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UTILITY PATENT APPLICATION TRANSMITTAL <i>(Only for new nonprovisional applications under 37 CFR 1.53(b))</i>	Attorney Docket No.	571/8
	First Named Inventor	BOSHERNITZAN, Yaniv et al
	Title	SYSTEM AND METHOD FOR CONTROLLING A TERMINAL DEVICE
	Express Mail Label No.	

APPLICATION ELEMENTS <i>See MPEP chapter 600 concerning utility patent application contents.</i>	Commissioner for Patents P.O. Box 1450 Alexandria, VA 22313-1450
ADDRESS TO:	ACCOMPANYING APPLICATION PAPERS
1. ☒ Fee Transmittal Form (PTO/SB/17 or equivalent) 2. ☒ Applicant asserts small entity status. See 37 CFR 1.27 3. ☐ Applicant certifies micro entity status. See 37 CFR 1.29. Applicant must attach form PTO/SB/15A or B or equivalent. 4. ☒ Specification [Total Pages <u>31</u>] Both the claims and abstract must start on a new page. (See MPEP § 608.01(a) for information on the preferred arrangement) 5. ☒ Drawing(s) (35 U.S.C. 113) [Total Sheets <u>6</u>] 6. ☒ Inventor's Oath or Declaration [Total Pages <u>2</u>] (including substitute statements under 37 CFR 1.64 and assignments serving as an oath or declaration under 37 CFR 1.63(e)) a. ☒ Newly executed (original or copy) b. ☐ A copy from a prior application (37 CFR 1.63(d)) 7. ☒ Application Data Sheet * See note below. See 37 CFR 1.76 (PTO/AIA/14 or equivalent) 8. CD-ROM or CD-R in duplicate, large table, or Computer Program (Appendix) ☐ Landscape Table on CD 9. Nucleotide and/or Amino Acid Sequence Submission (if applicable, items a. – c. are required) a. ☐ Computer Readable Form (CRF) b. ☐ Specification Sequence Listing on: i. ☐ CD-ROM or CD-R (2 copies); or ii. ☐ Paper c. ☐ Statements verifying identity of above copies	10. ☐ Assignment Papers (cover sheet & document(s)) Name of Assignee <u>Swan Solutions Inc.</u> 11. ☐ 37 CFR 3.73(c) Statement ☒ Power of Attorney (when there is an assignee) 12. ☐ English Translation Document (if applicable) 13. ☐ Information Disclosure Statement (PTO/SB/08 or PTO-1449) ☐ Copies of citations attached 14. ☐ Preliminary Amendment 15. ☐ Return Receipt Postcard (MPEP § 503) (Should be specifically itemized) 16. ☐ Certified Copy of Priority Document(s) (if foreign priority is claimed) 17. ☐ Nonpublication Request Under 35 U.S.C. 122(b)(2)(B)(i). Applicant must attach form PTO/SB/35 or equivalent. 18. ☐ Other: Declaration/Oath, and POA are combined, Assignment will follow

***Note:** (1) Benefit claims under 37 CFR 1.78 and foreign priority claims under 1.55 **must** be included in an Application Data Sheet (ADS).
(2) For applications filed under 35 U.S.C. 111, the application must contain an ADS specifying the applicant if the applicant is an assignee, person to whom the inventor is under an obligation to assign, or person who otherwise shows sufficient proprietary interest in the matter. See 37 CFR 1.46(b).

19. CORRESPONDENCE ADDRESS					
☒ The address associated with Customer Number: <u>91209</u> OR ☐ Correspondence address below					
Name					
Address					
City		State		Zip Code	
Country		Telephone		Email	
Signature	/Andrew W. Chu/			Date	2016-02-12
Name (Print/Type)	Andrew W. Chu			Registration No. (Attorney/Agent)	46625

This collection of information is required by 37 CFR 1.53(b). 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 12 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.

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 disclosure of these records is required by the Freedom of Information Act.
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 inspection 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.

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Application Data Sheet 37 CFR 1.76		Attorney Docket Number	571/8
		Application Number	
Title of Invention	SYSTEM AND METHOD FOR CONTROLLING A TERMINAL DEVICE		
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		
	Yaniv		BOSHERNITZAN			
Residence Information (Select One) ☒ US Residency ☐ Non US Residency ☐ Active US Military Service						
City	Houston	State/Province	TX	Country of Residence ⁱ	US	
Mailing Address of Inventor:						
Address 1	5542 Valkeith Dr.					
Address 2						
City	Houston	State/Province	TX			
Postal Code	77096	Country ⁱ	US			
Inventor	2				Remove	
Legal Name						
Prefix	Given Name	Middle Name	Family Name	Suffix		
	Ohad		NEZER			
Residence Information (Select One) ☒ US Residency ☐ Non US Residency ☐ Active US Military Service						
City	Houston	State/Province	TX	Country of Residence ⁱ	US	
Mailing Address of Inventor:						
Address 1	4307 Lemac Dr.					
Address 2						
City	Houston	State/Province	TX			
Postal Code	77096	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).

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Application Data Sheet 37 CFR 1.76		Attorney Docket Number	571/8
		Application Number	
Title of Invention	SYSTEM AND METHOD FOR CONTROLLING A TERMINAL DEVICE		

☐ An Address is being provided for the correspondence information of this application.			
Customer Number	91209		
Email Address	achu@craftchu.com	Add Email	Remove Email

Application Information:

Title of the Invention	SYSTEM AND METHOD FOR CONTROLLING A TERMINAL DEVICE		
Attorney Docket Number	571/8	Small Entity Status Claimed	☒
Application Type	Nonprovisional		
Subject Matter	Utility		
Total Number of Drawing Sheets (if any)	6	Suggested Figure for Publication (if any)	1

Filing By Reference :

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.											
<table border="1"> <tr> <td>Please Select One:</td> <td>☒ Customer Number</td> <td>☐ US Patent Practitioner</td> <td>☐ Limited Recognition (37 CFR 11.9)</td> </tr> <tr> <td>Customer Number</td> <td colspan="3">91209</td> </tr> </table>				Please Select One:	☒ Customer Number	☐ US Patent Practitioner	☐ Limited Recognition (37 CFR 11.9)	Customer Number	91209		
Please Select One:	☒ Customer Number	☐ US Patent Practitioner	☐ Limited Recognition (37 CFR 11.9)								
Customer Number	91209										

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Application Data Sheet 37 CFR 1.76		Attorney Docket Number	571/8
		Application Number	
Title of Invention	SYSTEM AND METHOD FOR CONTROLLING A TERMINAL DEVICE		

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	62115769	2015-02-13	
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

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.

