply together, where appropriate, with amendments, before the expiration of 3 months from the date of mailing of Fom PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

For further options, see Form PCT/ISA/220.

Name and mailing address of the ISA/US	Date of completion of this opinion	Authorized officer:
Mail Stop PCT, Attn: ISA/US Commissioner for Patents P.O. Box 1450, Alexandria, Virginia 22313-1450 Facsimile No. 571-273-3201	24 August 2014 (24.08.2014)	Shane Thomas PCT Helpdesk: 571-272-4300 PCT OSP: 571-272-7774

Form PCT/ISA/237 (cover sheet) (July 2011)

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY

International application No.
PCT/US14/34098

Box No. I Basis of this opinion

1. With regard to the **language**, this opinion has been established on the basis of:
   - ☒ the international application in the language in which it was filed.
   - ☐ a translation of the international application into _____ which is the language of a translation furnished for the purposes of international search (Rules 12.3(a) and 23.1(b)).

2. ☐ This opinion has been established taking into account the **rectification of an obvious mistake** authorized by or notified to this Authority under Rule 91 (Rule 43*bis*.1(a))

3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, this opinion has been established on the basis of a sequence listing filed or furnished:

   a. (means)
   - ☐ on paper
   - ☐ in electronic form

   b. (time)
   - ☐ in the international application as filed
   - ☐ together with the international application in electronic form
   - ☐ subsequently to this Authority for the purposes of search

4. ☐ In addition, in the case that more than one version or copy of a sequence listing has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.

5. Additional comments:

Form PCT/ISA/237 (Box No. I) (July 2011)

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY

International application No.
PCT/US14/34098

Box No. V **Reasoned statement under Rule 43*bis*.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

1. Statement

Novelty (N)	Claims	6, 8, 11	YES
	Claims	1-5, 7, 9, 10, 12-15	NO
Inventive step (IS)	Claims	NONE	YES
	Claims	1-15	NO
Industrial applicability (IA)	Claims	1-15	YES
	Claims	NONE	NO

2. Citations and explanations:

Claims 1-5, 7, 9-10, and 12-15 lack novelty under PCT Article 33(2) as being anticipated by US 2010/0289643 A1 (TRUNDLE).

As per claim 1, Trundle discloses a method, comprising: receiving, by a microprocessor executable home automation module (monitoring application 242; paragraph [0075]), an identity (permission system based on user-specific passcodes, i.e., receiving an identity; paragraph [0075]) of at least one occupant (user; paragraph [0075]) of a vehicle (automobile (vehicle); paragraph [0139]); accessing, by the microprocessor executable home automation module (242), an account of the at least one vehicle occupant, the account defining at least one home location for the vehicle occupant (method includes monitoring a user (occupant) associated with monitored properties (home location), i.e., an account; paragraph [0011]); connecting, by the microprocessor executable home automation module (242), to a home automation system of one of the at least one home locations (mobile devices 240, i.e., having native monitoring application 242 thereon, communicate with control unit 210 (home automation system), at a monitored property (home location); figure 2; paragraphs [0055], [0062]); receiving, by the microprocessor executable home automation module (242), a state of features of the home automation system (enables users to monitor energy consuming appliances (i.e., monitoring the state of features; paragraph [0063]); retrieving, by the microprocessor executable home automation module (242), from the account of the at least one vehicle occupant, arrival settings for features of the home automation system (tracks mobile device's physical location for use to control settings (arrival settings) when user is going toward home; paragraph [0065]); generating, by the microprocessor executable home automation module (242), commands to implement the arrival settings (tracks mobile device's physical location for use to control (generating commands) settings (arrival settings) when user is going toward home; paragraph [0065]); and sending, by the microprocessor executable home automation module (242), the commands to the home automation system (mobile devices 240, i.e., having native monitoring application 242 thereon, communicate with (send commands to) control unit 210 (home automation system); figure 2; paragraphs [0055], [0062]).

As per claim 2, Trundle discloses the method of claim 1, and further discloses wherein the microprocessor executable home automation module (242) sends a first set of commands to the home automation system at a first time (system maintains (first set of commands) appliances in an off state at a first time; figure 12; paragraph [0140]) and a second set of commands to the home automation system at a second time (system turns (second set of commands) the thermostat 1216 to an on state at a second time; figure 12; paragraph [0141]); and wherein the first time and the second time are determined by one of the account of the at least one occupant and the microprocessor executable home automation module (monitoring system determines the first and second time via monitoring application 242; paragraphs [0140], [0141]) based at least in part on the state of features of the home automation system (at first and second time, based on the geographic location of the user, the monitoring system controls the state of lighting device 1212, the oven 1214, and the thermostat 1216; paragraphs [0140], [0141]).

As per claim 3, Trundle discloses the method of claim 2, and further discloses wherein the microprocessor executable home automation module (242) sends the first set of commands to the home automation system when the vehicle is a first distance from the home location (system maintains (first set of commands) appliances in an off state when user, i.e., in a vehicle, is at a first distance from the property 1210 (home location); figure 12; paragraph [0140]) wherein the microprocessor executable home automation module sends the second set of commands when the vehicle is a second distance from the home location (system turns (second set of commands) the thermostat 1216 to an on state when user, i.e., in a vehicle, is at a second distance from the property 1210 (home location); figure 12; paragraph [0140]); and wherein the first distance is greater than the second distance (second distance is closer to the property (home location); figure 12; paragraph [0141]).

As per claim 4, Trundle discloses the method of claim 1, and further discloses wherein the settings comprise at least one of activating, deactivating, and changing a setting of at least one of an interior light, an exterior light, a security system, an interior entertainment system, an exterior entertainment system, a thermostat, and a door lock of the home automation system (user defined mode (settings) controls temperature (thermostat), light (interior and exterior light); paragraphs [0073], [0140], [0141]).

-***-Continued Within the Next Supplemental Box-***-

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY

International application No.
PCT/US14/34098

Box No. VI Certain documents cited

1. Certain published documents (Rules 43*bis*.1 and 70.10)

Application No. Patent No.	Publication date *(day/month/year)*	Filing date *(day/month/year)*	Priority date (valid claim) *(day/month/year)*
US 2013/0231784 A1	05/09/2013	01/03/2012	01/03/2012

2. Non-written disclosures (Rules 43*bis*.1 and 70.9)

Kind of non-written disclosure	Date of non-written disclosure *(day/month/year)*	Date of written disclosure referring to non-written disclosure *(day/month/year)*

Form PCT/ISA/237 (Box No. VI) (July 2011)

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY

International application No.
PCT/US14/34098

Supplemental Box

In case **the space in any of the preceding boxes is not sufficient.**
Continuation of:

-***-Continued from Previous Supplemental Box-***-

As per claim 5, Trundle discloses the method of claim 1, and further discloses wherein the at least one vehicle occupant comprises a first vehicle occupant (parent user; paragraph [0076]) and a second vehicle occupant (child user; paragraph [0076]), and further comprising: determining, by the microprocessor executable home automation module (242), a conflict between at least one setting of the first vehicle occupant and at least one setting of the second vehicle occupant (conflicting input (conflict) may occur between first action (setting) of parent user (first vehicle occupant) and second action (setting) of child user (second vehicle occupant); paragraph [0076]); determining, by the microprocessor executable home automation module (242), a first priority of the first vehicle occupant and a second priority of the second vehicle occupant (parent user (first vehicle occupant) has a higher priority (first priority) than child user, i.e. having lower priority (second priority); paragraph [0076]); when the first priority is greater than the second priority, generating, by the microprocessor executable home automation module (242), commands to implement the at least one setting of the first vehicle occupant (native monitoring application 242 may perform only the first action (setting) of parent user (first vehicle occupant); paragraph [0076]); and when the second priority is greater than the first priority, generating, by the microprocessor executable home automation module (242), commands to implement the at least one setting of the second vehicle occupant (system 200 resolves the conflict based on user priority, i.e., when child user has a higher priority, the action (setting) of child user is performed ; paragraphs [0076], [0154]).

As per claim 7, Trundle discloses the method of claim 1, and further discloses further comprising: receiving, by the microprocessor executable home automation module (242), a number of occupants in the home location from the home automation system (alert 1040 indicating a number of occupant is sent to users, i.e., via mobile device 240 and native monitoring application 242; figures 2, 10; paragraph [0125]); determining, by the microprocessor executable home automation module (242), that the home location is occupied (presence of pet 1018 in the home is determined from alert 1040, i.e., via native monitoring application 242; figure 10; paragraph [0124]), wherein: during the retrieving, the microprocessor executable home automation module (242) retrieves alternate settings from the account of the at least one vehicle occupant (alert 1040 includes input control 1050 (alternate setting) that automatically control the thermostat 1014 for the pet's comfort, i.e., retrieving input control 1050 by native monitoring application 242 from user's account; figure 10; paragraph [0130]); and during the generating, the microprocessor executable home automation module (242) generates commands to implement the alternate settings (when the user activates input control 1050, i.e., generating commands, thermostat 1014 maintains a temperature comfortable for the pet; paragraph [0130]).

As per claim 9, Trundle discloses the method of claim 1, and further discloses further comprising: receiving, by the home automation system (control unit 210), the commands; and configuring features of the home automation system in response to receiving the commands (communicate with module 230 to perform thermostat control, i.e., receiving commands to configure thermostat; figure 2; paragraph [0049]).

As per claim 10, Trundle discloses the method of claim 1, and further discloses further comprising determining, by the microprocessor executable home automation module (242), that the vehicle is leaving the one of the at least one home locations (detects when user is moving away (leaving) from a home, i.e., automobile leaving home; paragraphs [0065], [0139]); connecting, by the microprocessor executable home automation module (242), to the home automation system of the one of the at least one home locations (mobile devices 240, i.e., having native monitoring application 242 thereon, communicate with control unit 210 (home automation system), at a monitored property (home location); figure 2; paragraphs [0055], [0062]); receiving, by the microprocessor executable home automation module (242), the state of features of the home automation system (enables users to monitor; paragraph [0063]); retrieving, by the microprocessor executable home automation module (242), from the account of the at least one vehicle occupant, departure settings for features of the home automation system (tracks mobile device's physical location for use to control settings (departure setting) when user is going away from home; paragraph [0065]); generating, by the microprocessor executable home automation module (242), commands to implement the departure settings (tracks mobile device's physical location for use to control (generating commands) settings (departure settings) when user is going away from home; paragraph [0065]); and sending, by the microprocessor executable home automation module, the commands to the home automation system (mobile devices 240, i.e., having native monitoring application 242 thereon, communicate with (send commands to) control unit 210 (home automation system); figure 2; paragraphs [0055], [0062]).

As per claim 12, Trundle discloses a non-transitory computer readable medium having instructions stored thereon that, when executed by a microprocessor executable home automation module (242), perform a method comprising: receiving an identity (permission system based on user-specific passcodes, i.e., receiving an identity; paragraph [0075]) of at least one occupant (user; paragraph [0075]) of a vehicle (automobile (vehicle); paragraph [0139]); accessing an account of the at least one vehicle occupant, the account defining at least one home location for the identified vehicle occupant (communicating with control unit 210 (home automation system), at a monitored property (home location), i.e., an account; figure 2; paragraphs [0055], [0062]); connecting to a home automation system of one of the at least one home locations (communicating with control unit 210 (home automation system), at a monitored property (home location); figure 2; paragraphs [0055], [0062]); receiving a state of features of the home automation system (native monitoring application 242 enables users to monitor; paragraph [0063]); retrieving, from the account of the at least one vehicle occupant, arrival settings for features of the home automation system (tracking mobile device's physical location for use to control settings (arrival settings) when user is going toward home; paragraph [0065]); generating commands to implement the arrival settings (tracking mobile device's physical location for use to control (generating commands) settings when user is going toward home; paragraph [0065]); and sending the commands to the home automation system (communicating with (send commands to) control unit 210 (home automation system); figure 2; paragraphs [0055], [0062]).

-***-Continued Within the Next Supplemental Box-***-

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY

International application No.
PCT/US14/34098

Supplemental Box

In case **the space in any of the preceding boxes is not sufficient.**
Continuation of:

-***-Continued from Previous Supplemental Box-***-

As per claim 13, Trundle discloses the non-transitory computer readable medium of claim 12, and further discloses further comprising: sending a first set of commands to the home automation system when the vehicle is a first distance from the home location (system maintains (first set of commands) appliances in an off state when user, i.e., in a vehicle, is at a first distance from the property 1210 (home location); figure 12; paragraph [0140]); and sending a second set of commands to the home automation system when the vehicle is a second distance from the home location (system turns (second set of commands) the thermostat 1216 to an on state when user, i.e., in a vehicle, is at a second distance from the property 1210 (home location); figure 12; paragraph [0140]), wherein the first distance is greater than the second distance (second distance is closer to the property (home location); figure 12; paragraph [0141]).

As per claim 14, Trundle discloses the non-transitory computer readable medium of claim 12, and further discloses further comprising: receiving an identity of a first vehicle occupant and a second vehicle occupant (system identifies parent user (first vehicle occupant) and child user (second vehicle occupant); paragraph [0076]) determining a conflict between at least one setting of the first vehicle occupant and at least one setting of the second vehicle occupant (conflicting input (conflict) may occur between first action (setting) of parent user (first vehicle occupant) and second action (setting) of child user (second vehicle occupant); paragraph [0076]); determining a first priority of the first vehicle occupant and a second priority of the second vehicle occupant (parent user (first vehicle occupant) has a higher priority (first priority) than child user, i.e. having lower priority (second priority); paragraph [0076]); when the first priority is greater than the second priority, generating commands to implement the at least one setting of the first vehicle occupant (native monitoring application 242 may perform only the first action (setting) of parent user (first vehicle occupant); paragraph [0076]); and when the second priority is greater than the first priority, generating commands to implement the at least one setting of the second vehicle occupant (system 200 resolves the conflict based on user priority, i.e., when child user has a higher priority, the action (setting) of child user is performed ; paragraphs [0076], [0154]).

As per claim 15, Trundle discloses a vehicle control system of a vehicle, comprising: a memory; and a microprocessor (mobile devices 240; paragraph [0043]) in communication with the memory (mobile devices 240 is a smart phone; paragraph [0054]), the microprocessor operable to execute a home automation module (mobile devices 240 can host native monitoring applications 242 (home automation module); figure 2; paragraph [0054]), the home automation module operable to: receive an identity (permission system based on user-specific passcodes, i.e., receiving an identity; paragraph [0075]) of at least one occupant (user; paragraph [0075]) of the vehicle (automobile (vehicle); paragraph [0139]); access an account of the at least one vehicle occupant, the account defining at least one home location for the identified vehicle occupant (communicating with control unit 210 (home automation system), at a monitored property (home location), i.e., an account; figure 2; paragraphs [0055], [0062]); connect to a home automation system of one of the at least one home locations (communicating with control unit 210 (home automation system), at a monitored property (home location); figure 2; paragraphs [0055], [0062]); receive a state of features of the home automation system (native monitoring application 242 enables users to monitor; paragraph [0063]); retrieve, from the account of the at least one vehicle occupant, arrival settings for features of the home automation system (tracking mobile device's physical location for use to control settings (arrival settings) when user is going toward home; paragraph [0065]); generate a first set of commands and a second set of commands to implement the arrival settings (a first set and second set of settings are shown at times 1 and 2, i.e., generating commands; figure 12; paragraphs [0073], [0140], [0141]); send the first set of commands to the home automation system (at time 1, monitoring system maintains thermostat 1216 in an off setting, i.e., sending first set of commands to control unit 210; figure 12; paragraph [0140]) when the vehicle is a first distance from the home location (time 1, figure 12); and send the second set of commands to the home automation system (monitoring system turns the thermostat 1216 on, i.e., sending second set of commands to controller unit 210; figure 12; paragraph [0141]) when the vehicle is a second distance from the home location (time 2, figure 12), wherein the first distance is greater than the second distance (time 1 is greater than time 2; figure 12).

Claims 6 and 11 lack an inventive step under PCT Article 33(3) as being obvious over Trundle.

As per claim 6, Trundle discloses the method of claim 5. Trundle does not disclose wherein when the first vehicle occupant is identified as a driver, the first priority is greater than the second priority. Trundle does disclose wherein when the first vehicle occupant is identified as a parent (parent user (first vehicle occupant) is identified by permission system; paragraph [0075]), the first priority is greater than the second priority (parent user has higher priority (first priority) than the child user having lower priority (second priority); paragraph [0076]). In order to control a home system based on automobile occupancy (Trundle, paragraphs [0139], [0159]), it would have been obvious to one of ordinary skill in the art, at the time the invention was made, to modify Trundle's home automation module to incorporate identifying the driver because it is commonly known in the art that parents in a vehicle are frequently the driver, as opposed to the children. Furthermore, one of ordinary skill in the art would have recognized that identifying the driver of a vehicle is the functional equivalent of identifying the parent, and only routine skill in the art is needed to select from known and functionally equivalent structures.

-***-Continued Within the Next Supplemental Box-***-

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY

International application No.
PCT/US14/34098

Supplemental Box

In case **the space in any of the preceding boxes is not sufficient.**
Continuation of:
-***-Continued from Previous Supplemental Box-***-

As per claim 11, Trundle discloses the method of claim 1, and further discloses wherein identifying the at least one vehicle occupant comprises: identifying facial features associated with the at least one vehicle occupant via at least one image sensor (system 200 may process the image data (i.e., via an image sensor) using facial type recognition technique to identify an user; paragraph [0148]); determining whether the identified facial features associated with the at least one vehicle occupant match user characteristics stored in a memory (system 200 may process the image data (identified facial features) using facial type recognition technique, i.e., matching user characteristics, to identify an user; paragraph [0148]), and identifying the at least one vehicle occupant further comprises: prompting the at least one vehicle occupant for identification information; receiving identification information from the at least one vehicle occupant; and storing the identification information received from the at least one vehicle occupant in the memory (system 200 determines an identity of an user based on a user-specific code (identification information), i.e., prompting, receiving, and storing user-specific code; paragraph [0149]). Trundle does not disclose when the identified facial features associated with the at least one vehicle occupant do not match the user characteristics stored in the memory, identifying the at least one vehicle occupant further. In order to determine an identity of the user (Trundle, paragraph [0149]), it would have been obvious to one of ordinary skill in the art at the time of the invention to modify Trundle's method to incorporate further identification using identification information when the identified facial features do not match the user characteristics stored in the memory, since it was known in the art facial recognition identification can fail due to inconsistent appearance of the user such as wearing eyeglasses and hats, and different codes can be assigned to different users to detect user identity (Trundle, paragraph [0149]).