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Application Data Sheet 37 CFR 1.76		Attorney Docket Number	571/8
		Application Number	
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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.

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. ☒		
Organization Name	Swan Solutions Inc.	

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Application Data Sheet 37 CFR 1.76		Attorney Docket Number	571/8
		Application Number	
Title of Invention	SYSTEM AND METHOD FOR CONTROLLING A TERMINAL DEVICE		

Mailing Address Information For Applicant:			
Address 1	3300 Bissonnet, Suite 245		
Address 2			
City	Houston	State/Province	TX
Country	US	Postal Code	77074
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 substitute 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.				☐
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		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				

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Application Data Sheet 37 CFR 1.76		Attorney Docket Number	571/8
		Application Number	
Title of Invention	SYSTEM AND METHOD FOR CONTROLLING A TERMINAL DEVICE		

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	/Andrew W. Chu/			Date (YYYY-MM-DD)	2016-02-12
First Name	Andrew	Last Name	Chu	Registration Number	46625
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.**

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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.

DECLARATION AND POWER OF ATTORNEY FOR PATENT APPLICATION

As a below named inventor, I hereby declare that:

My residence, post office address and citizenship are as stated next to my name.

This application was made or was authorized to be made by me/us, the undersigned person(s). I believe I am the original and sole inventor (if only one name is listed below) or an original and joint inventor (if plural names are listed below) of the subject matter which is claimed and for which a patent is sought on the invention entitled:

SYSTEM AND METHOD FOR CONTROLLING A TERMINAL DEVICE.

the specification of which is attached hereto unless the following box is checked:

☒ was filed on _____ as United States Application Number or PCT International Application Number _____ and was amended on (if applicable). (ref. 571/8)

I hereby state that I have reviewed and understand the contents of the above-identified specification, including the claims, as amended by any amendment referred to above.

I acknowledge the duty to disclose information, which is material to patentability of this application in accordance with Title 37, Code of Federal Regulations, § 1.56.

I hereby claim foreign priority under Title 35, United States Code, § 119 (a)-(d) or § 365(a) of any PCT International application which designated at least one country other than the United States, listed below and have also identified below, by checking the box, any foreign application for patent or inventor's certificate, or PCT International application having a filing date before that of the application on which priority is claimed.

_____	_____	_____	Priority Not Claimed
(Number)	(Country)	(Day/Month/Year)	☐

I hereby claim the benefit under Title 35, United States code, § 119(e) of any United States provisional application(s) listed below.

<u>62115769</u>	<u>2015-02-13</u>
(Application No.)	(Filing Date)

I hereby claim the benefit under Title 35, United States Code, § 120 of any United States application(s), or § 365(c) of any PCT International application designating the United States, listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in the prior United States or Pct International application in the manner provided by the first paragraph of Title 35, United States Code § 112, I acknowledge the duty to disclose information which is material to patentability as defined in Title 37, Code of Federal Regulation, § 1.56 which became available between the filing date of the prior application and the national or PCT International filing date of this application.

_____	_____	_____
(Application No.)	(Filing Date)	(Status) (patented, pending, abandoned)

571.008-1

I hereby acknowledge that any willful false statement made in this declaration is punishable under Section 1001 of Title 18 of the United States Code by fine or imprisonment of not more than five (5) years, or both.

Power of Attorney: As a named inventor, I hereby appoint the following attorney(s) and/or agents) to prosecute this application and transact all business in the Patent and Trademark Office connected therewith: (list name and registration Number)

Customer No. 91209
Andrew W. Chu: 46625

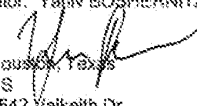
Send Correspondence to: (Customer No. 91209)

Andrew W. Chu
Craft Chu PLLC
1445 North Loop West, Suite 410
Houston, Texas 77008

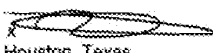
Direct Telephone Calls to: (name and telephone number)

Andrew W. Chu; 713 8029144 ext 301

Full Name of First Inventor: Yaniv BOSHERNITZAN

Inventor's Signature: x  Date: 2/12/2016
Residence: Houston, Texas
Citizenship: US
Post Office Address: 5542 Valkeith Dr.
Houston, Texas 77096 US

Full Name of Second Inventor: Chad NEZER

Inventor's Signature: x  Date: 2/12/2016
Residence: Houston, Texas
Citizenship: IL
Post Office Address: 4307 Lemar Dr.
Houston, Texas 77096 US

571.008-2

SYSTEM AND METHOD FOR CONTROLLING A TERMINAL DEVICE

CROSS-REFERENCE TO RELATED APPLICATIONS

The present application claims priority under 35 U.S.C. Section 119(e) from U.S. Provisional Patent Application Serial No. 62/115769, filed on 13 February 2015, entitled "CONTROL INTERFACE SYSTEM AND METHOD".

See also Application Data Sheet.

STATEMENT REGARDING FEDERALLY SPONSORED RESEARCH OR DEVELOPMENT

Not applicable.

THE NAMES OF PARTIES TO A JOINT RESEARCH AGREEMENT

Not applicable.

INCORPORATION-BY-REFERENCE OF MATERIAL SUBMITTED ON A COMPACT DISC OR AS A TEXT FILE VIA THE OFFICE ELECTRONIC FILING SYSTEM (EFS-WEB)

Not applicable.

STATEMENT REGARDING PRIOR DISCLOSURES BY THE INVENTOR OR A JOINT INVENTOR

Not applicable.

BACKGROUND OF THE INVENTION

1. Field of the Invention

[01] The present invention relates to a manual control system for a terminal device, such as a television, lighting fixture, thermostat or laptop. More particularly, the present invention relates to a control system on an exterior mounting surface independent from the terminal device to be controlled. Even more particularly, the present invention relates to a system to detect gestures on a mounting surface and to generate commands for the terminal device based on detected gestures.

2. Description of Related Art Including Information Disclosed Under 37 CFR 1.97 and 37 CFR 1.98.

[02] With the development of electronic technology, output devices or terminal devices are used daily and are increasingly integrated with interactive features in order to enhance convenience and functionality. Users now can use a control system or controller, such as a remote control device, to adjust lights, curtains, a thermostat etc. Existing control systems include distinct remote control devices dedicated to and associated with the particular output or terminal device to be controlled. Remote control devices can also be associated with more than one terminal device, such as a master controller for electronics and a touchscreen computer tablet made integral with furniture or walls to control lighting and room temperature. Any computer with an interface (keyboard, mouse, touch pad or touchscreen) can be a remote control device for multiple terminal devices with smart technology. Mobile phones are also known to be enabled for controlling terminal devices, such as home security cameras and door locks. Another existing control system involves voice recognition technology.

[03] Existing control systems have limitations. Each output or terminal device typically is associated with a respective remote control device, such as a controller for the cable box, a controller for the DVD player, and a controller for the sound mixer. An

excessive number of controllers is needed in order to remotely control multiple devices. Furthermore, an individual controller is often misplaced or left in locations that are not readily accessible to the user. The user must search for a controller or change locations to access the controller. Additionally, voice recognition technology often requires cumbersome training sessions to calibrate for pronunciations and accents of each particular user. Furthermore, voice recognition technology is often impaired by background noise resulting in difficulties for that control system to recognize verbal commands. Additionally, the sound produced by voice commands may be obtrusive in many environments such as in a room where others are sleeping, or in a room while watching a movie.

[04] For remote control devices associated with multiple terminal devices, for example, computer tablets with a touchscreen and computers with touchpads, remote control devices can be built into or integrated into furniture. Smart tables have been built with touchscreens that are able to receive touch-based gestures. In the case of integrating these touchscreen or touch pads into surfaces of structures such as furniture, the cost of the structure is significantly increased due to design modifications required to accommodate the remote control device, and the cost of the components and hardware. Furthermore, aesthetics are often affected. Appearances are altered when furniture, walls and surroundings are filled with touchscreens, touchpads, and other conspicuous devices. Integration of such hardware into furniture also requires the manufacturer to modify existing designs such that the hardware can be accommodated into the structure.

[05] Prior art manual control systems range from buttons on a television remote controller to a touchscreen of a mobile phone. Simple gestures of pressing dedicated buttons and complex gestures of finger motions on a touchscreen are both used to control terminal devices. Various patents and publications are available in the field of these manual control systems.

[06] U.S. Patent No. 8788978, issued to Stedman et al on July 22, 2014, teaches a gesture sensitive interface for a computer. The “pinch zoom” functionality is the subject matter, so that the detection of first and second interaction points, and the relative motion between the points are detected by sensors. A variety of sensors are disclosed to define the field, including a touch screen, camera, motion sensor, and proximity sensors.

[07] World Intellectual Property Organization Publication No. WO2013165348, published for Bess on November 7, 2013, describes a system with at least three accelerometers disposed in different locations of an area with a surface to capture respective vibration data corresponding to a command tapped onto the surface by a user. A processing system receives the vibration data from each accelerometer, identifying the command and a location of the user from the vibration data. A control signal based on the command and the location is generated.

[08] U.S. Patent Publication No. 20140225824, published for Shpunt et al on August 14, 2014, discloses flexible room controls. A control apparatus includes a projector for directing first light toward a scene that includes a hand of a user in proximity to a wall of a room and to receive the first light that is reflected from the scene,

and to direct second light toward the wall so as to project an image of a control device onto the wall. A processor detects hand motions within the projected field.

[09] U.S. Patent Publication No. 20120249416, published for Maciocci et al on October 4, 2012, describes another projection system with gesture identification. The projector is a unit worn on the body of the user to project onto surfaces, such as walls and tables. Spatial data is detected by a sensor array. Additional rendering operations may include tracking movements of the recognized body parts, applying a detection algorithm to the tracked movements to detect a predetermined gesture, applying a command corresponding to the detected predetermined gesture, and updating the projected images in response to the applied command.

[10] U.S. Patent Publication No. 20100019922, published for Van Loenen on January 28, 2010, is the known prior art for an interactive surface by tapping. Sound detection is filtered and interpreted either in the system to be controlled or else in the sensors themselves. The direction of movement of a hand stroking the surface can be interpreted as a command to increase or decrease a parameter, such as the sound volume level of a television, for example. Determination of the position of the user's hand is unnecessary.

[11] For a prior art control system, including a set of simple buttons or a complex touchpad, there is a discrete boundary or differentiation between the touch-sensitive region and non-touch regions on a surface of a remote control device. A touch-sensitive region can be bound by the button, the keypad, or the outer edge of a touchpad that is integrated in the surface. Therefore, a command is often processed the moment a contact interaction occurs between a person's hand and the button or

touchpad of an activated terminal device. For the prior art light detection devices, there is a discrete boundary of visible light as the touch-sensitive region. Only gestures within the field of projected light and only gestures made, when the projected light is activated, are processed within the control system for commands of the terminal output.

[12] There is a need to remove the boundary between the touch-sensitive region and non-touch regions so that an entire surface can be an interactive zone. For individuals with disabilities, the touch-sensitive region may not be accessible, such as a switch or a touchscreen mounted too high. Sufficient motor control to interact properly with a touchscreen may not be possible for individuals with neuro-muscular problems or other physical constraints. Elderly individuals may also need assistance to adequately view buttons and touchscreens, when controlling their terminal devices. There is a need to improve the manual control systems for all types of users with wide ranges of physical abilities.