Claims 1, 4 lack an inventive step under PCT Article 33(3) as being obvious over US 2013/0083805 A1 (LU).

As per claim 1, Lu discloses a method, comprising: receiving, by a microprocessor executable home automation module (web page of a Smart Gateway Power Controller (SGPC); paragraph [0123]), an identity of at least one occupant of a vehicle (user (vehicle occupant) opens SGPC with a smartphone using security information (identity); paragraph [0123]); accessing, by the microprocessor executable home automation module, an account of the at least one occupant (SGPC requests Home-bound content (HBC) server (account) with the context of the interactions with consumers (occupant); paragraph [0241]), the account defining at least one home location for the vehicle occupant (context of interaction includes the location (home location) of the device, i.e., of the consumer; paragraphs [0241]-[0245]); connecting, by the microprocessor executable home automation module, to a home automation system of one of the at least one home locations (SGPC is connected with a consumer device (home automation system), i.e., at home location; paragraph [0233]) ; receiving, by the microprocessor executable home automation module, a state of features of the home automation system (SGPC shows switch status (state of features) of the connected consumer devices (home automation system); paragraph [0124]); retrieving, by the microprocessor executable home automation module, from the account of the at least one vehicle occupant, arrival settings for features of the home automation system (user (vehicle occupant) clicks a button to choose a time based or event based schedule (arrival setting); paragraphs [0125], [0232]); generating, by the microprocessor executable home automation module, commands to implement the arrival settings; and sending, by the microprocessor executable home automation module, the commands to the home automation system (user clicks a button to turn on or off a switch, i.e., generating and sending commands to SGPC; paragraph [0125]). Lu does not disclose wherein the occupant is a occupant of a vehicle. In order to access the SGPC outside the home's WiFi network (Lu; paragraph [0205]), it would have been obvious to one of ordinary skill in the art, at the time the invention was made, to utilize Lu's smartphone from within a car, since it was known in the art that smartphones are operable inside a vehicle.

As per claim 4, Lu discloses the method of claim 1, and further discloses wherein the settings comprise at least one of activating, deactivating, and changing a setting of at least one of an interior light, an exterior light, a security system, an interior entertainment system, an exterior entertainment system, a thermostat, and a door lock of the home automation system (SGPC controls a TV (interior entertaining system) and light (interior light); paragraph [0165]).

Claim 8 lacks an inventive step under PCT Article 33(3) as being obvious over Trundle in view of the article "Meet Samsung's version of Apple AirPlay" from CNET (hereinafter "CNET").

As per claim 8, Trundle discloses the method of claim 1. Trundle does not disclose determining, by the microprocessor executable home automation module, one of an audio channel and a video channel presenting a media item to the at least one vehicle occupant; and during the generating, generating commands to tune an entertainment system of the home automation system to one of the audio channel and the video channel presenting the media item to the at least one vehicle occupant. CNET discloses determining, by the microprocessor executable home automation module (Samsung Galaxy S III; page 7, paragraph 2), one of an audio channel and a video channel presenting a media item to the at least one vehicle occupant (I (vehicle occupant) successfully listened to music (audio channel) and HD video streamed (video channel), i.e., determining audio and video channel; page 8, paragraph 1); and during the generating, generating commands to tune an entertainment system of the home automation system to one of the audio channel and the video channel presenting the media item to the at least one vehicle occupant (AllShare Cast Hub (home automation system) mirrors what is displayed (media item) on Samsung handset's screen to a compatible HDTV (entertainment system), i.e., tuning video channel; page 4, paragraph 1). In order to play music and video (Trundle; paragraph [0054]), it would have been obvious to one of ordinary skill in the art at the time of the invention to modify Trundle's home automation module to incorporate CNET's video mirroring functionality because, as CNET discloses, videos on a mobile device can be played on a 55-inch HDTV, to increase video and audio quality and entertainment (CNET, page 8, paragraph 1).

Claims 1-15 have industrial applicability as defined by PCT Article 33(4) because the subject matter can be made or used in industry.

PATENT COOPERATION TREATY

From the INTERNATIONAL SEARCHING AUTHORITY

To: Jason H. Vick
Sheridan Ross, P.C.
1560 Broadway, Suite 1200
Denver, CO 80202
United States of America

PCT

NOTIFICATION OF TRANSMITTAL OF THE INTERNATIONAL SEARCH REPORT AND THE WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY, OR THE DECLARATION

(PCT Rule 44.1)

Applicant's or agent's file reference 6583-559-PCT	Date of mailing *(day/month/year)* 15 SEP 2014 **FOR FURTHER ACTION** See paragraphs 1 and 4 below
International application No. PCT/US14/34108	International filing date *(day/month/year)* 15 April 2014 (15.04.2014)
Applicant FLEXTRONICS AP, LLC	

1. ☒ The applicant is hereby notified that the international search report and the written opinion of the International Searching Authority have been established and are transmitted herewith.

Filing of amendments and statement under Article 19:
The applicant is entitled, if he so wishes, to amend the claims of the international application (see Rule 46):

When? The time limit for filing such amendments is normally two months from the date of transmittal of the international search report.

How? Directly to the International Bureau of WIPO preferably through ePCT or on paper to, 34 chemin des Colombettes 1211 Geneva 20, Switzerland, Facsimile No.: +41 22 338 82 70

For more detailed instructions, see *PCT Applicant's Guide*, International Phase, paragraphs 9.004 – 9.011.

2. ☐ The applicant is hereby notified that no international search report will be established and that the declaration under Article 17(2)(a) to that effect and the written opinion of the International Searching Authority are transmitted herewith.

3. ☐ **With regard to any protest** against payment of (an) additional fee(s) under Rule 40.2, the applicant is notified that:

☐ the protest together with the decision thereon has been transmitted to the International Bureau together with any request to forward the texts of both the protest and the decision thereon to the designated Offices.

☐ no decision has been made yet on the protest; the applicant will be notified as soon as a decision is made.

4. **Reminders**

The applicant may **submit comments on an informal basis on the written opinion of the International Searching Authority** to the International Bureau. These comments will be made available to the public after international publication. The International Bureau will send a copy of such comments to all designated Offices unless an international preliminary examination report has been or is to be established.

Shortly after the expiration of **18 months from the priority date, the international application will be published** by the International Bureau. If the applicant wishes to avoid or postpone publication, a notice of withdrawal of the international application, or of the priority claim, must reach the International Bureau before the completion of the technical preparations for international publication (Rules 90*bis*.1 and 90*bis*.3).

Within **19 months** from the priority date, but only in respect of some designated Offices, a demand for international preliminary examination must be filed if the applicant wishes to postpone the entry into the national phase **until 30 months** from the priority date (in some Offices even later); otherwise, the applicant must, **within 20 months** from the priority date, perform the prescribed acts for **entry into the national phase** before those designated Offices. In respect of other designated Offices, the time limit of **30 months** (or later) will apply even if no demand is filed within 19 months. For details about the applicable time limits, Office by Office, see www.wipo.int/pct/en/texts/time_limits.html and the *PCT Applicant's Guide*, National Chapters.

Within **19 months from the priority date, the applicant may request that a supplementary international search be carried out** by a different International Searching Authority that offers this service (Rule 45*bis*.1). The procedure for requesting supplementary international search is described in the *PCT Applicant's Guide*, International Phase, paragraphs 8.006-8.032.

Name and mailing address of the ISA/ Mail Stop PCT, Attn: ISA/US Commissioner for Patents P.O. Box 1450, Alexandria, Virginia 22313-1450 Facsimile No. 571-273-3201	Authorized officer Shane Thomas PCT Helpdesk: 571-272-4300 Telephone No. PCT OSP: 571-272-7774

Form PCT/ISA/220 (July 2014)

PATENT COOPERATION TREATY

PCT

INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference 6583-559-PCT	FOR FURTHER ACTION	see Form PCT/ISA/220 as well as, where applicable, item 5 below.
International application No. PCT/US14/34108	International filing date *(day/month/year)* 15 April 2014 (15.04.2014)	(Earliest) Priority Date *(day/month/year)* 15 April 2013 (15.04.2013)
Applicant FLEXTRONICS AP, LLC		

This international search report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This international search report consists of a total of 2 sheets.

☐ It is also accompanied by a copy of each prior art document cited in this report.

1. **Basis of the report**

a. With regard to the **language**, the international search was carried out on the basis of:

☒ the international application in the language in which it was filed.

☐ a translation of the international application into _____ which is the language of a translation furnished for the purposes of international search (Rules 12.3(a) and 23.1(b)).

b. ☐ This international search report has been established taking into account the **rectification of an obvious mistake** authorized by or notified to this Authority under Rule 91 (Rule 43.6*bis*(a)).

c. ☐ With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, see Box No. I.

2. ☐ **Certain claims were found unsearchable** (see Box No. II).

3. ☐ **Unity of invention is lacking** (see Box No. III).

4. With regard to the **title**,

☐ the text is approved as submitted by the applicant.

☒ the text has been established by this Authority to read as follows:

VIRTUAL PERSONALITY VEHICLE COMMUNICATIONS WITH THIRD PARTIES

5. With regard to the **abstract**,

☒ the text is approved as submitted by the applicant.

☐ the text has been established, according to Rule 38.2, by this Authority as it appears in Box No. IV. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.

6. With regard to the **drawings**,

a. the figure of the **drawings** to be published with the abstract is Figure No. 20

☒ as suggested by the applicant.

☐ as selected by this Authority, because the applicant failed to suggest a figure.

☐ as selected by this Authority, because this figure better characterizes the invention.

b. ☐ none of the figures is to be published with the abstract.

Form PCT/ISA/210 (first sheet) (July 2009)

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US14/34108

A. CLASSIFICATION OF SUBJECT MATTER
IPC(8) - G01C 21/36; G10L 13/00 (2014.01)
CPC - H04L 67/12; G06F 17/30654; G06Q 50/30
According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
IPC(8) Classification(s): G10L 15/26; G01C 21/36; G10L 13/00; B60Q 1/26 (2014.01)
CPC Classification(s): H04L 67/12, 67/18, 67/306; G06F 17/30654; B60R 16/0373; G06Q 50/30

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)
MicroPatent (US-G, US-A, EP-A, EP-B, WO, JP-bib, DE-C, B, DE-A, DE-T, DE-U, GB-A, FR-A); ProQuest; IEEE/IEEEXplore; Google/Google Scholar; KEYWORDS: vehicle, communication, personal, profile, context

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X --- Y	US 2010/0145700 A1 (KENNEWICK, R et al.) 10 June 2010; Abstract; Figures 1, 5; Paragraphs [0011], [0012], [0034], [0094], [0121], [0122].	1-6, 10-15 --- 7-9
Y	US 2012/0289253 A1 (HAAG, S et al.) 15 November 2012; Paragraphs [0062], [0063].	7
Y	US 2010/0137037 A1 (BASIR, O) 03 June 2010; Paragraphs [0006], [0007], [0024].	8, 9

☐ Further documents are listed in the continuation of Box C. ☐

* Special categories of cited documents:
"A" document defining the general state of the art which is not considered to be of particular relevance
"E" earlier application or patent but published on or after the international filing date
"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
"O" document referring to an oral disclosure, use, exhibition or other means
"P" document published prior to the international filing date but later than the priority date claimed
"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
18 August 2014 (18.08.2014)	15 SEP 2014
Name and mailing address of the ISA/US Mail Stop PCT, Attn: ISA/US, Commissioner for Patents P.O. Box 1450, Alexandria, Virginia 22313-1450 Facsimile No. 571-273-3201	Authorized officer: Shane Thomas PCT Helpdesk: 571-272-4300 PCT OSP: 571-272-7774

Form PCT/ISA/210 (second sheet) (July 2009)

PATENT COOPERATION TREATY

From the
INTERNATIONAL SEARCHING AUTHORITY

To: Jason H. Vick
Sheridan Ross, P.C.
1560 Broadway, Suite 1200
Denver, CO 80202
United States of America

PCT

WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY

(PCT Rule 43*bis*.1)

Date of mailing *(day/month/year)*	15 SEP 2014
Applicant's or agent's file reference 6583-559-PCT	**FOR FURTHER ACTION** See paragraph 2 below

International application No.	International filing date *(day/month/year)*	Priority date *(day/month/year)*
PCT/US14/34108	15 April 2014 (15.04.2014)	15 April 2013 (15.04.2013)

International Patent Classification (IPC) or both national classification and IPC
IPC(8) - G01C 21/36; G10L 13/00 (2014.01)
CPC - H04L 67/12; G06F 17/30654; G06Q 50/30

Applicant FLEXTRONICS AP, LLC

1. This opinion contains indications relating to the following items:

- [x] Box No. I Basis of the opinion
- [ ] Box No. II Priority
- [ ] Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- [ ] Box No. IV Lack of unity of invention
- [x] Box No. V Reasoned statement under Rule 43*bis*.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- [ ] Box No. VI Certain documents cited
- [ ] Box No. VII Certain defects in the international application
- [ ] Box No. VIII Certain observations on the international application

2. **FURTHER ACTION**

If a demand for international preliminary examination is made, this opinion will be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA") except that this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1 *bis*(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of 3 months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

For further options, see Form PCT/ISA/220.

Name and mailing address of the ISA/US	Date of completion of this opinion	Authorized officer:
Mail Stop PCT, Attn: ISA/US Commissioner for Patents P.O. Box 1450, Alexandria, Virginia 22313-1450 Facsimile No. 571-273-3201	18 August 2014 (18.08.2014)	Shane Thomas PCT Helpdesk: 571-272-4300 PCT OSP: 571-272-7774

Form PCT/ISA/237 (cover sheet) (July 2011)

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY

International application No.
PCT/US14/34108

Box No. I Basis of this opinion

1. With regard to the **language**, this opinion has been established on the basis of:
   - ☒ the international application in the language in which it was filed.
   - ☐ a translation of the international application into _____ which is the language of a translation furnished for the purposes of international search (Rules 12.3(a) and 23.1(b)).

2. ☐ This opinion has been established taking into account the **rectification of an obvious mistake** authorized by or notified to this Authority under Rule 91 (Rule 43*bis*.1(a))

3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, this opinion has been established on the basis of a sequence listing filed or furnished:
   a. (means)
      - ☐ on paper
      - ☐ in electronic form

   b. (time)
      - ☐ in the international application as filed
      - ☐ together with the international application in electronic form
      - ☐ subsequently to this Authority for the purposes of search

4. ☐ In addition, in the case that more than one version or copy of a sequence listing has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.

5. Additional comments:

Form PCT/ISA/237 (Box No. I) (July 2011)

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY

International application No.
PCT/US14/34108

Box No. V **Reasoned statement under Rule 43*bis*.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

1. Statement

Novelty (N)	Claims	7-9	YES
	Claims	1-6, 10-15	NO
Inventive step (IS)	Claims	NONE	YES
	Claims	1-15	NO
Industrial applicability (IA)	Claims	1-15	YES
	Claims	NONE	NO

2. Citations and explanations:

Claims 1-6, and 10-15 lack novelty under PCT Article 33(2) as being anticipated by US 2010/0145700 A1 to KENNEWICK et al. (hereinafter 'Kennewick').

As per claim 1, Kennewick discloses a system for vehicle to another party communications (communication between a vehicle system and remote devices (another party); Abstract) comprising: a vehicle personality module adapted to create a vehicle personality (a personality module attached to the vehicle enabling vehicle personalities to be created; Paragraph [0012]); a communications system that utilizes the created vehicle personality for one or more communications instead of a user's profile (invoking the vehicle personalities by a speech unit that simulates human characteristics (utilizes the created vehicle personality) when presenting results to user's questions based on responses from probabilistic or fuzzy set decision sources (instead of a user's profile); Paragraphs [0012], [0034], [0094]).

As per claim 2, Kennewick discloses the system of claim 1. Kennewick additionally discloses, wherein the vehicle personality is based on one or more user profiles (the invoked personality of the vehicle uses a user history and preferences (based on one or more user profiles); Paragraph [0034]).

As per claim 3, Kennewick discloses the system of claim 1. Kennewick additionally discloses, wherein the vehicle personality utilizes a vehicle communications module to send and receive communications (the system personality 108 (vehicle personality) interfaces with network interface 116 (a vehicle communications module) to query data sources and return responses using the speech unit; Figure 5; Paragraphs [0121], [0122]).

As per claim 4, Kennewick discloses the system of claim 1. Kennewick additionally discloses, wherein the vehicle personality utilizes a user's communication device to send and receive communications (the system personality 108 (vehicle personality) communicates through the handheld device 36 speech unit interface (user's communication device) over a wireless link (send and receive communications); Figures 1, 5; Paragraphs [0011]).

As per claim 5, Kennewick discloses the system of claim 1. Kennewick additionally discloses, wherein one or more of an identifier and an icon is associated with the vehicle personality and sent with at least one communication (a symbol (icon) is translated by a domain agent of the personality 108 (the vehicle personality) to present to the user using the communication link; Figure 5; Paragraphs [0120], [0177]).