[13] It is an object of the present invention to provide a system and method for controlling a terminal device.

[14] It is an object of the present invention to provide a manual system to control a terminal device.

[15] It is an object of the present invention to provide an interactive control system based on gestures.

[16] It is another object of the present invention to provide an interactive control system based on physical impact on a surface independent from the terminal device.

[17] It is another object of the present invention to provide an embodiment of the system for controlling a terminal device by contact interactions through an associated mounting surface.

[18] It is another object of the present invention to provide an embodiment of the system for controlling a terminal device with an interactive zone coordinated or aligned with an exterior surface.

[19] It is another object of the present invention to provide an embodiment of the interactive control system to detect a gesture as a contact interaction within an interactive zone set by a sensor.

[20] It is another object of the present invention to provide an embodiment of the system for controlling a terminal device to detect contact interactions associated with a mounting surface as data signals.

[21] It is still another object of the present invention to provide an embodiment of the system for controlling a terminal device to determine a data pattern based on the data signals.

[22] It is still another object of the present invention to provide an embodiment of the system for controlling a terminal device to match a detected data pattern with a gesture profile associated with a command of a terminal device.

[23] It is still another object of the present invention to provide an embodiment of the system for controlling a terminal device by converting a contact interaction detected through a sensor into a command associated with a gesture profile matched to a detected data pattern.

[24] These and other objectives and advantages of the present invention will become apparent from a reading of the attached specification.

BRIEF SUMMARY OF THE INVENTION

[25] Embodiments of the control system of the present invention convert any independent mounting surface into a controller for a terminal device. A physically separate mounting surface, such as a wall or table surface, can be used to activate and deactivate a television or light fixtures, without the user touching either appliance. The control system includes a housing engaged to a mounting surface, a sensor within the housing, a server in communication with the sensor, and a terminal device in communication with the server. The terminal device is to be controlled by gestures associated with the mounting surface.

[26] The housing has an engagement means for a mounting surface, such that the housing can be placed exterior, underneath or interior to the mounting surface. Planar surfaces, such as tables and walls, as well as non-planar surfaces, such as beds, can be mounting surfaces. The engagement means can include an attachment means between the housing to the mounting surface and a transmission portion connecting the sensor to the housing. In some embodiments, the transmission portion has a spring loaded portion to reduce damping of the sensor within the housing.

[27] The sensor forms an interactive zone defined by a range of the sensor, and the interactive zone is aligned with the mounting surface. The interactive zone can be coplanar, overlaying or made integral with the mounting surface. The sensor is in a fixed position relative to the engagement means, so that a contact interaction with the mounting surface within the interactive zone is detected by the sensor as data signals.

In an alternate embodiment, there can be more than one sensor. With an additional sensor, there is an additional interactive zone for detecting the same contact interaction on the mounting surface. The additional data signals from the additional sensor can be detected along with the data signals of the sensor.

[28] The contact interaction generates the data signals of the sensor through the transmission portion of the housing. In some embodiments, the contact interaction is comprised of an impact or plurality of impacts on the mounting surface, the data signals having a respective defined peak corresponding to each impact, a measured time period between each defined peak, and a defined time period after a last defined peak. A data pattern for each contact interaction is determined by each defined peak and the defined time period after the last defined peak, and each measured time period between each defined peak, if there is a plurality of impacts. When the sensor is an acoustic sensor, the data signals are sound data, such as volume, intensity, pitch, frequency, and duration. When the sensor is an accelerometer, the data signals are vibration data, such as amplitude, intensity, and duration. Other sensors, such as sensors with mechanical, light, and piezoelectric capabilities can also be incorporated into the control system. Contact interactions, such as tapping, knocking, sweeping, and dragging, can be detected by the sensor as data signals, such that different gestures of a user can be used by the present invention for controlling activity of the terminal device. In an alternate embodiment with more than one sensor, the data signals and the additional data signals can be used to determine the data pattern for the contact interaction.

[29] The server of the present invention is in communication with the sensor, including but not limited to wifi, Bluetooth, local area network, wired or other wireless

connection. The server can be comprised of a routing module, a processing module being connected to the routing module, and an output module connected to the processing module. The routing module receives the data signals from the sensor, and the processing module determines the data pattern corresponding to the data signals of the contact interaction. For more than one sensor, the data pattern corresponds to the data signals of the sensor and any additional data signals corresponding to other sensors. The processing module matches the data pattern with a gesture profile. The gesture profile is associated with a command. Once matched, the output module transmits the command to the terminal device.

[30] The terminal device can be an appliance, lighting fixture or climate regulator. Examples include a television, a thermostat, a computer, a software system, a game console, a smartphone, a device running software, a fan, a mattress adjustor, an alarm clock, and a lighting fixture. The terminal device can be comprised of a receiving module and means for initiating activity of the terminal device corresponding to the command. The activity of the terminal device can be dedicate to the particular terminal device, such as powering on and off for a lamp, raising and lowering temperature of a thermostat, answering a phone call on a smartphone, checking calendar software on a table, and changing channels on a television. The receiving module in communication with the server receives the command, and the means for initiating performs the activity. The means for initiating can be a switch or other actuating mechanism to change the status of the terminal device.

[31] Embodiments of the present invention further include a method of controlling a terminal device with the system of the present invention. A housing is

installed on a mounting surface by an engagement device. The server is connected so as to be in communication with the sensor, and the terminal device is connected so as to be in communication with the server. A physical impact is made on the mounting surface so as to generate a contact interaction, and the sensor detects the contact interaction as data signals. The server receives the data signals from the sensor and determines a data pattern corresponding to the data signals of the contact interaction. The data pattern is matched to a gesture profile associated with a command. The command is transmitted to the terminal device, so that the terminal device performs an activity according to the command. The gesture related to the mounting surface controls the terminal device, even as the mounting surface is independent from the terminal device.

BRIEF DESCRIPTION OF THE SEVERAL VIEWS OF THE DRAWINGS

[32] Figure 1 is a schematic view of an embodiment of the control system of the present invention.

[33] Figure 2 is flow diagram of the embodiment of the method for controlling a terminal device with the system of the present invention.

[34] Figure 3 is a schematic view of an embodiment of the housing and sensor of the control system of the present invention.

[35] Figure 4 is a side elevation view of the embodiment of the housing and sensor of Figure 3.

[36] Figure 5 is a top plan view of an embodiment of the housing on a mounting surface of the present invention.

[37] Figure 6 is a top plan view of another embodiment of the housing with a plurality of sensors on the mounting surface of the present invention.

[38] Figures 7-9 are schematic views of the housing, interactive zone, and mounting surface of the control system of the present invention.

DETAILED DESCRIPTION OF THE INVENTION

[39] The control system of the present invention is a manual control system for all types of users with wide ranges of physical abilities. Any independent mounting surface can be converted into a controller for a terminal device. Simple gestures associated with the mounting surface can be used to control the terminal device in a different location. Gaining access to a button or switch on a dedicated controller or being able to view and manipulate a complicated menu on a touchscreen are no longer required. An appliance, such as a television or a thermostat, can be activated or deactivated without physically touching either appliance. The user does not have to physically reach the appliance as the terminal device. A separate mounting surface, such as a wall or table surface, is converted into a controller without a touch-sensitive region boundary. Simple physical interactions on an independent surface can now control the terminal device.

[40] Referring to Figures 1-2, the control system 10 includes a housing 20 engaged to a mounting surface 22, a sensor 30 within the housing 20, a server 40 in communication with the sensor 30, and a terminal device 50 in communication with the server 40. Interfaces 99 are connected to the server 40 in order to interact with the control system 10. The interfaces 99 can include computers, laptops, tablets and

smartphones. Figure 1 shows a variety of different interfaces 99. The interfaces 99 allow the user to adjust the settings of the control system 10. Gestures by a user associated with the mounting surface 22 control the terminal device 50 in Figures 5 and 7-9. In some embodiments, the devices that are interfaces 99 could also be terminal devices 50.

[41] In Figures 3-4, the housing 20 is comprised of an engagement means 24 for a mounting surface 22. Figures 5 and 7-9 show that the housing 20 can be placed exterior, underneath or interior to the mounting surface 22. Planar surfaces, such as tables and walls, as well as non-planar surfaces, such as beds, can be mounting surfaces 22. Figure 4 shows an embodiment of the engagement means 24 being comprised of an attachment means 26 between the housing 20 to the mounting surface 22 and a transmission portion 28 connecting the sensor 30 to the housing 20. The attachment means 26 can be an adhesive, mechanical fasteners, threaded screws or other components to hold the housing 20 to the mounting surface 22. In some embodiments, the transmission portion 28 can be comprised of frames and brackets 38 or a spring loaded portion (not shown) so as to reduce damping. There is a rigid positioning of the sensor 30 relative to the mounting surface 22 through the housing 20. Any sound or vibration of the mounting surface 22 is transmitted to the sensor 30. The engagement means 24 attaches the sensor 30 and reduces damping so that sensor 30 more accurately detects the mounting surface 22. The transmission portion 28 affects sound or vibration or other stimuli from the mounting surface 22 to the sensor 30.

[42] The control system 10 of the present invention includes a sensor 30 as shown in Figures 3-4. The housing 20 contains the sensor 30 comprised of a printed

circuit board 34 with a flash memory 31, microcontroller unit (MCU) 33, the sensor unit 35, antenna 37, and light emitting diode 39. The sensor unit 35 can be an accelerometer or acoustic sensor. The microcontroller unit 33 and antenna 35 can have wifi capability for communication with the server 40. The relationship between the sensor unit 35 of the sensor 30 and the transmission portion 28 of the housing 20 is shown. The rigid position of the sensor 30 establishes the transmission of the contact interaction to the sensor 30. Other parts in the housing 20 include batteries 36 as a known power supply for the control system 10. The stable construction of the housing 20 and the sensor 30 enable the accurate and efficient conversion of the gestures into commands for the terminal device 50.

[43] Figures 5 and 6 show embodiments of the sensor 30 forming an interactive zone 32 defined by a range 34 of the sensor 30. A contact interaction with the mounting surface 22 within the interactive zone 32 is detected by the sensor 30 as data signals. Figures 5 and 6 show the interactive zone 32 aligned with the mounting surface 22, in particular, the interactive zone 32 is coplanar with the mounting surface 22. The contact interaction on the mounting surface 22 is detected by the sensor 30 on the mounting surface 22. In one example, the housing 20 rests on a table, and knocking on the tabletop can control the terminal device 50. The tabletop for knocking and the mounting surface 22 are the same structure.

[44] Figures 7-9 show other embodiments with the interactive zone 32 aligned with the mounting surface 22 in different positions. Figures 7 and 8 show the interactive zone 32 coplanar and overlaying the mounting surface 22. Figure 7 shows a wall as the mounting surface 22 with the housing 20 behind the wall. The contact interaction is on

the wall surface opposite the mounting surface 22, but the knocking on the wall surface is transmitted to the mounting surface 22 and then to the sensor 30. Similarly, Figure 8 shows a table as the mounting surface 22 with the housing 20 underneath the table. The contact interaction is on the tabletop, opposite to the mounting surface 22. The knocking on the tabletop is transmitted to the mounting surface 22 on the bottom of the table and to the sensor 30. Figure 9 shows the interactive zone 32 made integral with the mounting surface 22, such as embedded in a table. The mounting surface 22 is within the table, and the tabletop is not the mounting surface 22. The contact interaction is associated with the mounting surface 22 and the contact interaction is detected through the mounting surface 22, even if the contact interaction is not always directly on the mounting surface 22. In the present invention, the sensor 30 is in a fixed position relative to the engagement means 24, so that contact interaction is transmitted through the mounting surface 22 to the sensor 30. Movement, sound waves, and vibration through the mounting surface 22 can be transmitted as efficiently as possible to the sensor 30 through the mounting surface 22 and the engagement means 24.