As per claim 6, Kennewick discloses the system of claim 1. Kennewick additionally discloses, wherein the vehicle personality is automatically utilized based on a determined context (the domain agent selects the personality 108 to be used (vehicle personality is automatically utilized) based on the context; Figure 5; Paragraph [0175]).

As per claim 10, Kennewick discloses the system of claim 1. Kennewick additionally discloses, wherein the one or more communications are for any user associated with the vehicle (for multiple users within a vehicle, the system determines which user is stating a command and applies the correct context; Paragraphs [0036], [0037]).

As per claim 11, Kennewick discloses a method for vehicle to another party communications (communication between a vehicle system and remote devices (another party); Abstract) comprising: creating a vehicle personality (a personality module attached to the vehicle enables personalities to be created; Paragraph [0012]); utilizing the created vehicle personality for one or more communications instead of a user's profile (invoking the vehicle personalities by a speech unit that simulates human characteristics (utilizes the created vehicle personality) when presenting results to user's questions based on responses from probabilistic or fuzzy set decision sources (instead of a user's profile); Paragraphs [0012], [0034], [0094]).

As per claim 12, Kennewick discloses the method of claim 11. Kennewick additionally discloses, wherein the vehicle personality is based on one or more user profiles (the invoked personality of the vehicle uses a user history and preferences (based on one or more user profiles); Paragraph [0034]).

As per claim 13, Kennewick discloses the method of claim 11. Kennewick additionally discloses, wherein the vehicle personality utilizes a vehicle communications module to send and receive communications (the system personality 108 (vehicle personality) interfaces with network interface 116 (a vehicle communications module) to query data sources and return responses using the speech unit; Figure 5; Paragraphs [0121], [0122]).

-***-Continued Within the Next Supplemental Box-***-

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY

International application No.
PCT/US14/34108

Supplemental Box

In case **the space in any of the preceding boxes is not sufficient.**
Continuation of:
-***-Continued from Previous Supplemental Box-***-

As per claim 14, Kennewick discloses the method of claim 11. Kennewick additionally discloses, wherein the vehicle personality utilizes a user's communication device to send and receive communications (the system personality 108 (vehicle personality) communicates through the handheld device 36 speech unit interface (user's communication device) over a wireless link (send and receive communications); Figures 1, 5; Paragraphs [0011]).

As per claim 15, Kennewick discloses the method of claim 11. Kennewick additionally discloses, wherein one or more of: an identifier and an icon is associated with the vehicle personality and sent with at least one communication, the vehicle personality is automatically utilized based on a determined context, the determined context is a geographic area that prohibits phone usage while driving, the vehicle personality communicates directly with the another party, the vehicle personality intercepts one or more communications for a user of the vehicle, and the one or more communications are for any user associated with the vehicle (for multiple users within a vehicle (any user associated with the vehicle), the domain agent selects the personality 108 based on the correct context (the vehicle personality is automatically utilized based on a determined context) and user profile; Figure 5; Paragraphs [0036], [0175]).

Claim 7 lacks an inventive step under PCT Article 33(3) as being obvious over Kennewick in view of US 2012/0289253 A1 to HAAG et al. (hereinafter 'Haag').

As per claim 7, Kennewick discloses the system of claim 6. Kennewick does not disclose, wherein the determined context is a geographic area that prohibits phone usage while driving. Haag discloses wherein the determined context is a geographic area that prohibits phone usage while driving (based on locations, text to a travelling mobile device is delayed or prevented (prohibits phone usage while driving); Paragraphs [0062], [0063]). It would have been obvious to a person of ordinary skill in the art, at the time of the invention, to modify the system of Kennewick with the teaching of Haag, because by doing so, the system of Kennewick would provide improved safety by automatically inhibiting dangerous activities while driving based on vehicle location.

Claims 8 and 9 lack an inventive step under PCT Article 33(3) as being obvious over Kennewick in view of US 2010/0137037 A1 to (BASIR).

As per claim 8, Kennewick discloses the system of claim 1. Kennewick does not disclose wherein the vehicle personality communicates directly with the another party. Basir discloses, wherein the vehicle personality communicates directly with the another party (a vehicle integrated intelligent information manager (vehicle personality) automatically sends a response, without driver intervention, to a third-party; Paragraphs [0006], [0007], [0024]). It would have been obvious to a person of ordinary skill in the art, at the time of the invention, to modify the system of Kennewick with the teaching of Basir, because by doing so, the system of Kennewick would provide intelligent, automated responses for the driver to send based on the driver's user profile and without distracting the driver from navigation.

As per claim 9, Kennewick discloses the system of claim 1. Kennewick does not disclose, wherein the vehicle personality intercepts one or more communications for a user of the vehicle. Basir discloses, wherein the vehicle personality intercepts one or more communications for a user of the vehicle (a vehicle integrated intelligent information manager (vehicle personality) filters emails (intercepts) and automatically sends a response, without driver intervention, to a third-party; Paragraphs [0006], [0007], [0024]). It would have been obvious to a person of ordinary skill in the art, at the time of the invention, to modify the system of Kennewick with the teaching of Basir, because by doing so, the system of Kennewick would provide automated filtering of incoming messages to reduce driver interruptions and summarize communications.

Claims 1-15 have industrial applicability as defined by PCT Article 33(4) because the subject matter can be made or used in industry.

From the INTERNATIONAL SEARCHING AUTHORITY

To: RICHARD E. ZELENKA
SHERIDAN ROSS P.C.
1560 BROADWAY, SUITE 1200
DENVER, CO 80202

PCT

NOTIFICATION OF TRANSMITTAL OF THE INTERNATIONAL SEARCH REPORT AND THE WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY, OR THE DECLARATION

(PCT Rule 44.1)

Date of mailing *(day/month/year)*	22 AUG 2014
Applicant's or agent's file reference: 6583-562-PCT	**FOR FURTHER ACTION** See paragraphs 1 and 4 below
International application No.: PCT/US2014/034101	International filing date *(day/month/year)*: 15 April 2014
Applicant: FLEXTRONICS AP, LLC	

1. ☒ The applicant is hereby notified that the international search report and the written opinion of the International Searching Authority have been established and are transmitted herewith.

   Filing of amendments and statement under Article 19:
   The applicant is entitled, if he so wishes, to amend the claims of the international application (see Rule 46):

   When? The time limit for filing such amendments is normally two months from the date of transmittal of the international search report.

   How? Directly to the International Bureau of WIPO preferably through ePCT or on paper to, 34 chemin des Colombettes 1211 Geneva 20, Switzerland, Facsimile No.: +41 22 338 82 70

   For more detailed instructions, see *PCT Applicant's Guide*, International Phase, paragraphs 9.004 – 9.011.

2. ☐ The applicant is hereby notified that no international search report will be established and that the declaration under Article 17(2)(a) to that effect and the written opinion of the International Searching Authority are transmitted herewith.

3. ☐ **With regard to any protest** against payment of (an) additional fee(s) under Rule 40.2, the applicant is notified that:
   ☐ the protest together with the decision thereon has been transmitted to the International Bureau together with any request to forward the texts of both the protest and the decision thereon to the designated Offices.
   ☐ no decision has been made yet on the protest; the applicant will be notified as soon as a decision is made.

4. **Reminders**

   The applicant may **submit comments on an informal basis on the written opinion of the International Searching Authority** to the International Bureau. These comments will be made available to the public after international publication. The International Bureau will send a copy of such comments to all designated Offices unless an international preliminary examination report has been or is to be established.

   Shortly after the expiration of **18 months from the priority date, the international application will be published** by the International Bureau. If the applicant wishes to avoid or postpone publication, a notice of withdrawal of the international application, or of the priority claim, must reach the International Bureau before the completion of the technical preparations for international publication (Rules 90*bis*.1 and 90*bis*.3).

   Within **19 months** from the priority date, but only in respect of some designated Offices, a demand for international preliminary examination must be filed if the applicant wishes to postpone the entry into the national phase **until 30 months** from the priority date (in some Offices even later); otherwise, the applicant must, **within 20 months** from the priority date, perform the prescribed acts for **entry into the national phase** before those designated Offices. In respect of other designated Offices, the time limit of **30 months** (or later) will apply even if no demand is filed within 19 months. For details about the applicable time limits, Office by Office, see www.wipo.int/pct/en/texts/time_limits.html and the *PCT Applicant's Guide*, National Chapters.

   Within **19 months from the priority date, the applicant may request that a supplementary international search be carried out** by a different International Searching Authority that offers this service (Rule 45*bis*.1). The procedure for requesting supplementary international search is described in the *PCT Applicant's Guide*, International Phase, paragraphs 8.006-8.032.

Name and mailing address of the ISA/ Mail Stop PCT, Attn: ISA/US Commissioner for Patents P.O. Box 1450, Alexandria, Virginia 22313-1450 Facsimile No. 571-273-3201	Authorized officer Blaine R. Copenheaver PCT Helpdesk: 571-272-4300 Telephone No. PCT OSP: 571-272-7774

Form PCT/ISA/220 (July 2014)

PATENT COOPERATION TREATY

PCT

INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference 6583-562-PCT	**FOR FURTHER ACTION**	see Form PCT/ISA/220 as well as, where applicable, item 5 below.
International application No. PCT/US2014/034101	International filing date *(day/month/year)* 15 April 2014	(Earliest) Priority Date *(day/month/year)* 15 April 2013
Applicant FLEXTRONICS AP, LLC		

This international search report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This international search report consists of a total of 2 sheets.

☐ It is also accompanied by a copy of each prior art document cited in this report.

1. **Basis of the report**

a. With regard to the **language**, the international search was carried out on the basis of:

☒ the international application in the language in which it was filed.

☐ a translation of the international application into _____ which is the language of a translation furnished for the purposes of international search (Rules 12.3(a) and 23.1(b)).

b. ☐ This international search report has been established taking into account the **rectification of an obvious mistake** authorized by or notified to this Authority under Rule 91 (Rule 43.6*bis*(a)).

c. ☐ With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, see Box No. I.

2. ☐ **Certain claims were found unsearchable** (see Box No. II).

3. ☐ **Unity of invention is lacking** (see Box No. III).

4. With regard to the **title**,

☒ the text is approved as submitted by the applicant.

☐ the text has been established by this Authority to read as follows:

5. With regard to the **abstract**,

☒ the text is approved as submitted by the applicant.

☐ the text has been established, according to Rule 38.2, by this Authority as it appears in Box No. IV. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.

6. With regard to the **drawings**,

a. the figure of the **drawings** to be published with the abstract is Figure No. 24

☒ as suggested by the applicant.

☐ as selected by this Authority, because the applicant failed to suggest a figure.

☐ as selected by this Authority, because this figure better characterizes the invention.

b. ☐ none of the figures is to be published with the abstract.

Form PCT/ISA/210 (first sheet) (July 2009)

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US2014/034101

A. CLASSIFICATION OF SUBJECT MATTER
IPC(8) - G07C 5/08 (2014.01)
USPC - 701/33.4
According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
IPC(8) - B60N 2/02; G07C 5/00, 5/08 (2014.01)
USPC - 700/17, 701/29.6, 33.4, 36, 49

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched
CPC - B60N 2/0248, 2/0296; G07C 5/0808 (2014.02)

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)
PatBase, Google Patents, Google

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 6,557,752 B1 (YACOOB) 06 May 2003 (06.05.2003) entire document	1-15
A	US 2004/0153356 A1 (LOCKWOOD et al) 05 August 2004 (05.08.2004) entire document	1-15
A	US 2012/0316720 A1 (HYDE et al) 13 December 2012 (13.12.2012) entire document	1-15
A	US 2011/0077808 A1 (HYDE et al) 31 March 2011 (31.03.2011) entire document	1-15
A	US 2009/0284359 A1 (HUANG et al) 19 November 2009 (19.11.2009) entire document	1-15
A	US 2004/0217850 A1 (PERTTUNEN et al) 04 November 2004 (04.11.2004) entire document	1-15

☐ Further documents are listed in the continuation of Box C. ☐

* Special categories of cited documents:
"A" document defining the general state of the art which is not considered to be of particular relevance
"E" earlier application or patent but published on or after the international filing date
"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
"O" document referring to an oral disclosure, use, exhibition or other means
"P" document published prior to the international filing date but later than the priority date claimed
"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
03 August 2014	22 AUG 2014
Name and mailing address of the ISA/US Mail Stop PCT, Attn: ISA/US, Commissioner for Patents P.O. Box 1450, Alexandria, Virginia 22313-1450 Facsimile No. 571-273-3201	Authorized officer: Blaine R. Copenheaver PCT Helpdesk: 571-272-4300 PCT OSP: 571-272-7774

Form PCT/ISA/210 (second sheet) (July 2009)

PATENT COOPERATION TREATY

From the
INTERNATIONAL SEARCHING AUTHORITY

To: RICHARD E. ZELENKA
SHERIDAN ROSS P.C.
1560 BROADWAY, SUITE 1200
DENVER, CO 80202

PCT

WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY

(PCT Rule 43*bis*.1)

Date of mailing *(day/month/year)*	22 AUG 2014
Applicant's or agent's file reference 6583-562-PCT	**FOR FURTHER ACTION** See paragraph 2 below

International application No.	International filing date *(day/month/year)*	Priority date *(day/month/year)*
PCT/US2014/034101	15 April 2014	15 April 2013

International Patent Classification (IPC) or both national classification and IPC
IPC(8) - G07C 5/08 (2014.01)
USPC - 701/33.4

Applicant FLEXTRONICS AP, LLC

1. This opinion contains indications relating to the following items:

- ☒ Box No. I Basis of the opinion
- ☐ Box No. II Priority
- ☐ Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- ☐ Box No. IV Lack of unity of invention
- ☒ Box No. V Reasoned statement under Rule 43*bis*.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- ☐ Box No. VI Certain documents cited
- ☐ Box No. VII Certain defects in the international application
- ☐ Box No. VIII Certain observations on the international application

2. **FURTHER ACTION**

If a demand for international preliminary examination is made, this opinion will be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA") except that this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1*bis*(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of 3 months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

For further options, see Form PCT/ISA/220.

Name and mailing address of the ISA/US	Date of completion of this opinion	Authorized officer:
Mail Stop PCT, Attn: ISA/US Commissioner for Patents P.O. Box 1450, Alexandria, Virginia 22313-1450 Facsimile No. 571-273-3201	03 August 2014	Blaine R. Copenheaver PCT Helpdesk: 571-272-4300 PCT OSP: 571-272-7774

Form PCT/ISA/237 (cover sheet) (July 2011)

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY

International application No.
PCT/US2014/034101

Box No. I Basis of this opinion

1. With regard to the **language**, this opinion has been established on the basis of:

   ☒ the international application in the language in which it was filed.

   ☐ a translation of the international application into _____ which is the language of a translation furnished for the purposes of international search (Rules 12.3(a) and 23.1(b)).

2. ☐ This opinion has been established taking into account the **rectification of an obvious mistake** authorized by or notified to this Authority under Rule 91 (Rule 43*bis*.1(a))

3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, this opinion has been established on the basis of a sequence listing filed or furnished:

   a. (means)

   ☐ on paper

   ☐ in electronic form

   b. (time)

   ☐ in the international application as filed

   ☐ together with the international application in electronic form

   ☐ subsequently to this Authority for the purposes of search

4. ☐ In addition, in the case that more than one version or copy of a sequence listing has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.

5. Additional comments:

Form PCT/ISA/237 (Box No. I) (July 2011)

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY

International application No.
PCT/US2014/034101

Box No. V **Reasoned statement under Rule 43*bis*.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

1. Statement

Novelty (N)	Claims	None	YES
	Claims	1-15	NO
Inventive step (IS)	Claims	None	YES
	Claims	1-15	NO
Industrial applicability (IA)	Claims	1-15	YES
	Claims	None	NO

2. Citations and explanations:

Claims 1-15 lack novelty under PCT Article 33(2) as being anticipated by Lockwood et al., hereinafter referred to as Lockwood.

Regarding claims 1,14,15, Lockwood teaches a method [claim 1], a non-transitory computer readable medium having instructions stored thereon [claim 14] and a vehicle maintenance and warranty compliance detection system comprising a vehicle control system [claim 15] (systems and methods for automation and enhancement of customer service in vehicle distress situations, [abstract]; application logic, [0031]), comprising: receiving sensor data from one or more vehicle sensors (report when vehicle being driven by other than identified driver as well as distance travelled by the vehicle, [0023]); identifying, from the sensor data, an identity of a user of a vehicle (report when vehicle being driven by other than identified driver using voice, eye, fingerprint, etc., [0023]; a police report of a driving under the influence or excessive speed violation in connection with the vehicle while being driven by a particular driver [identifying a driver] could trigger an automated customer service response, [0026]); determining, from the sensor data, if a user is not in compliance with a user vehicle operating term (monitoring of distress events, or lack thereof, may be utilized by a leasing agency to provide credits or surcharges to the lessee based upon actual usage rather than estimated usage wherein such distress events may include, without limitation, speeding, excessive mileage traveled, improper or proper compliance with suggested regular maintenance, unreported collisions or bumps, ABS deployment, numbers of instances of hard breaking and/or rapid acceleration, [0035]); and taking action if the user is not in compliance with a user vehicle operating term (surcharges may apply based on distress events, [0035]).

Regarding claim 2, Lockwood teaches the user vehicle operating term is at least one of a maintenance standard, a warranty requirement and a user operating restriction (a police report of a driving under the influence or excessive speed violation in connection with the vehicle while being driven by a particular driver [identifying a driver] could trigger an automated customer service response, [0026]; monitoring of distress events, or lack thereof, may be utilized by a leasing agency to provide credits or surcharges to the lessee based upon actual usage rather than estimated usage wherein such distress events may include, without limitation, speeding, excessive mileage traveled, improper or proper compliance with suggested regular maintenance, unreported collisions or bumps, ABS deployment, numbers of instances of hard breaking and/or rapid acceleration, [0035]).

Regarding claim 3, Lockwood teaches comparing the sensor data to at least one of vehicle maintenance standards, vehicle warranty requirements and user profile operating restrictions (a police report of a driving under the influence or excessive speed violation in connection with the vehicle while being driven by a particular driver [identifying a driver] could trigger an automated customer service response, [0026]; monitoring of distress events, or lack thereof, may be utilized by a leasing agency to provide credits or surcharges to the lessee based upon actual usage rather than estimated usage wherein such distress events may include, without limitation, speeding, excessive mileage traveled, improper or proper compliance with suggested regular maintenance, unreported collisions or bumps, ABS deployment, numbers of instances of hard breaking and/or rapid acceleration, [0035]).

Regarding claim 4, Lockwood teaches the user is not in compliance with a user vehicle operating term if the comparison results in one or more characteristics of vehicle maintenance standards (monitoring of distress events, or lack thereof, may be utilized by a leasing agency to provide credits or surcharges to the lessee based upon actual usage rather than estimated usage wherein such distress events may include, without limitation, speeding, excessive mileage traveled, improper or proper compliance with suggested regular maintenance, unreported collisions or bumps, ABS deployment, numbers of instances of hard breaking and/or rapid acceleration, [0035]), vehicle warranty requirements and user profile operating restrictions not satisfied.

Regarding claim 5, Lockwood teaches the taking action comprises noticing a third party if the user is not in compliance with a user vehicle operating term (vehicle leasing agency, [0035]).

Regarding claim 6, Lockwood teaches the third party is at least one of an insurance provider, warranty provider, authorized monitor (vehicle leasing agency, [0035]) and user.

Regarding claim 7, Lockwood teaches comprising updating a user profile database regarding the user vehicle not in compliance (warranty information associated with the vehicle or a customer profile connected with either the usual driver of the vehicle and/or the vehicle itself, [0008]; monitoring of distress events, or lack thereof, may be utilized by a leasing agency to provide credits or surcharges to the lessee based upon actual usage rather than estimated usage, [0035]; [therefore it is interpreted that a lessee profile is updated in a database]).

Regarding claim 8, Lockwood teaches the one or more vehicle sensors include an odometer (excessive mileage traveled, [0035]), a tachometer, an oil level meter and an image sensor.

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY

International application No.
PCT/US2014/034101

Supplemental Box

In case **the space in any of the preceding boxes is not sufficient.**
Continuation of:

Regarding claim 9, Lockwood teaches the taking action comprises providing an alert (electronic notification, [0063]).

Regarding claim 10, Lockwood teaches the providing an alert comprises a visual alert, an audio alert, emergency responder alert, and alert to an authorized monitor (vehicle leasing agency, [0035]).

Regarding claim 11, Lockwood teaches identifying the one or more characteristics of vehicle maintenance standards, vehicle warranty requirements and user profile operating restrictions not satisfied (monitoring of distress events, or lack thereof, may be utilized by a leasing agency to provide credits or surcharges to the lessee based upon actual usage rather than estimated usage wherein such distress events may include, without limitation, speeding, excessive mileage traveled, improper or proper compliance with suggested regular maintenance, unreported collisions or bumps, ABS deployment, numbers of instances of hard breaking and/or rapid acceleration, [0035]).

Regarding claim 12, Lockwood teaches the taking action comprises noticing a third party if the user is not in compliance with a user vehicle operating term (vehicle leasing agency, [0035]).

Regarding claim 13, Lockwood teaches receiving a query from a warranty provider if a user is not in compliance with a vehicle warranty requirement (the response plan may also be impacted by other criteria such as insurance coverage connected with the vehicle, warranty information associated with the vehicle or a customer profile connected with either the usual driver of the vehicle and/or the vehicle itself, [0008]; retrieval of customer warranty information, [0096]; monitoring of distress events, or lack thereof, may be utilized by a leasing agency to provide credits or surcharges to the lessee based upon actual usage rather than estimated usage wherein such distress events may include, without limitation, speeding, excessive mileage traveled, improper or proper compliance with suggested regular maintenance, unreported collisions or bumps, ABS deployment, numbers of instances of hard breaking and/or rapid acceleration, [0035]).

Claims 1-15 meet the criteria set out in PCT Article 33(4), and thus have industrial applicability because the subject matter claimed can be made or used in industry.

PATENT COOPERATION TREATY

From the INTERNATIONAL SEARCHING AUTHORITY

To: JASON H. VICK
SHERIDAN ROSS P.C.
1560 BROADWAY, SUITE 1200
DENVER, CO 80202

PCT

NOTIFICATION OF TRANSMITTAL OF THE INTERNATIONAL SEARCH REPORT AND THE WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY, OR THE DECLARATION

(PCT Rule 44.1)

Applicant's or agent's file reference 6583-565-PCT	Date of mailing *(day/month/year)* 03 SEP 2014 **FOR FURTHER ACTION** See paragraphs 1 and 4 below
International application No. PCT/US2014/034103	International filing date *(day/month/year)* 15 April 2014
Applicant FLEXTRONICS AP, LLC	

1. ☒ The applicant is hereby notified that the international search report and the written opinion of the International Searching Authority have been established and are transmitted herewith.

   Filing of amendments and statement under Article 19:
   The applicant is entitled, if he so wishes, to amend the claims of the international application (see Rule 46).

   When? The time limit for filing such amendments is normally two months from the date of transmittal of the international search report.

   How? Directly to the International Bureau of WIPO preferably through ePCT or on paper to, 34 chemin des Colombettes 1211 Geneva 20, Switzerland, Facsimile No.: +41 22 338 82 70

   For more detailed instructions, see *PCT Applicant's Guide*, International Phase, paragraphs 9.004 – 9.011.

2. ☐ The applicant is hereby notified that no international search report will be established and that the declaration under Article 17(2)(a) to that effect and the written opinion of the International Searching Authority are transmitted herewith.

3. ☐ **With regard to any protest** against payment of (an) additional fee(s) under Rule 40.2, the applicant is notified that:
   ☐ the protest together with the decision thereon has been transmitted to the International Bureau together with any request to forward the texts of both the protest and the decision thereon to the designated Offices.
   ☐ no decision has been made yet on the protest; the applicant will be notified as soon as a decision is made.

4. **Reminders**

   The applicant may **submit comments on an informal basis on the written opinion of the International Searching Authority** to the International Bureau. These comments will be made available to the public after international publication. The International Bureau will send a copy of such comments to all designated Offices unless an international preliminary examination report has been or is to be established.

   Shortly after the expiration of **18 months from the priority date, the international application will be published** by the International Bureau. If the applicant wishes to avoid or postpone publication, a notice of withdrawal of the international application, or of the priority claim, must reach the International Bureau before the completion of the technical preparations for international publication (Rules 90*bis*.1 and 90*bis*.3).

   Within **19 months** from the priority date, but only in respect of some designated Offices, a demand for international preliminary examination must be filed if the applicant wishes to postpone the entry into the national phase **until 30 months** from the priority date (in some Offices even later); otherwise, the applicant must, **within 20 months** from the priority date, perform the prescribed acts for **entry into the national phase** before those designated Offices. In respect of other designated Offices, the time limit of **30 months** (or later) will apply even if no demand is filed within 19 months. For details about the applicable time limits, Office by Office, see www.wipo.int/pct/en/texts/time_limits.html and the *PCT Applicant's Guide*, National Chapters.

   Within **19 months from the priority date, the applicant may request that a supplementary international search be carried out** by a different International Searching Authority that offers this service (Rule 45*bis*.1). The procedure for requesting supplementary international search is described in the *PCT Applicant's Guide*, International Phase, paragraphs 8.006-8.032.

Name and mailing address of the ISA/ Mail Stop PCT, Attn: ISA/US Commissioner for Patents P.O. Box 1450, Alexandria, Virginia 22313-1450 Facsimile No. 571-273-3201	Authorized officer Blaine R. Copenheaver PCT Helpdesk: 571-272-4300 Telephone No. PCT OSP: 571-272-7774

Form PCT/ISA/220 (July 2014)

PATENT COOPERATION TREATY

PCT

INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference 6583-565-PCT	FOR FURTHER ACTION	see Form PCT/ISA/220 as well as, where applicable, item 5 below.
International application No. PCT/US2014/034103	International filing date *(day/month/year)* 15 April 2014	(Earliest) Priority Date *(day/month/year)* 15 April 2013
Applicant FLEXTRONICS AP, LLC		

This international search report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This international search report consists of a total of 2 sheets.

☐ It is also accompanied by a copy of each prior art document cited in this report.

1. **Basis of the report**

a. With regard to the **language**, the international search was carried out on the basis of:

☒ the international application in the language in which it was filed.

☐ a translation of the international application into _____ which is the language of a translation furnished for the purposes of international search (Rules 12.3(a) and 23.1(b)).

b. ☐ This international search report has been established taking into account the **rectification of an obvious mistake** authorized by or notified to this Authority under Rule 91 (Rule 43.6*bis*(a)).

c. ☐ With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, see Box No. I.

2. ☐ **Certain claims were found unsearchable** (see Box No. II).

3. ☐ **Unity of invention is lacking** (see Box No. III).

4. With regard to the **title**,

☒ the text is approved as submitted by the applicant.

☐ the text has been established by this Authority to read as follows:

5. With regard to the **abstract**,

☒ the text is approved as submitted by the applicant.

☐ the text has been established, according to Rule 38.2, by this Authority as it appears in Box No. IV. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.

6. With regard to the **drawings**,

a. the figure of the **drawings** to be published with the abstract is Figure No. 20

☒ as suggested by the applicant.

☐ as selected by this Authority, because the applicant failed to suggest a figure.

☐ as selected by this Authority, because this figure better characterizes the invention.

b. ☐ none of the figures is to be published with the abstract.

Form PCT/ISA/210 (first sheet) (July 2009)

International application No.
PCT/US2014/034103

A. CLASSIFICATION OF SUBJECT MATTER
IPC(8) - G07C 5/08 (2014.01)
USPC - 701/33.4
According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
IPC(8) - G07C 5/00, 5/08 (2014.01)
USPC - 701/32.1, 33.4, 533

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched
CPC - G07C 5/008, 5/08 (2014.02)

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)
PatBase, Google Patents, Google

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 2010/0087984 A1 (JOSEPH) 08 April 2010 (08.04.2010) entire document	1-15
A	US 2011/0184642 A1 (ROTZ et al) 28 July 2011 (28.07.2011) entire document	1-15
A	US 2004/0225557 A1 (PHELAN et al) 11 November 2004 (11.11.2004) entire document	1-15
A	US 2004/0153356 A1 (LOCKWOOD et al) 05 August 2004 (05.08.2004) entire document	1-15
A	US 2005/0065716 A1 (TIMKO et al) 24 March 2005 (24.03.2005) entire document	1-15

☐ Further documents are listed in the continuation of Box C. ☐

* Special categories of cited documents:
"A" document defining the general state of the art which is not considered to be of particular relevance
"E" earlier application or patent but published on or after the international filing date
"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
"O" document referring to an oral disclosure, use, exhibition or other means
"P" document published prior to the international filing date but later than the priority date claimed
"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
04 August 2014	03 SEP 2014

Name and mailing address of the ISA/US	Authorized officer:
Mail Stop PCT, Attn: ISA/US, Commissioner for Patents P.O. Box 1450, Alexandria, Virginia 22313-1450 Facsimile No. 571-273-3201	Blaine R. Copenheaver PCT Helpdesk: 571-272-4300 PCT OSP: 571-272-7774

PATENT COOPERATION TREATY

From the
INTERNATIONAL SEARCHING AUTHORITY

To: JASON H. VICK
SHERIDAN ROSS P.C.
1560 BROADWAY, SUITE 1200
DENVER, CO 80202

PCT

WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY

(PCT Rule 43*bis*.1)

Date of mailing *(day/month/year)*	03 SEP 2014
Applicant's or agent's file reference: 6583-565-PCT	**FOR FURTHER ACTION** See paragraph 2 below

International application No.	International filing date *(day/month/year)*	Priority date *(day/month/year)*
PCT/US2014/034103	15 April 2014	15 April 2013

International Patent Classification (IPC) or both national classification and IPC
IPC(8) - G07C 5/08 (2014.01)
USPC - 701/33.4

Applicant FLEXTRONICS AP, LLC

1. This opinion contains indications relating to the following items:

- [X] Box No. I Basis of the opinion
- [ ] Box No. II Priority
- [ ] Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- [ ] Box No. IV Lack of unity of invention
- [X] Box No. V Reasoned statement under Rule 43*bis*.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- [ ] Box No. VI Certain documents cited
- [ ] Box No. VII Certain defects in the international application
- [ ] Box No. VIII Certain observations on the international application

2. **FURTHER ACTION**

If a demand for international preliminary examination is made, this opinion will be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA") except that this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1*bis*(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of 3 months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

For further options, see Form PCT/ISA/220.

Name and mailing address of the ISA/US	Date of completion of this opinion	Authorized officer:
Mail Stop PCT, Attn: ISA/US Commissioner for Patents P.O. Box 1450, Alexandria, Virginia 22313-1450 Facsimile No. 571-273-3201	04 August 2014	Blaine R. Copenheaver PCT Helpdesk: 571-272-4300 PCT OSP: 571-272-7774

Form PCT/ISA/237 (cover sheet) (July 2011)

WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY

International application No.
PCT/US2014/034103

Box No. I Basis of this opinion

1. With regard to the **language**, this opinion has been established on the basis of:

   ☒ the international application in the language in which it was filed.

   ☐ a translation of the international application into _____ which is the language of a translation furnished for the purposes of international search (Rules 12.3(a) and 23.1(b)).

2. ☐ This opinion has been established taking into account the **rectification of an obvious mistake** authorized by or notified to this Authority under Rule 91 (Rule 43*bis*.1(a))

3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, this opinion has been established on the basis of a sequence listing filed or furnished:

   a. (means)

      ☐ on paper

      ☐ in electronic form

   b. (time)

      ☐ in the international application as filed

      ☐ together with the international application in electronic form

      ☐ subsequently to this Authority for the purposes of search

4. ☐ In addition, in the case that more than one version or copy of a sequence listing has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.

5. Additional comments:

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY

International application No.
PCT/US2014/034103

Box No. V **Reasoned statement under Rule 43*bis*.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

1. Statement

Novelty (N)	Claims	5,10,13	YES
	Claims	1-4,6-9,11,12,14,15	NO
Inventive step (IS)	Claims	None	YES
	Claims	1-15	NO
Industrial applicability (IA)	Claims	1-15	YES
	Claims	None	NO

2. Citations and explanations:

Claims 1-4,6-9,11,12,14,15 lack novelty under PCT Article 33(2) as being anticipated by Joseph.

Regarding claims 1,11,14,15, Joseph teaches a driver facts system [claim 1], a driver facts management method [claims 11,14] (Systems, devices, and techniques for remotely tracking vehicle and driver behavior, [abstract]) and a non-transitory computer readable information storage media, having stored thereon instructions [claim 15] (central host computer system, [0026]) comprising: one or more systems that track user behavior, the user behavior including one or more of: one or more user actions and one or more user interactions with a vehicle (on-board vehicle monitoring device to gather information on vehicle diagnostics, location, and/or acceleration/deceleration and wirelessly transmit some or all of the data to a central host computer system, [0026]); and a storage system adapted to store the user behavior (central host computer system, [0026]), wherein the tracked user behavior is associated with a driver and the storage system is capable of storing the tracked behavior for the driver from a plurality of vehicles (Information received at the host may be stored and compiled to create metrics for one or many drivers and/or vehicles, [0026]; fig.10; fig.11).

Regarding claim 2, Joseph teaches the one or more systems include one or more of: a vehicle control recognition module, an environmental control module, an object detection module (proximity sensor may be used to determine how close the vehicle is to another vehicle or another object in front of the vehicle, [0026]), a gesture recognition module and an infotainment monitoring module.

Regarding claim 3, Joseph teaches the storage system is stored on one or more of a user device, a remote device and a central repository (central host computer system, [0026]).

Regarding claim 4, Joseph teaches information from one or more vehicle sensors is also used to track user behavior (proximity sensor may be used to determine how close the vehicle is to another vehicle or another object in front of the vehicle wherein such information may be useful in determining whether a driver is following the preceding vehicle in traffic too closely, [0026]).

Regarding claim 6, Joseph teaches the storage system that stores the user behavior is interrogatable by one or more of law enforcement, a vehicle manufacturer, a vehicle dealer, a vehicle repair shop, an insurance company, a warranty company, and another user (Following the driver and vehicle data being compiled at block 1130, some or all these statistics may be displayed to the user, at block 1140, [0077]).

Regarding claim 7, Joseph teaches the user behavior is used as input to determine whether an intended vehicle route should be modified (a driver may take meandering Routes, [0003]; [therefore it is interpreted that the system may recognize meandering routes and recognize better routes]).

Regarding claim 8, Joseph teaches the user behavior is used as input to determine whether an intended vehicle route should be modified in conjunction with one or more of: traffic information, weather information, prior routes, purchase information, patterns (a driver may take meandering Routes, [0003]; [therefore it is interpreted that the system may recognize meandering routes and recognize better routes]), preferences, prior route modification decisions, and user input.

Regarding claim 9, Joseph teaches the tracked user behavior is automatically forwarded to one or more of law enforcement, a vehicle manufacturer, a vehicle dealer, a vehicle repair shop, an insurance company, a warranty company, and another user (Following the driver and vehicle data being compiled at block 1130, some or all these statistics may be displayed to the user, at block 1140, [0077]).