[45] The engagement means 24 of the housing 20 is cooperative with the sensor 30 so that any contact interaction generates data signals of the sensor through the transmission portion 28 of the engagement means 24. There is less damping of the contact interaction as sound or vibration. The transmission portion 28 can have less damping than the mounting surface 22 or the actual surface of the knocking in the interactive zone 32. In some embodiments, the transmission portion 28 affects transmission of the data signal to the sensor 30. The rigid position of the sensor 30 relative to the mounting surface 22 reduces damping of the contact interaction through

the transmission portion 28. The transmission portion 28 can be comprised of a rigid material, such an injection molded frame with flexibility different than the materials of the mounting surface 22 or surface of the contact interaction, if different from the mounting surface 22. In the embodiment with the spring loaded portion (not shown), the spring loaded portion of the transmission portion 28 has less damping than the mounting surface 22 or surface of the contact interaction, if not the same. Sound or vibration has less damping through a spring loaded portion for the transmission of the contact interaction through the transmission portion 28 to the sensor 30. For example, the spring loaded portion as the transmission portion 28 may hold the housing 20 closer and stronger to the mounting surface 22 so as to reduce damping sound or vibration of contact interaction. The data signals of the sensor 30 may have improved clarity and accuracy than systems without the relationship of the sensor 30 within the housing 20 relative to the mounting surface 22 for transmission through to the sensor 30. The sensor 30 can be stabilized relative to the housing 20 on both sides of the printed circuit board 34. Alternatively, the printed circuit board 34 may be held along multiple points along the perimeter of the printed circuit board 34, including brackets spaced every 120 degrees or even 90 degrees. The sensor 30 is held in position to prevent flopping and vibrating separate from the mounting surface so that the sensor 30 maintains the proper relationship to the mounting surface 22.

[46] Figure 2 is a flow diagram of an embodiment of the present invention, showing the data signals of the sensor 30 in relation to the server 40. The contact interaction 60 generates the data signals 70 of the sensor 30 through the transmission portion 28 of the housing 20. In the present invention, the contact interaction 60 is

comprised of an impact or plurality of impacts associated with the mounting surface 22. In Figures 5 and 6, knocking on the tabletop is also knocking on the mounting surface 22, so the contact interaction 60 is directly on the mounting surface 22. In Figures 7-9, knocking on an associated surface of the wall or table is the contact interaction 60. In those embodiments, the impact or plurality of impacts on the associated surface is the contact interaction 60, not an impact on the mounting surface 22. The impacts are coordinated or correspond or translate to the mounting surface 22 for detection by the sensor 30 through the mounting surface 22 as data signals 70.

[47] In the embodiments of the control system 10, the data signals 70 having a respective defined peak corresponding to each impact, a measured time period between each defined peak, and a defined time period after a last defined peak. Each peak is a distinct spike in the data being detected with a quick increase from a baseline or background activity. A data pattern 80 for each contact interaction 60 is determined by each defined peak and the defined time period after the last defined peak, and each measured time period between each defined peak, if there is a plurality of impacts. Figure 2 shows an embodiment for the contact interaction 60 comprised of one impact or a plurality of impacts. A single knock or a sequence of knocks can be a contact interaction 60. The control system 10 determines the data pattern 80 for contact interactions 60 comprised of a single tap, three quick knocks, two taps, and other sequences. Contact interactions 60, such as tapping, knocking, sweeping, and dragging, can be detected by the sensor 30 as data signals 70. Different gestures of a user can be used by the present invention for controlling activity of the terminal device 50.

[48] A sensor 30 of the present invention can be any known sensor with the same relationship to the other components of the control system 10. The sensor may be a mechanical sensor, a light sensor, piezoelectric sensor, a vibration sensor, or other type of meter. In one embodiment, the sensor 30 is comprised of an acoustic sensor, such that the data signals 70 are comprised of sound data of the contact interaction 60. The sound data can be at least one of volume, intensity, pitch, frequency, duration and a combination thereof. In another embodiment, the sensor 30 is comprised of an accelerometer, such that the data signals 70 are comprised of vibration data of the contact interaction 60. The vibration data can be at least one of amplitude, intensity, duration, and a combination thereof. The data pattern 80 can be determined from data signals 70 of either sound data or vibration data.

[49] Figures 1 and 2 show embodiments of the server 40 in communication with the sensor 30. The communication can be wireless or wired. The connection between the server 40 and the sensor 30 can include a router 42, as shown in Figure 1, and may also include wifi, Bluetooth, local area network, or other connections. In Figure 1, the server 40 can be comprised of a routing module 44, a processing module 46 being connected to the routing module 44, and an output module 48 connected to the processing module 46. According to Figure 2, the routing module 44 receives the data signals 70 from the sensor 30. These data signals 70 correspond to the contact interaction 60 associated with the mounting surface 22. The processing module 46 determines the data pattern 80 corresponding to the data signals 70 of the contact interaction 60. The processing module 46 also matches the data pattern 80 with a gesture profile 90. The gesture profile 90 is associated with a command, such as power

off or change channels or dim intensity. Then, the output module 48 transmits the command to the terminal device 50. For example, when the terminal device 50 is a television, a contact interaction 60 of two knocks can be detected as data signals 70 to generate a data pattern 80. The data pattern 80 can be matched to a gesture profile 90 associated with changing channels up one channel. The output module 48 communicates the command to change channels up one channel through the server 40 to the television as the terminal device 50. An elderly person in a wheelchair is able to change channels by knocking twice on a tabletop instead of locating a dedicated button on the television or fiddling with a touchscreen on a smartphone.

[50] In the control system 10, the terminal device 50 can be an appliance, such as a television, stereo or coffee machine. Alternatively, the terminal device 50 may be a device running software, a light or climate regulator, such as a thermostat, fan or lighting fixture. The activity of the terminal device 50 depends upon the terminal device 50. The activity is dedicated to the particular terminal device 50. The command associated with the gesture profile 90 relates to the particular terminal device 50. Knocking twice on a tabletop can be converted by the control system 10 into a command to change channels on a television or to lower the temperature of a thermostat or to create an entry in an online calendar software program on a computer. The control system 10 can also be used with multiple terminal devices 50. A gesture profile 90 for a command is specific for an activity for a particular terminal device 50. More than one terminal device 50 can be connected to the server 40 to receive the commands from the sensor 30.

[51] An alternative embodiment of Figure 6 shows the control system 10 with an additional sensor 130. The housing 20 can contain a plurality of sensors, shown as the sensor 30 and an additional sensor 130. With an additional sensor 130, there is an additional interactive zone 132 for detecting the same contact interaction 60 on the mounting surface 22. The additional interactive zone 132 is defined by an additional range 134 of the additional sensor 130. Similarly, the additional interactive zone 134 is aligned with the mounting surface 22 with the same relationships as the sensor 30, since the additional sensor 130 is within the same housing 20. The additional sensor 130 remains in a fixed position relative to the engagement means 24 of the housing 20 and in communication with the server 40. The contact interaction 60 associated with the mounting surface 22 within the additional interactive zone 132 is detected by the additional sensor 130 as additional data signals, and the processing module 46 determines the data pattern 80 corresponding to the data signals 70 of the sensor 30 and the additional data signals of the additional sensor 130. Figure 6 shows the interactive zone 32 of the sensor 30 overlapping with the additional interactive zone 132 of the additional sensor 130. The sensor 30 and additional sensor 130 can be the same or different, such as two acoustic sensors or two accelerometers or one of each. The data pattern 80 can be more robust for more reliable matching with a gesture profile 90. Background interference and resolution can be filtered with more consistency.

[52] Embodiments of the present invention include the method of controlling a terminal device 50 as shown in Figures 1 and 2. The method includes installing a housing 20 on a mounting surface 22 by an engagement device 24 with the sensor 30 contained within the housing 20. The sensor 30 forms an interactive zone 32 defined by

a range 34 of the sensor 30 and aligned with the mounting surface 22. The method further comprises connecting a server 40 in communication with the sensor 30, and connecting a terminal device 50 in communication with the server 40.

[53] A physical impact is made associated with the mounting surface 22 and within the interactive zone 32 so as to generate a contact interaction 60. The contact interaction 60 is detected as data signals 70 by the sensor 30. The data signals 70 are sent from the sensor 30 to the server 40. In some embodiments, the server 40 is comprised of a routing module 44, a processing module 46 being connected to the routing module 44, and an output module 48 connected to the processing module 46. Furthermore, the terminal device 50 can have a receiving module 52. The data signals 70 are received with the routing module 44 of the server 40, and the processing module 46 determines a data pattern 80 corresponding to the data signals 70 of the contact interaction 60. The data pattern 80 is matched to a gesture profile 90 with the processing module 46. Each gesture profile 90 is associated with a command, depending upon the terminal device 50. The command is designated for the particular terminal device 50, such as changing channels for a television or lowering temperature for a thermostat. The method includes transmitting the command to the receiving module 52 of terminal device 50 with the output module 48 of the server 40. Then, the terminal device 50 performs the activity according to the command.

[54] Alternative embodiments include making a plurality of physical impacts associated with the mounting surface 22, such that the contact interaction 60 is more than one physical impact and the data pattern 80 is determined by more than one impact. Still another embodiment includes the housing containing an additional sensor

130 connected to the server 40. The step of detecting the contact interaction as data signals 70 with the sensor 40 in combination with additional data signals 170 with the additional sensor 130. Also, the step of receiving the data signals from the sensor with the routing module further comprises receiving the additional data signals 170 from the additional sensor with the routing module 44. With a plurality of sensors, the step of determining the data pattern 80 further comprises determining the data pattern corresponding to the data signals 70 and the additional data signals 170 with the processing module 46. The method also includes making a plurality of physical impacts when the housing 20 contains a plurality of sensors 30, 130.

[55] The present invention is a system and method for controlling a terminal device. The user manually controls the terminal device, unlike manual controls of the prior art. The prior art systems range from a simple button dedicated to a particular activity on a dedicated remote control device to a touchscreen with much more functionality than only controlling the terminal device. There are serious drawbacks for accessibility and complexity, especially for users with different physical abilities. The present invention provides an interactive control system based on gestures to address the different physical abilities of all possible users. The control system enables knocking, tapping, and other gestures as physical impacts on an independent surface to control a device without the accessibility and complexity disadvantages of the prior art. An exterior surface independent from the terminal device becomes a controller. Contact interactions associated with the mounting surface and within the interactive zone of the sensor are detected as data signals for conversion into actual performance of an activity by a terminal device.

[56] As described herein, the invention provides a number of advantages and uses, however such advantages and uses are not limited by such description. Embodiments of the present invention are better illustrated with reference to the Figure(s), however, such reference is not meant to limit the present invention in any fashion. The embodiments and variations described in detail herein are to be interpreted by the appended claims and equivalents thereof.

[57] The foregoing disclosure and description of the invention is illustrative and explanatory thereof. Various changes in the details of the illustrated structures, construction and method can be made without departing from the true spirit of the invention.

CLAIMS

We claim:

1. A control system comprising:

a housing having an engagement means for a mounting surface;

a sensor contained within said housing, said sensor forming an interactive zone defined by a range of said sensor, said interactive zone being aligned with said mounting surface, said sensor being in a fixed position relative to said engagement means, wherein a contact interaction associated with said mounting surface within said interactive zone is detected by said sensor as data signals;

a server in communication with said sensor, said server being comprised of a routing module, a processing module being connected to said routing module, and an output module connected to said processing module, said routing module receiving said data signals from said sensor, said processing module determining a data pattern corresponding to said data signals of said contact interaction and matching said data pattern with a gesture profile, said gesture profile being associated with a command; and

a terminal device being comprised of a receiving module and means for initiating activity of said terminal device corresponding to said command, said terminal device being in communication with said server, said output module transmitting said command to said receiving module.