Regarding claim 12, Joseph teaches the tracking is performed by one or more of: a vehicle control recognition module, an environmental control module, an object detection module (proximity sensor may be used to determine how close the vehicle is to another vehicle or another object in front of the vehicle, [0026]), a gesture recognition module and an infotainment monitoring module.

Claims 5,10,13 lack an inventive step under PCT Article 33(3) as being obvious over Joseph.

Regarding claim 5, Joseph does not disclose disabling of the tracking of user behavior is prohibited. However, Joseph does disclose the invention may be used to prevent misuse of a vehicle by a driver ([0003]). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to prohibit disabling of the tracking systems in order to ensure a driver cannot circumvent the safeguards.

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY

International application No.
PCT/US2014/034103

Supplemental Box

In case **the space in any of the preceding boxes is not sufficient.**
Continuation of:

Regarding claim 10, Joseph does not disclose the user behavior is not modifiable by the user. However, Joseph does disclose the invention may be used to prevent misuse of a vehicle by a driver ([0003]). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to ensure a user cannot modify user behavior in order to ensure a driver cannot circumvent the safeguards.

Regarding claim 13, Joseph teaches the storage system is stored on one or more of a user device, a remote device and a central repository (central host computer system, [0026]), information from one or more vehicle sensors is also used to track user behavior (Information received at the host may be stored and compiled to create metrics for one or many drivers and/or vehicles, [0026]; fig.10; fig.11), the storage system that stores the user behavior is interrogatable by one or more of law enforcement, a vehicle manufacturer, a vehicle dealer, a vehicle repair shop, an insurance company, a warranty company, and another user (Following the driver and vehicle data being compiled at block 1130, some or all these statistics may be displayed to the user, at block 1140, [0077]), the user behavior is used as input to determine whether an intended vehicle route should be modified, the user behavior is used as input to determine whether an intended vehicle route should be modified in conjunction with one or more of: traffic information, weather information, prior routes, purchase information, patterns (a driver may take meandering Routes, [0003]; [therefore it is interpreted that the system may recognize meandering routes and recognize better routes]), preferences, prior route modification decisions, and user input, and/or the tracked user behavior is automatically forwarded to one or more of law enforcement, a vehicle manufacturer, a vehicle dealer, a vehicle repair shop, an insurance company, a warranty company, and another user (Following the driver and vehicle data being compiled at block 1130, some or all these statistics may be displayed to the user, at block 1140, [0077]), but does not explicitly teach disabling of the tracking of user behavior is prohibited. However, Joseph does disclose the invention may be used to prevent misuse of a vehicle by a driver ([0003]). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to prohibit disabling of the tracking systems in order to ensure a driver cannot circumvent the safeguards.

Claims 1-15 meet the criteria set out in PCT Article 33(4), and thus have industrial applicability because the subject matter claimed can be made or used in industry.

PATENT COOPERATION TREATY

From the INTERNATIONAL SEARCHING AUTHORITY

To: Timothy E. Buckley
Sheridan Ross P.C.
1560 Broadway, Suite 1200
Denver, CO 80202
United States of America

PCT

NOTIFICATION OF TRANSMITTAL OF THE INTERNATIONAL SEARCH REPORT AND THE WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY, OR THE DECLARATION

(PCT Rule 44.1)

Date of mailing *(day/month/year)*	15 SEP 2014
Applicant's or agent's file reference: 6583-567-PCT	**FOR FURTHER ACTION** See paragraphs 1 and 4 below
International application No.: PCT/US14/34114	International filing date *(day/month/year)*: 15 April 2014 (15.04.2014)
Applicant: FLEXTRONICS AP, LLC	

1. ☒ The applicant is hereby notified that the international search report and the written opinion of the International Searching Authority have been established and are transmitted herewith.

Filing of amendments and statement under Article 19:
The applicant is entitled, if he so wishes, to amend the claims of the international application (see Rule 46):

When? The time limit for filing such amendments is normally two months from the date of transmittal of the international search report.

How? Directly to the International Bureau of WIPO preferably through ePCT or on paper to, 34 chemin des Colombettes 1211 Geneva 20, Switzerland, Facsimile No.: +41 22 338 82 70

For more detailed instructions, see *PCT Applicant's Guide*, International Phase, paragraphs 9.004 – 9.011.

2. ☐ The applicant is hereby notified that no international search report will be established and that the declaration under Article 17(2)(a) to that effect and the written opinion of the International Searching Authority are transmitted herewith.

3. ☐ **With regard to any protest** against payment of (an) additional fee(s) under Rule 40.2, the applicant is notified that:
   - ☐ the protest together with the decision thereon has been transmitted to the International Bureau together with any request to forward the texts of both the protest and the decision thereon to the designated Offices.
   - ☐ no decision has been made yet on the protest; the applicant will be notified as soon as a decision is made.

4. **Reminders**

The applicant may **submit comments on an informal basis on the written opinion of the International Searching Authority** to the International Bureau. These comments will be made available to the public after international publication. The International Bureau will send a copy of such comments to all designated Offices unless an international preliminary examination report has been or is to be established.

Shortly after the expiration of **18 months from the priority date, the international application will be published** by the International Bureau. If the applicant wishes to avoid or postpone publication, a notice of withdrawal of the international application, or of the priority claim, must reach the International Bureau before the completion of the technical preparations for international publication (Rules 90*bis*.1 and 90*bis*.3).

Within **19 months** from the priority date, but only in respect of some designated Offices, a demand for international preliminary examination must be filed if the applicant wishes to postpone the entry into the national phase **until 30 months** from the priority date (in some Offices even later); otherwise, the applicant must, **within 20 months** from the priority date, perform the prescribed acts for **entry into the national phase** before those designated Offices. In respect of other designated Offices, the time limit of **30 months** (or later) will apply even if no demand is filed within 19 months. For details about the applicable time limits, Office by Office, see www.wipo.int/pct/en/texts/time_limits.html and the *PCT Applicant's Guide*, National Chapters.

Within **19 months from the priority date, the applicant may request that a supplementary international search be carried out** by a different International Searching Authority that offers this service (Rule 45*bis*.1). The procedure for requesting supplementary international search is described in the *PCT Applicant's Guide*, International Phase, paragraphs 8.006-8.032.

Name and mailing address of the ISA/ Mail Stop PCT, Attn: ISA/US Commissioner for Patents P.O. Box 1450, Alexandria, Virginia 22313-1450 Facsimile No. 571-273-3201	Authorized officer Shane Thomas PCT Helpdesk: 571-272-4300 Telephone No. PCT OSP: 571-272-7774

Form PCT/ISA/220 (July 2014)

PATENT COOPERATION TREATY

PCT

INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference 6583-567-PCT	**FOR FURTHER ACTION**	see Form PCT/ISA/220 as well as, where applicable, item 5 below.
International application No. PCT/US14/34114	International filing date *(day/month/year)* 15 April 2014 (15.04.2014)	(Earliest) Priority Date *(day/month/year)* 15 April 2013 (15.04.2013)
Applicant FLEXTRONICS AP, LLC		

This international search report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This international search report consists of a total of 2 sheets.

☒ It is also accompanied by a copy of each prior art document cited in this report.

1. **Basis of the report**

   a. With regard to the **language**, the international search was carried out on the basis of:

   ☒ the international application in the language in which it was filed.

   ☐ a translation of the international application into _____ which is the language of a translation furnished for the purposes of international search (Rules 12.3(a) and 23.1(b)).

   b. ☐ This international search report has been established taking into account the **rectification of an obvious mistake** authorized by or notified to this Authority under Rule 91 (Rule 43.6*bis*(a)).

   c. ☐ With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, see Box No. I.

2. ☐ **Certain claims were found unsearchable** (see Box No. II).

3. ☐ **Unity of invention is lacking** (see Box No. III).

4. With regard to the **title**,

   ☒ the text is approved as submitted by the applicant.

   ☐ the text has been established by this Authority to read as follows:

5. With regard to the **abstract**,

   ☒ the text is approved as submitted by the applicant.

   ☐ the text has been established, according to Rule 38.2, by this Authority as it appears in Box No. IV. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.

6. With regard to the **drawings**,

   a. the figure of the **drawings** to be published with the abstract is Figure No. 25

   ☒ as suggested by the applicant.

   ☐ as selected by this Authority, because the applicant failed to suggest a figure.

   ☐ as selected by this Authority, because this figure better characterizes the invention.

   b. ☐ none of the figures is to be published with the abstract.

Form PCT/ISA/210 (first sheet) (July 2009)

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US14/34114

A. CLASSIFICATION OF SUBJECT MATTER
IPC(8) - G06Q 10/10; H04W 68/12, 8/08 (2014.01)
CPC - G01C 21/362; G06Q 10/1093; H04L 67/1095
According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
IPC(8) Classification(s): G06Q 50/30; G01C 21/36; G06Q 10/10; H04W 4/02, 68/12, 8/08 (2014.01)
CPC Classification(s): G01C 21/362; G06Q 10/025, 10/1093; H04L 67/22, 67/18, 67/1095

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)
MicroPatent (US-G, US-A, EP-A, EP-B, WO, JP-bib, DE-C, B, DE-A, DE-T, DE-U, GB-A, FR-A); ProQuest; IEEE/IEEEXplore; Google/Google Scholar; KEYWORDS: synchronize, vehicle, calendar, alarm, notice, factor

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X --- Y	US 2012/0197523 A1 (KIRSCH) 02 August 2012; Figures 1-4, 10; Paragraphs [0043], [0053], [0056], [0064], [0086].	1, 2, 8-10 --- 3-7, 11-15
Y	EP 1909069 B1 (BAUER, L et al.) 08 December 2010; Paragraphs [0027]-[0028].	3, 11
Y	US 2011/0090078 A1 (KIM, F et al.) 21 April 2011; Figure 3; Paragraphs [0029], [0041].	4-7, 12-15
Y	US 2012/0254804 A1 (SHEHA, M et al.) 04 October 2012; Paragraphs [0849]-[0851].	15

☐ Further documents are listed in the continuation of Box C. ☐

* Special categories of cited documents:
"A" document defining the general state of the art which is not considered to be of particular relevance
"E" earlier application or patent but published on or after the international filing date
"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
"O" document referring to an oral disclosure, use, exhibition or other means
"P" document published prior to the international filing date but later than the priority date claimed
"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
18 August 2014 (18.08.2014)	15 SEP 2014
Name and mailing address of the ISA/US Mail Stop PCT, Attn: ISA/US, Commissioner for Patents P.O. Box 1450, Alexandria, Virginia 22313-1450 Facsimile No. 571-273-3201	Authorized officer: Shane Thomas PCT Helpdesk: 571-272-4300 PCT OSP: 571-272-7774

Form PCT/ISA/210 (second sheet) (July 2009)

PATENT COOPERATION TREATY

From the
INTERNATIONAL SEARCHING AUTHORITY

To: Timothy E. Buckley
Sheridan Ross P.C.
1560 Broadway, Suite 1200
Denver, CO 80202
United States of America

PCT

WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY

(PCT Rule 43*bis*.1)

Date of mailing *(day/month/year)*	15 SEP 2014
Applicant's or agent's file reference 6583-567-PCT	**FOR FURTHER ACTION** See paragraph 2 below

International application No.	International filing date *(day/month/year)*	Priority date *(day/month/year)*
PCT/US14/34114	15 April 2014 (15.04.2014)	15 April 2013 (15.04.2013)

International Patent Classification (IPC) or both national classification and IPC
IPC(8) - G06Q 10/10; H04W 68/12, 8/08 (2014.01)
CPC - G01C 21/362; G06Q 10/1093; H04L 67/1095

Applicant FLEXTRONICS AP, LLC

1. This opinion contains indications relating to the following items:

- ☒ Box No. I Basis of the opinion
- ☐ Box No. II Priority
- ☐ Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- ☐ Box No. IV Lack of unity of invention
- ☒ Box No. V Reasoned statement under Rule 43*bis*.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- ☐ Box No. VI Certain documents cited
- ☒ Box No. VII Certain defects in the international application
- ☒ Box No. VIII Certain observations on the international application

2. **FURTHER ACTION**

If a demand for international preliminary examination is made, this opinion will be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA") except that this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1 *bis*(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to th IPEA a written reply together, where appropriate, with amendments, before the expiration of 3 months from the date of mailing of Fom PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

For further options, see Form PCT/ISA/220.

Name and mailing address of the ISA/US	Date of completion of this opinion	Authorized officer:
Mail Stop PCT, Attn: ISA/US Commissioner for Patents P.O. Box 1450, Alexandria, Virginia 22313-1450 Facsimile No. 571-273-3201	18 August 2014 (18.08.2014)	Shane Thomas PCT Helpdesk: 571-272-4300 PCT OSP: 571-272-7774

Form PCT/ISA/237 (cover sheet) (July 2011)

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY

International application No.
PCT/US14/34114

Box No. I Basis of this opinion

1. With regard to the **language**, this opinion has been established on the basis of:
   - ☒ the international application in the language in which it was filed.
   - ☐ a translation of the international application into _____ which is the language of a translation furnished for the purposes of international search (Rules 12.3(a) and 23.1(b)).

2. ☐ This opinion has been established taking into account the **rectification of an obvious mistake** authorized by or notified to this Authority under Rule 91 (Rule 43*bis*.1(a))

3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, this opinion has been established on the basis of a sequence listing filed or furnished:
   a. (means)
      - ☐ on paper
      - ☐ in electronic form

   b. (time)
      - ☐ in the international application as filed
      - ☐ together with the international application in electronic form
      - ☐ subsequently to this Authority for the purposes of search

4. ☐ In addition, in the case that more than one version or copy of a sequence listing has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.

5. Additional comments:

Form PCT/ISA/237 (Box No. I) (July 2011)

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY

International application No.
PCT/US14/34114

Box No. V **Reasoned statement under Rule 43*bis*.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

1. Statement

Novelty (N)	Claims	3-7, 11-15 –	YES
	Claims	1, 2, 8-10	NO
Inventive step (IS)	Claims	NONE	YES
	Claims	1-15	NO
Industrial applicability (IA)	Claims	1-15	YES
	Claims	NONE	NO

2. Citations and explanations:

Claims 1, 2, and 8-10 lack novelty under PCT Article 33(2) as being anticipated by US 2012/0197523 A1 (KIRSCH).

As per claim 1, Kirsch discloses a vehicle system comprising: a vehicle (vehicle 110; Figure 1); a vehicle control system coupled to said vehicle (an in-vehicle system 112 (a vehicle control system) with a short-range communication link; Abstract; Figure 3; Paragraph [0043]) and a communications unit coupled to said vehicle control system (a vehicle-connect application 212 facilitates communication using Bluetooth connecting the mobile device and in-vehicle system; Figure 2; Paragraph [0053]), wherein said vehicle control system synchronizes a calendar with said vehicle control system (the in-vehicle control system calendar module 214 converts data to a vehicle format for transfer (synchronizes a calendar) and display in the vehicle at block 418; Figures 2, 4; Paragraph [0056]) and generates a notice for a first user based on an event in said calendar and a supplemental factor (interface screen 1002 automatically displays the notification to the user based on a calendar entry and matching calendar metadata (a supplemental factor); Figure 10; Paragraphs [0064], [0086]).

As per claim 2, Kirsch discloses the vehicle system of claim 1. Kirsch additionally discloses wherein said first user is associated with said vehicle (user interface screen of the in-vehicle display notifies the user, within the vehicle, that vehicle service is due soon; Figure 7A; Paragraphs [0021], [0040]).

As per claim 8, Kirsch discloses the vehicle system of claim 1. Kirsch additionally discloses, wherein said communications unit is one or more of a sensor, transceiver, or transmitter (the vehicle connect, VC, application communicates wirelessly (a transmitter) using Bluetooth protocols; Paragraph [0053]).

As per claim 9, Kirsch discloses a method comprising: receiving authorization from a first device to synchronize a calendar associated with said first device with a vehicle control system coupled to a vehicle (device 120 pairs with an in-vehicle system 112 (receiving authorization from a first device) to push calendar information from device 120 via vehicle connect application 212 (synchronize a calendar) to the in-vehicle system 112 (vehicle control system); Abstract; Figures 2, 3; Paragraphs [0043], [0053]); synchronizing said calendar with said vehicle control system (calendar module 214 converts data to a vehicle format for transfer (synchronizing said calendar) and display in the vehicle at block 418; Figures 2, 4; Paragraph [0056]); and generating a smart alarm to a first user based on an event in said calendar and a supplemental factor (interface screen 1002 automatically displays the notification of options (a smart alarm) to the user based on a calendar entry (an event) and matching calendar metadata (supplemental factor); Figure 10; Paragraphs [0064], [0086]).

As per claim 10, Kirsch discloses the method of claim 9. Kirsch additionally discloses, wherein said first device is associated with said vehicle (device 120 (said first device) is paired with the in-vehicle system; Figure 2; Paragraph [0043]).

Claims 3 and 11 lack an inventive step under PCT Article 33(3) as being obvious over Kirsch in view of EP 1,909,069 B1, to BAUER et al. (hereinafter 'Bauer').

As per claim 3, Kirsch discloses the vehicle system of claim 1. Kirsch does not disclose, wherein said supplemental factor is based on an amount of traffic from a departure point to an arrival point. Bauer discloses wherein said supplemental factor is based on an amount of traffic from a departure point to an arrival point (a message is displayed for scheduled appointments based on the actual traffic situation (an amount of traffic) in computing a route to a connecting destination (a departure point to an arrival point); Paragraphs [0027], [0028]). It would have been obvious to a person of ordinary skill in the art, at the time of the invention, to modify the system of Kirsch with the teaching of Bauer, because by doing so, the system of Kirsch would provide enhanced notifications to the user on route to a scheduled appointment destination based on actual traffic conditions.

As per claim 11, Kirsch discloses the method of claim 10. Kirsch does not disclose, wherein said supplemental factor is based on an amount of time corresponding to traffic from a departure point to an arrival point. Bauer discloses wherein said supplemental factor is based on an amount of time corresponding to traffic from a departure point to an arrival point (a message is displayed for scheduled appointments based on the actual traffic situation and an estimated time interval to reach the destination (a departure point to an arrival point); Paragraphs [0027], [0028]). It would have been obvious to a person of ordinary skill in the art, at the time of the invention, to modify the method of Kirsch with the teaching of Bauer, because by doing so, the method of Kirsch would provide enhanced notifications to the user on route to destinations of scheduled appointments based on temporal order and actual traffic conditions.

-***-Continued Within the Next Supplemental Box-***-

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY

International application No.
PCT/US14/34114

Box No. VII Certain defects in the international application

The following defects in the form or contents of the international application have been noted:

Claim 11 is objected to under PCT Rule 66.2(a)(iii) as containing the following defects in the form or contents thereof: Claim 11, lines 1-2 recite "wherein said supplemental factor based on an amount of time". As best understood, this limitation is considered to be a typographical error and will be interpreted as "wherein said supplemental factor is based on an amount of time".

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY

International application No.
PCT/US14/34114

Box No. VIII Certain observations on the international application

The following observations on the clarity of the claims, description, and drawings or on the question whether the claims are fully supported by the description, are made:

Claim 7 is objected to under PCT Rule 66.2(a)(v) as lacking clarity under PCT Article 6 because claim 7 is indefinite for the following reason(s): Claim 7 refers to "The vehicle system of claim 5, wherein at least one of said set of conditions" in line 1. There is a lack of antecedent basis for this limitation in the claim. As best understood, the claim is interpreted to read "The vehicle system of claim 6, wherein at least one of said set of conditions".

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY

International application No.
PCT/US14/34114

Supplemental Box

In case **the space in any of the preceding boxes is not sufficient.**
Continuation of:
-***-Continued from Previous Supplemental Box-***-

Claims 4-7, and 12-14 lack an inventive step under PCT Article 33(3) as being obvious over Kirsch in view of US 2011/0090078 A1, to KIM et al. (hereinafter 'Kim').

As per claims 4 and 12, Kirsch discloses the vehicle system of claim 1 and the method of claim 10, respectively. Kirsch does not disclose, wherein said supplemental factor is based on an amount of time required for said first user to arrive at said vehicle from a departure site. Kim discloses wherein said supplemental factor is based on an amount of time required for said first user to arrive at said vehicle from a departure site (a user has transportation options between locations, including walking, a personal vehicle or a public vehicle and a departure alert is generated according to an event (supplemental factor) depending on a user departure buffer, which is the amount of time between the current time value and departure time value (amount of time required for said first user to arrive at said vehicle); Abstract; Figure 3; Paragraphs [0029], [0040], [0045]). It would have been obvious to a person of ordinary skill in the art, at the time of the invention, to modify the system and method of Kirsch with the teaching of Kim, because by doing so, the system and method of Kirsch would provide the capability of configuring departure alerts dependent upon a threshold criteria to remind the user of the necessary time buffer to arrive at the location of the scheduled appointment at the intended time.

As per claim 5, Kirsch discloses the vehicle system of claim 1. Kirsch does not disclose wherein said notice is provided to a second user. Kim discloses, wherein said notice is provided to a second user (a conflict alert (notice) is generated for notifying another event participant (a second user); Paragraph [0041]). It would have been obvious to a person of ordinary skill in the art, at the time of the invention, to modify the system of Kirsch with the teaching of Kim, because by doing so, the system of Kirsch would provide a contextual alert dependent on multiple event participants' estimated travel times.

As per claim 6, Kirsch discloses the vehicle system of claim 1. Kirsch does not disclose wherein said notice is provided to a second user based on at least one of a set of conditions. Kim discloses, wherein said notice is provided to a second user based on at least one of a set of conditions (a conflict alert (notice) is generated for notifying another event participant (a second user) based on estimated travel times (conditions); Paragraph [0041]). It would have been obvious to a person of ordinary skill in the art, at the time of the invention, to modify the system of Kirsch with the teaching of Kim, because by doing so, the system of Kirsch would provide a contextual alert dependent on multiple event participants' estimated travel times.

As per claim 7, Kirsch in combination with Kim discloses the vehicle system of claim 6. Kirsch does not disclose wherein at least one of said set of conditions is based on said second user being one or more of a colleague of said first user, another meeting attendee, a meeting moderator, and a meeting invitee. Kim discloses, wherein at least one of said set of conditions is based on said second user being one or more of a colleague of said first user, another meeting attendee, a meeting moderator, and a meeting invitee (a user schedules a meeting and the estimated travel times (at least one of a set of conditions) are based on another event participant's travel time (second user being another meeting attendee); Paragraphs [0029], [0041]). It would have been obvious to a person of ordinary skill in the art, at the time of the invention, to modify the system of Kirsch with the teaching of Kim, because by doing so, the system of Kirsch would provide a contextual alert dependent on multiple event participants' estimated travel times.

As per claim 13, Kirsch discloses the method of claim 9. Kirsch does not disclose, wherein said smart alarm is provided to a second user. Kim discloses, wherein said smart alarm is provided to a second user (a conflict alert (smart alarm) is generated for notifying another event participant (a second user); Paragraph [0041]). It would have been obvious to a person of ordinary skill in the art, at the time of the invention, to modify the method of Kirsch with the teaching of Kim, because by doing so, the method of Kirsch would provide a contextual alert dependent on multiple event participants' estimated travel times.

As per claim 14, Kirsch discloses the method of claim 9. Kirsch does not disclose wherein said smart alarm is provided to a second user based on at least one of a set of conditions. Kim discloses, wherein said smart alarm is provided to a second user based on at least one of a set of conditions (a conflict alert (smart alarm) is generated for notifying another event participant (a second user) based on estimated travel times (at least one of a set of conditions); Paragraph [0041]). It would have been obvious to a person of ordinary skill in the art, at the time of the invention, to modify the method of Kirsch with the teaching of Kim, because by doing so, the method of Kirsch would provide a contextual alert dependent on multiple event participants' estimated travel times.

Claim 15 lacks an inventive step under PCT Article 33(3) as being obvious over Kirsch in view of Kim, and further in view of US 2012/0254804 A1 to SHEHA et al. (hereinafter 'Sheha').

As per claim 15, Kirsch in combination with Kim discloses the method of claim 14. Kirsch and Kim do not disclose wherein said condition is based on said second user being a colleague of said first user. Sheha discloses wherein said condition is based on said second user being a colleague of said first user (the personal wireless navigation system lists (said conditions) to user (a first user) content queries, including traffic alerts, next meeting alerts, including time and place, and partner (said second user being a colleague of said first user) defined events; Paragraphs [0849]-[0851]). It would have been obvious to a person of ordinary skill in the art, at the time of the invention, to modify the method of Kirsch and Kim with the teaching of Sheha, because by doing so, the method of Kirsch and Kim would provide the integration of detected conditions from colleagues to share calendar information utilized for generating contextual alerts.

Claims 1-15 have industrial applicability as defined by PCT Article 33(4) because the subject matter can be made or used in industry.

PATENT COOPERATION TREATY

From the INTERNATIONAL SEARCHING AUTHORITY

To: Tadd F. Wilson
Sheridan Ross P.C.
1560 Broadway, Suite 1200
Denver, CO 80202
United States of America

PCT

NOTIFICATION OF TRANSMITTAL OF THE INTERNATIONAL SEARCH REPORT AND THE WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY, OR THE DECLARATION

(PCT Rule 44.1)

	Date of mailing *(day/month/year)* 15 SEP 2014
Applicant's or agent's file reference 6583-569-PCT	**FOR FURTHER ACTION** See paragraphs 1 and 4 below
International application No. PCT/US14/34125	International filing date *(day/month/year)* 15 April 2014 (15.04.2014)
Applicant Flextronics AP, LLC	

1. ☒ The applicant is hereby notified that the international search report and the written opinion of the International Searching Authority have been established and are transmitted herewith.

   Filing of amendments and statement under Article 19:
   The applicant is entitled, if he so wishes, to amend the claims of the international application (see Rule 46):

   When? The time limit for filing such amendments is normally two months from the date of transmittal of the international search report.

   How? Directly to the International Bureau of WIPO preferably through ePCT or on paper to, 34 chemin des Colombettes 1211 Geneva 20, Switzerland, Facsimile No.: +41 22 338 82 70

   For more detailed instructions, see *PCT Applicant's Guide*, International Phase, paragraphs 9.004 – 9.011.

2. ☐ The applicant is hereby notified that no international search report will be established and that the declaration under Article 17(2)(a) to that effect and the written opinion of the International Searching Authority are transmitted herewith.

3. ☐ **With regard to any protest** against payment of (an) additional fee(s) under Rule 40.2, the applicant is notified that:
   - ☐ the protest together with the decision thereon has been transmitted to the International Bureau together with any request to forward the texts of both the protest and the decision thereon to the designated Offices.
   - ☐ no decision has been made yet on the protest; the applicant will be notified as soon as a decision is made.

4. **Reminders**

   The applicant may **submit comments on an informal basis on the written opinion of the International Searching Authority** to the International Bureau. These comments will be made available to the public after international publication. The International Bureau will send a copy of such comments to all designated Offices unless an international preliminary examination report has been or is to be established.

   Shortly after the expiration of **18 months from the priority date, the international application will be published** by the International Bureau. If the applicant wishes to avoid or postpone publication, a notice of withdrawal of the international application, or of the priority claim, must reach the International Bureau before the completion of the technical preparations for international publication (Rules 90*bis*.1 and 90*bis*.3).

   Within **19 months** from the priority date, but only in respect of some designated Offices, a demand for international preliminary examination must be filed if the applicant wishes to postpone the entry into the national phase **until 30 months** from the priority date (in some Offices even later); otherwise, the applicant must, **within 20 months** from the priority date, perform the prescribed acts for **entry into the national phase** before those designated Offices. In respect of other designated Offices, the time limit of **30 months** (or later) will apply even if no demand is filed within 19 months. For details about the applicable time limits, Office by Office, see www.wipo.int/pct/en/texts/time_limits.html and the *PCT Applicant's Guide*, National Chapters.

   Within **19 months from the priority date, the applicant may request that a supplementary international search be carried out** by a different International Searching Authority that offers this service (Rule 45*bis*.1). The procedure for requesting supplementary international search is described in the *PCT Applicant's Guide*, International Phase, paragraphs 8.006-8.032.

Name and mailing address of the ISA/ Mail Stop PCT, Attn: ISA/US Commissioner for Patents P.O. Box 1450, Alexandria, Virginia 22313-1450 Facsimile No. 571-273-3201	Authorized officer Shane Thomas PCT Helpdesk: 571-272-4300 Telephone No. PCT OSP: 571-272-7774

Form PCT/ISA/220 (July 2014)

PATENT COOPERATION TREATY

PCT

INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference 6583-569-PCT	**FOR FURTHER ACTION**	see Form PCT/ISA/220 as well as, where applicable, item 5 below.
International application No. PCT/US14/34125	International filing date *(day/month/year)* 15 April 2014 (15.04.2014)	(Earliest) Priority Date *(day/month/year)* 15 April 2013 (15.04.2013)
Applicant Flextronics AP, LLC		

This international search report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This international search report consists of a total of 2 sheets.

☐ It is also accompanied by a copy of each prior art document cited in this report.

1. **Basis of the report**

a. With regard to the **language**, the international search was carried out on the basis of:

☒ the international application in the language in which it was filed.

☐ a translation of the international application into _____ which is the language of a translation furnished for the purposes of international search (Rules 12.3(a) and 23.1(b)).

b. ☐ This international search report has been established taking into account the **rectification of an obvious mistake** authorized by or notified to this Authority under Rule 91 (Rule 43.6*bis*(a)).

c. ☐ With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, see Box No. I.

2. ☐ **Certain claims were found unsearchable** (see Box No. II).

3. ☐ **Unity of invention is lacking** (see Box No. III).

4. With regard to the **title**,

☒ the text is approved as submitted by the applicant.

☐ the text has been established by this Authority to read as follows:

5. With regard to the **abstract**,

☒ the text is approved as submitted by the applicant.

☐ the text has been established, according to Rule 38.2, by this Authority as it appears in Box No. IV. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.

6. With regard to the **drawings**,

a. the figure of the **drawings** to be published with the abstract is Figure No. 20

☒ as suggested by the applicant.

☐ as selected by this Authority, because the applicant failed to suggest a figure.

☐ as selected by this Authority, because this figure better characterizes the invention.

b. ☐ none of the figures is to be published with the abstract.

Form PCT/ISA/210 (first sheet) (July 2009)

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US14/34125

A. CLASSIFICATION OF SUBJECT MATTER
IPC(8) - H04N 7/18 (2014.01)
CPC - G06F 3/017
According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
IPC(8): H04N 7/18, G06F 3/048, G06F 3/0487 (2014.01)
CPC: G06F 3/017, G06F 3/0425, G01C 21/3664

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)
MicroPatent (US-G, US-A, EP-A, EP-B, WO, JP-bib, DE-C,B, DE-A, DE-T, DE-U, GB-A, FR-A); espacenet; IP.com; IEEE; Google/Google Scholar
KEYWORDS: gesture, recognition, car, airplane, complete, incomplete, audible, sound

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X --- A	US 2012/0105613 A1 (WENG, F et al.) 03 May 2012; paragraphs [0041], [0046], [0050].	1, 10, 11, 14, 15 --- 2-9, 12, 13
A	US 2010/0125811 A1 (MOORE, B et al.) 20 May 2010; the entire document.	1-15
A	US 7295904 B2 (KANEVSKY, D et al.) 13 November 2007; the entire document.	1-15
A	US 2011/0291926 A1 (GOKTURK, S et al.) 01 December 2011; the entire document.	1-15
E, Y	US 2014/0169621 A1 (BURR, J) 19 June 2014; the entire document.	1-15

☐ Further documents are listed in the continuation of Box C. ☐

* Special categories of cited documents:
"A" document defining the general state of the art which is not considered to be of particular relevance
"E" earlier application or patent but published on or after the international filing date
"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
"O" document referring to an oral disclosure, use, exhibition or other means
"P" document published prior to the international filing date but later than the priority date claimed
"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
15 August 2014 (15.08.2014)	15 SEP 2014
Name and mailing address of the ISA/US Mail Stop PCT, Attn: ISA/US, Commissioner for Patents P.O. Box 1450, Alexandria, Virginia 22313-1450 Facsimile No. 571-273-3201	Authorized officer: Shane Thomas PCT Helpdesk: 571-272-4300 PCT OSP: 571-272-7774

Form PCT/ISA/210 (second sheet) (July 2009)

PATENT COOPERATION TREATY

From the
INTERNATIONAL SEARCHING AUTHORITY

To: Tadd F. Wilson
Sheridan Ross P.C.
1560 Broadway, Suite 1200
Denver, CO 80202
United States of America

PCT

WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY

(PCT Rule 43*bis*.1)

Date of mailing *(day/month/year)*	15 SEP 2014
Applicant's or agent's file reference 6583-569-PCT	**FOR FURTHER ACTION** See paragraph 2 below

International application No.	International filing date *(day/month/year)*	Priority date *(day/month/year)*
PCT/US14/34125	15 April 2014 (15.04.2014)	15 April 2013 (15.04.2013)

International Patent Classification (IPC) or both national classification and IPC
IPC(8) - H04N 7/18 (2014.01)
CPC - G06F 3/017

Applicant Flextronics AP, LLC

1. This opinion contains indications relating to the following items:

- ☒ Box No. I Basis of the opinion
- ☐ Box No. II Priority
- ☐ Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- ☐ Box No. IV Lack of unity of invention
- ☒ Box No. V Reasoned statement under Rule 43*bis*.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- ☒ Box No. VI Certain documents cited
- ☐ Box No. VII Certain defects in the international application
- ☐ Box No. VIII Certain observations on the international application

2. **FURTHER ACTION**

If a demand for international preliminary examination is made, this opinion will be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA") except that this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1 *bis*(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of 3 months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

For further options, see Form PCT/ISA/220.

Name and mailing address of the ISA/US	Date of completion of this opinion	Authorized officer:
Mail Stop PCT, Attn: ISA/US Commissioner for Patents P.O. Box 1450, Alexandria, Virginia 22313-1450 Facsimile No. 571-273-3201	15 August 2014 (15.08.2014)	Shane Thomas PCT Helpdesk: 571-272-4300 PCT OSP: 571-272-7774

Form PCT/ISA/237 (cover sheet) (July 2011)

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY

International application No.
PCT/US14/34125

Box No. I Basis of this opinion

1. With regard to the **language**, this opinion has been established on the basis of:

   ☒ the international application in the language in which it was filed.

   ☐ a translation of the international application into _____ which is the language of a translation furnished for the purposes of international search (Rules 12.3(a) and 23.1(b)).

2. ☐ This opinion has been established taking into account the **rectification of an obvious mistake** authorized by or notified to this Authority under Rule 91 (Rule 43*bis*.1(a))

3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, this opinion has been established on the basis of a sequence listing filed or furnished:

   a. (means)

   ☐ on paper

   ☐ in electronic form

   b. (time)

   ☐ in the international application as filed

   ☐ together with the international application in electronic form

   ☐ subsequently to this Authority for the purposes of search

4. ☐ In addition, in the case that more than one version or copy of a sequence listing has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.

5. Additional comments:

Form PCT/ISA/237 (Box No. I) (July 2011)

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY

International application No.
PCT/US14/34125

Box No. V **Reasoned statement under Rule 43*bis*.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

1. Statement

Novelty (N)	Claims	2-9, 12, 13	YES
	Claims	1, 10, 11, 14, 15	NO
Inventive step (IS)	Claims	2-9, 12, 13	YES
	Claims	1, 10, 11, 14, 15	NO
Industrial applicability (IA)	Claims	1-15	YES
	Claims	NONE	NO

2. Citations and explanations:

Claims 1, 10, 11, 14, 15 lack novelty under PCT Article 33(2) as being anticipated by US 2012/0105613 A1 to WENG et al. (hereinafter 'Weng').

As to Claim 1, Weng teaches a method for receiving a gesture in a conveyance, comprising: a vehicle control system (in-vehicle information and command entry may use a surface anywhere within the operator's proximity; paragraph [0041]), including a processor, receiving a gesture from a user (finger movements sensed by module 16 may be digitized, and these digitized movements are transmitted as an input to a gesture recognition module 18; Figure 2; paragraph [0046]); the vehicle control system identifying the received gesture (gesture recognition module 18 may determine which of the twenty-six letters or ten numerals is best represented by the movement made by the user's finger or hand; Figure 2; paragraph [0046]); the vehicle control system sending a verification of the received gesture to the user (gesture confirmation module 20 may seek and/or receive feedback from the user to confirm that the output of gesture recognition module 18 is correct; paragraph [0050]); the vehicle control system determining if a confirmation is received in response to the verification (confirmation module 20 may audibly ask the driver to "please re-write the previous entry; confirmation module 20 receives confirmation that it recognized the gesture correctly; paragraph [0050]); and if the confirmation is received, the vehicle control system controlling a function associated with the gesture (after receiving confirmation of correct recognition of the user's gesture, confirmation module 20 may then forward the recognized gesture to a vehicle system, such as navigation system 30, audio system 32 or HVAC system 34; Figure 1; paragraph [0050]).

As to Claim 10, Weng teaches the method of claim 1, further comprising: the vehicle control system receiving a denial of the verification (If the user did not write "defrost", then he may speak "no" or write "n" on surface 12; paragraph [0050]); and based on the denial, the vehicle control system not completing the function associated with the gesture (in response, confirmation module 20 may audibly ask the driver to "please re-write the previous entry". The cycle continues with gesturing capturing module 16 interpreting the user's gestures until confirmation module 20 receives confirmation that it recognized the gesture correctly; paragraph [0050]).

As to Claim 11, Weng teaches a conveyance comprising: a processor operable to execute one or more modules, the modules comprising: a gesture recognition module operable to: receive a gesture from a user (finger movements sensed by module 16 may be digitized, and these digitized movements are transmitted as an input to a gesture recognition module 18; Figure 1; paragraph [0046]); identify the received gesture (gesture recognition module 18 may determine which of the twenty-six letters or ten numerals is best represented by the movement made by the user's finger or hand; paragraph [0046]); a verification module operable to: send a verification of the received gesture to the user (gesture confirmation module 20 may seek and/or receive feedback from the user to confirm that the output of gesture recognition module 18 is correct; paragraph [0050]); determine if a confirmation is received in response to the verification (confirmation module 20 may audibly ask the driver to "please re-write the previous entry; confirmation module 20 receives confirmation that it recognized the gesture correctly; paragraph [0050]); and a function control module operable to, if the confirmation is received, control a function associated with the gesture (after receiving confirmation of correct recognition of the user's gesture, confirmation module 20 may then forward the recognized gesture to a vehicle system, such as navigation system 30, audio system 32 or HVAC system 34; Figure 1; paragraph [0050]).

As to Claim 14, Weng teaches the conveyance of claim 11, wherein the verification is one of an audible message presented to the user, a user interface message presented on a screen, or a preview of the function associated with the gesture (then confirmation module 20 may audibly ask the driver "Did you write 'defrost?'"; Figure 1; paragraph [0050]).

As to Claim 15, Weng teaches the conveyance of claim 11, wherein the confirmation is one of a second gesture, a selection of a user interface device on the screen, or an audible confirmation (In order to confirm that he did indeed say "defrost", the user may speak "yes", which may be received by a microphone 26 and may be input into confirmation module 20; Figure 1; paragraph [0050]).

-***-Continued Within the Next Supplemental Box-***-

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY

International application No.
PCT/US14/34125

Box No. VI Certain documents cited

1. Certain published documents (Rules 43*bis*.1 and 70.10)

Application No. Patent No.	Publication date *(day/month/year)*	Filing date *(day/month/year)*	Priority date (valid claim) *(day/month/year)*
US 2014/0169621 A1	19/06/2014	13/12/2012	

2. Non-written disclosures (Rules 43*bis*.1 and 70.9)

Kind of non-written disclosure	Date of non-written disclosure *(day/month/year)*	Date of written disclosure referring to non-written disclosure *(day/month/year)*

Form PCT/ISA/237 (Box No. VI) (July 2011)

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY

International application No.
PCT/US14/34125

Supplemental Box

In case **the space in any of the preceding boxes is not sufficient.**
Continuation of:

-***-Continued from Previous Supplemental Box-***-

Claim 2 meets the criteria set out in PCT Article 33(2)-(3), because the prior art does not teach or fairly suggest: if the confirmation is not received, the vehicle control system determining if the gesture should be completed; and if the gesture should be completed, the vehicle control system controlling the function associated with the gesture. In the closest prior art found, US 2010/0125811 A1 to MOORE et al. (hereinafter 'Moore') discloses, if the user types the characters "goo," the device may recommend going to the Google search engine as an action completion. Thereafter, activating hybrid purpose key 5063, by a finger tap gesture on key 5063, will cause the device to open a browsing module 147 and display a Web page for the Google search engine; Figure 5G; paragraph [0187]. However, the prior art fails to disclose the limitations as discussed above, since it waits for user's tap before opening Google.

Claims 3-9 also meet the criteria set out in PCT Article 33(2)-(3), because they depend upon Claim 2.

Claim 12 meets the criteria set out in PCT Article 33(2)-(3), because the prior art does not teach or fairly suggest: the conveyance of claim 11, wherein the verification module further operable to, if the confirmation is not received, determine if the gesture should be completed. In the closest prior art found, Moore, discloses if the user types the characters "goo," the device may recommend going to the Google search engine as an action completion. Thereafter, activating hybrid purpose key 5063, by a finger tap gesture on key 5063, will cause the device to open a browsing module 147 and display a Web page for the Google search engine; paragraph [0187]. However, the prior art fails to disclose the limitations as discussed above, since it waits for user's tap before opening Google.

Claim 13 also meets the criteria set out in PCT Article 33(2)-(3), because it depends upon Claim 12.

Claims 1-15 have industrial applicability as defined by PCT Article 33(4) because the subject matter can be made or used in industry.

PATENT COOPERATION TREATY

From the INTERNATIONAL SEARCHING AUTHORITY

To: Tadd F. Wilson
Sheridan Ross P.C.
1560 Broadway, Suite 1200
Denver, CO 80202
United States of America

PCT

NOTIFICATION OF TRANSMITTAL OF THE INTERNATIONAL SEARCH REPORT AND THE WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY, OR THE DECLARATION

(PCT Rule 44.1)

	Date of mailing *(day/month/year)* 15 SEP 2014
Applicant's or agent's file reference 6583-574-PCT	**FOR FURTHER ACTION** See paragraphs 1 and 4 below
International application No. PCT/US14/34254	International filing date *(day/month/year)* 15 April 2014 (15.04.2014)
Applicant FLEXTRONICS AP, LLC	

1. ☒ The applicant is hereby notified that the international search report and the written opinion of the International Searching Authority have been established and are transmitted herewith.

   Filing of amendments and statement under Article 19:
   The applicant is entitled, if he so wishes, to amend the claims of the international application (see Rule 46):

   When? The time limit for filing such amendments is normally two months from the date of transmittal of the international search report.

   How? Directly to the International Bureau of WIPO preferably through ePCT or on paper to, 34 chemin des Colombettes 1211 Geneva 20, Switzerland, Facsimile No.: +41 22 338 82 70

   For more detailed instructions, see *PCT Applicant's Guide*, International Phase, paragraphs 9.004 – 9.011.

2. ☐ The applicant is hereby notified that no international search report will be established and that the declaration under Article 17(2)(a) to that effect and the written opinion of the International Searching Authority are transmitted herewith.

3. ☐ **With regard to any protest** against payment of (an) additional fee(s) under Rule 40.2, the applicant is notified that:

   ☐ the protest together with the decision thereon has been transmitted to the International Bureau together with any request to forward the texts of both the protest and the decision thereon to the designated Offices.

   ☐ no decision has been made yet on the protest; the applicant will be notified as soon as a decision is made.

4. **Reminders**

   The applicant may **submit comments on an informal basis on the written opinion of the International Searching Authority** to the International Bureau. These comments will be made available to the public after international publication. The International Bureau will send a copy of such comments to all designated Offices unless an international preliminary examination report has been or is to be established.

   Shortly after the expiration of **18 months from the priority date, the international application will be published** by the International Bureau. If the applicant wishes to avoid or postpone publication, a notice of withdrawal of the international application, or of the priority claim, must reach the International Bureau before the completion of the technical preparations for international publication (Rules 90*bis*.1 and 90*bis*.3).

   Within **19 months** from the priority date, but only in respect of some designated Offices, a demand for international preliminary examination must be filed if the applicant wishes to postpone the entry into the national phase **until 30 months** from the priority date (in some Offices even later); otherwise, the applicant must, **within 20 months** from the priority date, perform the prescribed acts for **entry into the national phase** before those designated Offices. In respect of other designated Offices, the time limit of **30 months** (or later) will apply even if no demand is filed within 19 months. For details about the applicable time limits, Office by Office, see www.wipo.int/pct/en/texts/time_limits.html and the *PCT Applicant's Guide*, National Chapters.

   Within **19 months from the priority date, the applicant may request that a supplementary international search be carried out** by a different International Searching Authority that offers this service (Rule 45*bis*.1). The procedure for requesting supplementary international search is described in the *PCT Applicant's Guide*, International Phase, paragraphs 8.006-8.032.

Name and mailing address of the ISA/ Mail Stop PCT, Attn: ISA/US Commissioner for Patents P.O. Box 1450, Alexandria, Virginia 22313-1450 Facsimile No. 571-273-3201	Authorized officer Shane Thomas PCT Helpdesk: 571-272-4300 Telephone No. PCT OSP: 571-272-7774

Form PCT/ISA/220 (July 2014)

PATENT COOPERATION TREATY

PCT

INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference 6583-574-PCT	**FOR FURTHER ACTION**	see Form PCT/ISA/220 as well as, where applicable, item 5 below.
International application No. PCT/US14/34254	International filing date *(day/month/year)* 15 April 2014 (15.04.2014)	(Earliest) Priority Date *(day/month/year)* 15 April 2013 (15.04.2013)
Applicant FLEXTRONICS AP, LLC		

This international search report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This international search report consists of a total of 3 sheets.

☐ It is also accompanied by a copy of each prior art document cited in this report.

1. **Basis of the report**

a. With regard to the **language**, the international search was carried out on the basis of:

☒ the international application in the language in which it was filed.

☐ a translation of the international application into _____ which is the language of a translation furnished for the purposes of international search (Rules 12.3(a) and 23.1(b)).

b. ☐ This international search report has been established taking into account the **rectification of an obvious mistake** authorized by or notified to this Authority under Rule 91 (Rule 43.6*bis*(a)).

c. ☐ With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, see Box No. I.

2. ☐ **Certain claims were found unsearchable** (see Box No. II).

3. ☐ **Unity of invention is lacking** (see Box No. III).

4. With regard to the **title**,

☐ the text is approved as submitted by the applicant.

☒ the text has been established by this Authority to read as follows:

CENTRAL NETWORK FOR AUTOMATED CONTROL OF VEHICULAR TRAFFIC

5. With regard to the **abstract**,

☐ the text is approved as submitted by the applicant.

☒ the text has been established, according to Rule 38.2, by this Authority as it appears in Box No. IV. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.

6. With regard to the **drawings**,

a. the figure of the **drawings** to be published with the abstract is Figure No. 20A

☐ as suggested by the applicant.

☐ as selected by this Authority, because the applicant failed to suggest a figure.

☒ as selected by this Authority, because this figure better characterizes the invention.

b. ☐ none of the figures is to be published with the abstract.

Form PCT/ISA/210 (first sheet) (July 2009)

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US14/34254

Box No. IV Text of the abstract (Continuation of item 5 of the first sheet)

Methods and systems for a traffic control system provide arrangements and processes for managing automated vehicles. The traffic control system can register vehicles and then control the operation of the vehicles through a section of roadway. The automated control includes the communication of directions and other messages that ensure the proper function of the vehicle while under the guidance of the traffic control system.

Form PCT/ISA/210 (continuation of first sheet (3)) (July 2009)

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US14/34254

A. CLASSIFICATION OF SUBJECT MATTER
IPC(8) - G08G 1/0968; G01C 21/20; G05D 1/02 (2014.01)
CPC - G08G 1/0125, 1/164; G05D 1/0088
According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
IPC(8) Classification(s): G06F 3/0484; G01C 21/26, 21/20; G08G 1/0968, 1/133, 1/09; G05D 1/02 (2014.01)
CPC Classification(s): G08G 1/0125, 1/164; G05D 1/0088

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)
MicroPatent (US-G, US-A, EP-A, EP-B, WO, JP-bib, DE-C, B, DE-A, DE-T, DE-U, GB-A, FR-A); ProQuest; IEEE/IEEEXplore; Google/Google Scholar; KEYWORDS: automate, control, vehicular, traffic, server, message

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 2008/0161986 A1 (BREED, D) 03 July 2008; Figures 5, 27; Paragraphs [0032], [0334], [0355], [0375], [0407], [0418], [0435], [0487], [0492], [0593].	1-15
A	US 2010/0125387 A1 (SEHYUN, P et al.) 20 May 2010; entire document.	1-15
A	US 2009/0125174 A1 (DELEAN, B) 14 May 2009; entire document.	1-15

☐ Further documents are listed in the continuation of Box C. ☐

* Special categories of cited documents:
"A" document defining the general state of the art which is not considered to be of particular relevance
"E" earlier application or patent but published on or after the international filing date
"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
"O" document referring to an oral disclosure, use, exhibition or other means
"P" document published prior to the international filing date but later than the priority date claimed
"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
12 August 2014 (12.08.2014)	15 SEP 2014
Name and mailing address of the ISA/US Mail Stop PCT, Attn: ISA/US, Commissioner for Patents P.O. Box 1450, Alexandria, Virginia 22313-1450 Facsimile No. 571-273-3201	Authorized officer: Shane Thomas PCT Helpdesk: 571-272-4300 PCT OSP: 571-272-7774

Form PCT/ISA/210 (second sheet) (July 2009)

PATENT COOPERATION TREATY

From the
INTERNATIONAL SEARCHING AUTHORITY

To: Tadd F. Wilson
Sheridan Ross P.C.
1560 Broadway, Suite 1200
Denver, CO 80202
United States of America

PCT

WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY

(PCT Rule 43*bis*.1)

Date of mailing *(day/month/year)*	15 SEP 2014

Applicant's or agent's file reference	FOR FURTHER ACTION
6583-574-PCT	See paragraph 2 below

International application No.	International filing date *(day/month/year)*	Priority date *(day/month/year)*
PCT/US14/34254	15 April 2014 (15.04.2014)	15 April 2013 (15.04.2013)

International Patent Classification (IPC) or both national classification and IPC
IPC(8) - G08G 1/0968; G01C 21/20; G05D 1/02 (2014.01)
CPC - G08G 1/0125, 1/164; G05D 1/0088

Applicant FLEXTRONICS AP, LLC

1. This opinion contains indications relating to the following items:

- ☒ Box No. I Basis of the opinion
- ☐ Box No. II Priority
- ☐ Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- ☐ Box No. IV Lack of unity of invention
- ☒ Box No. V Reasoned statement under Rule 43*bis*.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- ☐ Box No. VI Certain documents cited
- ☒ Box No. VII Certain defects in the international application
- ☒ Box No. VIII Certain observations on the international application

2. **FURTHER ACTION**

If a demand for international preliminary examination is made, this opinion will be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA") except that this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1 *bis*(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to th IPEA a written reply together, where appropriate, with amendments, before the expiration of 3 months from the date of mailing of Fom PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

For further options, see Form PCT/ISA/220.

Name and mailing address of the ISA/US	Date of completion of this opinion	Authorized officer:
Mail Stop PCT, Attn: ISA/US Commissioner for Patents P.O. Box 1450, Alexandria, Virginia 22313-1450 Facsimile No. 571-273-3201	12 August 2014 (12.08.2014)	Shane Thomas PCT Helpdesk: 571-272-4300 PCT OSP: 571-272-7774

Form PCT/ISA/237 (cover sheet) (July 2011)

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY

International application No.
PCT/US14/34254

Box No. I Basis of this opinion

1. With regard to the **language**, this opinion has been established on the basis of:
   - ☒ the international application in the language in which it was filed.
   - ☐ a translation of the international application into _____ which is the language of a translation furnished for the purposes of international search (Rules 12.3(a) and 23.1(b)).

2. ☐ This opinion has been established taking into account the **rectification of an obvious mistake** authorized by or notified to this Authority under Rule 91 (Rule 43*bis*.1(a))

3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, this opinion has been established on the basis of a sequence listing filed or furnished:
   a. (means)
      - ☐ on paper
      - ☐ in electronic form
   b. (time)
      - ☐ in the international application as filed
      - ☐ together with the international application in electronic form
      - ☐ subsequently to this Authority for the purposes of search

4. ☐ In addition, in the case that more than one version or copy of a sequence listing has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.

5. Additional comments:

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY

International application No.
PCT/US14/34254

Box No. V **Reasoned statement under Rule 43*bis*.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

1. Statement

Novelty (N)	Claims	NONE	YES
	Claims	1-15	NO
Inventive step (IS)	Claims	NONE	YES
	Claims	1-15	NO
Industrial applicability (IA)	Claims	1-15	YES
	Claims	NONE	NO

2. Citations and explanations:

Claims 1-15 lack novelty under PCT Article 33(2) as being anticipated by US 2008/0161986 A1 (BREED).

As per claim 1, Breed discloses a method for controlling a vehicle (enabling autonomous vehicle travel; Abstract), comprising: a control server, including a processor and associated with a traffic control system (a network server of a central data facility 300 (control server) including a microprocessor that communicates with traffic control devices controlled collectively to convey instructions for vehicular control (a traffic control system); Figures 5, 27; Paragraphs [0281], [0375], [0407], [0492]), receiving a registration of a vehicle (identifying the vehicle by a code based on the vehicle ID (a registration); Paragraph [0355]); the control server receiving travel information from the vehicle (information received by the network server (the control server) from the vehicle includes a picture to be interpreted for map updating (travel information); Paragraph [0375]); the control server determining a control arrangement for the vehicle (the central server checks a potential route and repeats the process based on GPS coordinates, road network sensors, and feedback from the driver; Paragraphs [0418], [0593]); and the control server sending a control message to control the vehicle in the traffic control system (the central server generates instructions to send to the vehicle for autonomous operation of the vehicle (a control message to control the vehicle) traveling in dedicated lanes with the surrounding traffic control devices (the traffic control system); Paragraphs [0435], [0487]).

As per claim 2, Breed discloses the method of claim 1. Breed additionally discloses, wherein the vehicle automatically, without driver input, follows instructions in the control message (the generated instructions sent to the vehicle allow the vehicle to be operated autonomously (without driver input) by converting the received instructions into operational commands (vehicle automatically follows instructions in the control message); Paragraph [0435]).

As per claim 3, Breed discloses the method of claim 2. Breed additionally discloses, wherein the travel information includes a current location and a destination (information transmitted from the vehicle (travel information) includes data about its location and destination of the vehicle; Figure 20; Paragraphs [0201], [0202]).

As per claim 4, Breed discloses the method of claim 3. Breed additionally discloses, wherein the control arrangement includes a speed and a position within traffic to which the vehicle must adhere (the information required for control of the vehicle (control arrangement) includes the local speed limit and restricted points of interest based on position of the vehicle and traffic information (a speed and a position within traffic to which the vehicle must adhere); Paragraph [0360]).

As per claim 5, Breed discloses the method of claim 4. Breed additionally discloses, wherein the vehicle generates a route based on the control arrangement (the vehicle resident system determines an alternate route the vehicle should take based on road conditions and traffic information (generates a route based on the control arrangement); Paragraph [0418]).

As per claim 6, Breed discloses the method of claim 5. Breed additionally discloses, wherein the vehicle follows the route automatically without driver input (the autonomous operation of the vehicle (without drive input) is arranged as the vehicle is controlled based on data about its travel lanes; Paragraph [0279]).

As per claim 7, Breed discloses the method of claim 6. Breed additionally discloses, wherein the control server sends a second control message to change a behavior of the vehicle (the central server (control server) informs vehicles of an emergency (a second control message) signaling to and controlling vehicles approaching an emergency to reduce vehicle speed (change a behavior of the vehicle); Paragraphs [0356], [0358]).

As per claim 8, Breed discloses the method of claim 7. Breed additionally discloses, wherein the second control message instructs the vehicle to exit from a roadway (while informing vehicles of an emergency (the second control message), the system guides the vehicle to leave the roadway when its speed is below a certain level (instructs the vehicle to exit from a roadway); Paragraph [0077]).

As per claim 9, Breed discloses the method of claim 8. Breed additionally discloses, wherein the control message includes a lane designation (the instructions generated (control message) optimize usage of dedicated lanes; Paragraph [0435]).

-***-Continued Within the Next Supplemental Box-***-

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY

International application No.
PCT/US14/34254

Box No. VII Certain defects in the international application

The following defects in the form or contents of the international application have been noted:

Claims 8 and 13 are objected to under PCT Rule 66.2(a)(iii) as containing the following defects in the form or contents thereof: Claims 8 and 13, in line 1 and in lines 2-3, respectively, recite "message is instructs the vehicle". As best understood, this is considered to be a typographical error and will be interpreted as "message instructs the vehicle".

Claim 10 is objected to under PCT Rule 66.2(a)(iii) as containing the following defects in the form or contents thereof: Claim 10, in lines 1-2, recites "a second the control message". As best understood, this is considered to be a typographical error and will be interpreted as "a second control message".

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY

International application No.
PCT/US14/34254

Box No. VIII Certain observations on the international application

The following observations on the clarity of the claims, description, and drawings or on the question whether the claims are fully supported by the description, are made:

Claims 4 and 14 are objected to under PCT Rule 66.2(a)(v) as lacking clarity under PCT Article 6 because claims 4 and 14 are indefinite for the following reason(s): Claims 4 and 14 refer to "the control information" in line 1. There is a lack of antecedent basis for these limitations in these claims. As best understood, the limitation is interpreted to read "the control arrangement".

Claims 8 and 13 are objected to under PCT Rule 66.2(a)(v) as lacking clarity under PCT Article 6 because claims 8 and 13 are indefinite for the following reason(s): Claims 8 and 13 refer to "the second message" in line 1 and line 2, respectively. There is a lack of antecedent basis for theses limitations in these claims. As best understood, the limitation is interpreted to read "the second control message".

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY

International application No.
PCT/US14/34254

Supplemental Box

In case **the space in any of the preceding boxes is not sufficient.**
Continuation of:

-***-Continued from Previous Supplemental Box-***-

As per claim 10, Breed discloses the method of claim 9. Breed additionally discloses, wherein a second vehicle receives a second control message (the emergency data transfers signals to another vehicle approaching the emergency to reduce vehicle speed (a second vehicle receives a second control message); Paragraph [0358]), wherein the second control message is different from the control message sent to the vehicle (which differs from the control message sent to the vehicle during normal autonomous operation which includes acceleration (different from the control message sent to the vehicle); Paragraph [0435]).

As per claim 11, Breed discloses a control server associated with a traffic control system (a central data and storage facility 300 (a control server) that communicates with traffic control devices controlled collectively to convey instructions for vehicular control (a traffic control system); Figure 27; Paragraphs [0281], [0375], [0407]) comprising: a processor operable to execute one or more modules (a processor or controller performs various operations (execute one or more modules); Figure 5; Paragraphs [0032], [0492]), the modules comprising: a registration module operable to: receive a registration of a vehicle (a receiver that rectifies bits (a registration module) from a 64 bit code transmitted by the vehicle that includes the vehicle identification number (a registration of a vehicle); Paragraph [0334]); a traffic control module operable to: receive travel information from the vehicle (a communications entity, or network server (traffic control module), receives from the vehicle a picture to be interpreted for map updating (travel information from the vehicle); Paragraph [0375]); determine a control arrangement for the vehicle (the server determines a route based on GPS coordinates and checking road network sensors (a control arrangement for the vehicle); Paragraphs [0418], [0593]); and send a control message to control the vehicle in the traffic control system (the central data facility server generates instructions to send to the vehicle for autonomous operation of the vehicle (a control message to control the vehicle) traveling in dedicated lanes with surrounding traffic control devices (the traffic control system); Paragraphs [0435], [0487]).

As per claim 12, Breed discloses the control server of claim 11. Breed additionally discloses, wherein the vehicle generates a route based on the control arrangement (the vehicle resident system determines an alternate route the vehicle should take based on road conditions and traffic information (generates a route based on the control arrangement); Paragraph [0418]), and wherein the vehicle follows the route automatically without driver input (the autonomous operation of the vehicle (without driver input) is arranged as the vehicle is controlled based on data about travel lanes (the vehicle follows the route automatically); Paragraph [0279]).

As per claim 13, Breed discloses the control server of claim 12. Breed additionally discloses, wherein the control server sends a second control message to change a behavior of the vehicle (the central server (control server) informs the vehicles of an emergency (a second control message) that signals to and controls vehicles approaching an emergency to reduce vehicle speed (change a behavior of the vehicle); Paragraphs [0356], [0358]), and wherein the second control message instructs the vehicle to exit from a roadway (a vehicle is guided to leave the roadway when its speed is below a certain level (the second control message instructs the vehicle to exit from a roadway); Paragraph [0077]).

As per claim 14, Breed discloses the control server of claim 13. Breed additionally discloses, wherein the control arrangement includes one or more of a lane, a speed, and a position within traffic to which the vehicle must adhere (the information required for control of the vehicle (control arrangement) includes the local speed limit (a speed within traffic to which the vehicle must adhere); Paragraph [0360]).

As per claim 15, Breed discloses the control server of claim 14. Breed additionally discloses, wherein the travel information includes a current location and a destination (information transmitted from the vehicle (travel information) includes data about its location and destination of the vehicle; Figure 20; Paragraphs [0201], [0202]).

Claims 1-15 have industrial applicability as defined by PCT Article 33(4) because the subject matter can be made or used in industry.

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
14/253,729	04/15/2014	Christopher P. Ricci	6583-555	8377

111285 7590 11/19/2014

Sheridan Ross P.C.
1560 Broadway
Suite 1200
Denver, CO 80202

EXAMINER
DUNN, ALEX C

ART UNIT	PAPER NUMBER
3663	

NOTIFICATION DATE	DELIVERY MODE
11/19/2014	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

flexpatents@sheridanross.com
edocket@sheridanross.com

Office Action Summary	Application No. 14/253,729	Applicant(s) RICCI, CHRISTOPHER P.	
	Examiner ALEX C. DUNN	Art Unit 3663	AIA (First Inventor to File) Status Yes

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTHS FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *4/15/2014*.

☐ A declaration(s)/affidavit(s) under **37 CFR 1.130(b)** was/were filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ An election was made by the applicant in response to a restriction requirement set forth during the interview on _____; the restriction requirement and election have been incorporated into this action.

4)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims*

5)☒ Claim(s) *1-20* is/are pending in the application.

5a) Of the above claim(s) _____ is/are withdrawn from consideration.

6)☐ Claim(s) _____ is/are allowed.

7)☒ Claim(s) *1-20* is/are rejected.

8)☐ Claim(s) _____ is/are objected to.

9)☐ Claim(s) _____ are subject to restriction and/or election requirement.

* If any claims have been determined allowable, you may be eligible to benefit from the **Patent Prosecution Highway** program at a participating intellectual property office for the corresponding application. For more information, please see http://www.uspto.gov/patents/init_events/pph/index.jsp or send an inquiry to PPHfeedback@uspto.gov.

Application Papers

10)☐ The specification is objected to by the Examiner.

11)☒ The drawing(s) filed on *4/15/2014* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

Certified copies:

a)☐ All b)☐ Some** c)☐ None of the:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

** See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Information Disclosure Statement(s) (PTO/SB/08a and/or PTO/SB/08b) Paper No(s)/Mail Date _____.

3) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .

4) ☐ Other: _____.

1. The present application, filed on or after March 16, 2013, is being examined under the first inventor to file provisions of the AIA.

DETAILED ACTION

Claim Rejections - 35 USC § 102

2. In the event the determination of the status of the application as subject to AIA 35 U.S.C. 102 and 103 (or as subject to pre-AIA 35 U.S.C. 102 and 103) is incorrect, any correction of the statutory basis for the rejection will not be considered a new ground of rejection if the prior art relied upon, and the rationale supporting the rejection, would be the same under either status.

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (a)(2) the claimed invention was described in a patent issued under section 151, or in an application for patent published or deemed published under section 122(b), in which the patent or application, as the case may be, names another inventor and was effectively filed before the effective filing date of the claimed invention.

4. Claims 1 – 6, 11 – 13 and 16 – 18 are rejected under 35 U.S.C. 102(a)(2) as being anticipated by Link II, et al., (20130116882).

5. (Claims 1, 11 and 16): Link discloses a method for providing navigation information for a conveyance, comprising: a vehicle control system, including a processor, determining an origin location (figs. 1 and 9; [0024]); the vehicle control system determining two or more destination locations ([0057]); the vehicle control system determining a timeframe for the route (fig. 3; [0062]); and the vehicle control

system generating a best route to the two or more destinations in the timeframe (fig. 10; [0062]; [0096 – 0097]).

6. (Claims 2 – 4, 12 and 17): Link discloses a method for providing navigation information for a conveyance, wherein the timeframe is an amount of time available to a user to travel the route, wherein the best route includes a return to the origin location, and wherein the user provide the amount of time available (fig. 3; [0062]; [0096 – 0097]).

7. (Claims 5 – 6, 13 and 18): Link discloses a method for providing navigation information for a conveyance, wherein the route suggestion module accesses preference data in a user profile to determine preferred routes, wherein the best route is a preferred route (fig. 3; [0052]; [0055 - 0056]).

Claim Rejections - 35 USC § 103

8. In the event the determination of the status of the application as subject to AIA 35 U.S.C. 102 and 103 (or as subject to pre-AIA 35 U.S.C. 102 and 103) is incorrect, any correction of the statutory basis for the rejection will not be considered a new ground of rejection if the prior art relied upon, and the rationale supporting the rejection, would be the same under either status.

9. The following is a quotation of 35 U.S.C. 103 which forms the basis for all obviousness rejections set forth in this Office action:

> A patent for a claimed invention may not be obtained, notwithstanding that the claimed invention is not identically disclosed as set forth in section 102 of this title, if the differences between the claimed invention and the prior art are such that the claimed invention as a whole would have been obvious before the effective filing date of the claimed invention to a person having ordinary skill in the art to which the claimed invention pertains. Patentability shall not be negated by the manner in which the invention was made.

10. Claims 7 – 8, 14 and 19 are rejected under 35 U.S.C. 103 as being unpatentable over Link II, et al., (20130116882) as applied to claims 1, 11 and 16 above, and further in view of Seltzer et al., (20090210143).

11. (Claims 7 – 8, 14 and 19): Link discloses a method for providing navigation information for a conveyance, comprising: a vehicle control system, including a processor, determining an origin location (figs. 1 and 9; [0024]); the vehicle control system determining two or more destination locations ([0057]). Link does not explicitly teach a user profile that avoids specific locations. However, in a related invention, Seltzer teaches a route based activity planner, wherein the user profile includes a first location that should be avoided, and wherein the best route avoids the first location ([0003]; [0027]; [0063]). It would have been obvious to one of ordinary skill in the art before the effective filing date of the claimed invention to modify Link to store in a user's profile, specific known trouble areas to avoid, as a very desirable feature in modern navigation systems.

12. **Claims 9 – 10, 15 and 20 are rejected under 35 U.S.C. 103 as being unpatentable over Link II, et al., (20130116882) as applied to claims 1, 11 and 16 above, and further in view of Seltzer et al., (20090210143) and in further view of Sumizawa (20110077855).**

13. (Claims 9 – 10, 15 and 20): Link discloses a method for providing navigation information for a conveyance, comprising: a vehicle control system, including a processor, determining an origin location (figs. 1, 3 and 9; [0024]); the vehicle control system determining two or more destination locations ([0057]). Seltzer teaches a route

based activity planner, wherein the user profile includes a first location that should be avoided, and wherein the best route avoids the first location ([0003]; [0027]; [0063]). Link and Seltzer do not explicitly teach a first location being an area between the original location and a destination. However, in a related inventions Sumizawa teaches a navigation system, wherein the first location is an area between the origin location and at least one destination (abstract; figs. 3 - 4; [0066]). (Note: The feature of an address in a user profile is taught in Link's fig. 3). It would have been obvious to one of ordinary skill in the art before the effective filing date of the claimed invention to modify Link to use an area instead of a single location, as a very desirable feature in modern navigation systems.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Please refer to form 892 for cited references.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to ALEX C. DUNN whose telephone number is (571)270-5323. The examiner can normally be reached on Flex.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tom Tarcza can be reached on 26979. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

ALEX C. DUNN
Examiner, Art Unit 3663

/THOMAS TARCZA/
Supervisory Patent Examiner, Art Unit 3663n

Notice of References Cited	Application/Control No. 14/253,729	Applicant(s)/Patent Under Reexamination RICCI, CHRISTOPHER P.	
	Examiner ALEX C. DUNN	Art Unit 3663	Page 1 of 1

U.S. PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	Classification
*	A	US-2002/0026278 A1	02-2002	Feldman et al.	701/117
*	B	US-6,356,838 B1	03-2002	Paul, Sunil	701/410
*	C	US-2009/0210143 A1	08-2009	Seltzer et al.	701/200
*	D	US-2009/0222200 A1	09-2009	LINK et al.	701/202
*	E	US-2011/0077855 A1	03-2011	SUMIZAWA, Akio	701/201
*	F	US-8,233,919 B2	07-2012	Haag et al.	455/456.3
*	G	US-2013/0116882 A1	05-2013	Link et al.	701/31.4
*	H	US-8,634,984 B2	01-2014	Sumizawa, Akio	701/31.4
*	I	US-8,793,065 B2	07-2014	Seltzer et al.	701/400
*	J	US-8,798,918 B2	08-2014	Onishi et al.	701/420
*	K	US-2014/0278071 A1	09-2014	SAN FILIPPO et al.	701/465
	L	US-			
	M	US-			

FOREIGN PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Country	Name	Classification
	N					
	O					
	P					
	Q					
	R					
	S					
	T					

NON-PATENT DOCUMENTS

*		Include as applicable: Author, Title Date, Publisher, Edition or Volume, Pertinent Pages)
	U	
	V	
	W	
	X	

*A copy of this reference is not being furnished with this Office action. (See MPEP § 707.05(a).)
Dates in MM-YYYY format are publication dates. Classifications may be US or foreign.