2. The control system, according to Claim 1, wherein said interactive zone of said sensor aligns with said mounting surface, said interactive zone being coplanar with said mounting surface.

3. The control system, according to Claim 1, wherein said interactive zone of said sensor aligns with said mounting surface, said interactive zone overlaying said mounting surface.

4. The control system, according to Claim 1, wherein said interactive zone of said sensor aligns with said mounting surface, said interactive zone being made integral with said mounting surface.

5. The control system, according to Claim 1, wherein said engagement means of said housing comprises:

an attachment means between said housing to said mounting surface and a transmission portion connecting said sensor, said contact interaction generating said data signals of said sensor through said transmission portion.

6. The control system, according to Claim 5, wherein said transmission portion is comprised of a spring loaded portion so as to reduce damping of said contact interaction.

7. The control system, according to Claim 1, wherein said contact interaction is comprised of an impact on said mounting surface, said data signals having a respective defined peak corresponding to each impact, a defined time period after a last defined

peak, said data pattern being comprised of each defined peak and said defined time period after said last defined peak.

8. The control system, according to Claim 1, wherein said contact interaction is comprised of a plurality of impacts on said mounting surface, said data signals having a respective defined peak corresponding to each impact, a measured time period between each defined peak, and a defined time period after a last defined peak, said data pattern being comprised of each defined peak, each measured time period, and said defined time period after said last defined peak

9. The control system, according to Claim 7, wherein said sensor is comprised of an acoustic sensor, said data signals being comprised of sound data of said contact interaction.

10. The control system, according to Claim 7, wherein said sensor is comprised of an accelerometer, said data signals being comprised of vibration data of said contact interaction.

11. The control system, according to Claim 8, wherein said sensor is comprised of an acoustic sensor, said data signals being comprised of sound data of said contact interaction.

12. The control system, according to Claim 8, wherein said sensor is comprised of an accelerometer, said data signals being comprised of vibration data of said contact interaction.

13. The control system, according to Claim 1, further comprising:

an additional sensor contained within said housing, said additional sensor forming an additional interactive zone defined by an additional range of said additional sensor, said additional interactive zone being aligned with said mounting surface, said additional sensor being in a fixed position relative to said engagement means, said server being in communication with said additional sensor,

wherein said contact interaction with said mounting surface within said additional interactive zone is detected by said additional sensor as additional data signals,

wherein said processing module determines said data pattern corresponding to said data signals of said sensor and said additional data signals of said additional sensor,

14. The control system, according to Claim 13, wherein said interactive zone of said sensor overlaps with said additional interactive zone of said additional sensor.

15. The control system, according to Claim 1, wherein said terminal device is comprised of one device selected from a group consisting of: a television, a thermostat, a computer, a software system, a game console, a fan, a mattress adjustor, an alarm clock, and a lighting fixture.

16. The control system, according to Claim 1, further comprising:

an additional terminal device being comprised of an additional receiving module and additional means for initiating activity of said additional terminal device corresponding to an additional command, said additional terminal device being in

communication with said server, said output module transmitting said additional command to said additional receiving module.

17. A method of controlling a terminal device, the method comprising the steps of:

installing a housing on a mounting surface by an engagement device, said housing being comprised of a sensor contained within said housing, said sensor forming an interactive zone defined by a range of said sensor, said interactive zone being aligned with said mounting surface, said sensor being in a fixed position relative to said engagement device;

connecting a server in communication with said sensor, said server being comprised of a routing module, a processing module being connected to said routing module, and an output module connected to said processing module;

connecting a terminal device in communication with said server, said terminal device being comprised of a receiving module;

making a physical impact on said mounting surface so as to generate a contact interaction;

detecting said contact interaction as data signals with said sensor;

receiving said data signals from said sensor with said routing module of said server;

determining a data pattern corresponding to said data signals of said contact interaction with said processing module;

matching said data pattern to a gesture profile with said processing module, said gesture profile being associated with a command;

transmitting said command to said receiving module of terminal device with said output module of said server, said command corresponding to activity of said terminal device; and

performing said activity with said terminal device.

18. The method of controlling the terminal device, according to Claim 17, wherein the step of making a physical impact on said mounting surface further comprises making a plurality of physical impacts on said mounting surface, said contact interaction being associated with more than one physical impact.

19. The method of controlling the terminal device, according to Claim 17, wherein said housing is further comprised of an additional sensor, said additional sensor being connected to said server,

wherein the step of detecting said contact interaction as data signals with said sensor further comprises detecting said contact interaction as additional data signals with said additional sensor;

wherein the step of receiving said data signals from said sensor with said routing module further comprises receiving said additional data signals from said additional sensor with said routing module, and

wherein the step of determining said data pattern further comprises determining said data pattern corresponding to said data signals and said additional data signals with said processing module.

20. The method of controlling the terminal device, according to Claim 19, wherein the step of making a physical impact on said mounting surface further comprises making a plurality of physical impacts on said mounting surface, said contact interaction being associated with more than one physical impact.

ABSTRACT OF THE DISCLOSURE

A control system includes a housing engaged to a mounting surface, a sensor contained within the housing, a server in communication with the sensor, and a terminal device in communication with the server. A gesture by a user associated with the mounting surface controls activity of the terminal device, such as a knock on a wall lowering a thermostat. The control system enables a mounting surface independent from the terminal device to become a controller for the terminal device. The sensor forms an interactive zone, and a contact interaction with the mounting surface within the interactive zone is detected by the sensor as data signals. The server receives the data signals, determines a data pattern corresponding to the data signals, and matches the data pattern with a gesture profile. The gesture profile is associated with a command transmitted to the terminal device to control activity of the terminal device.

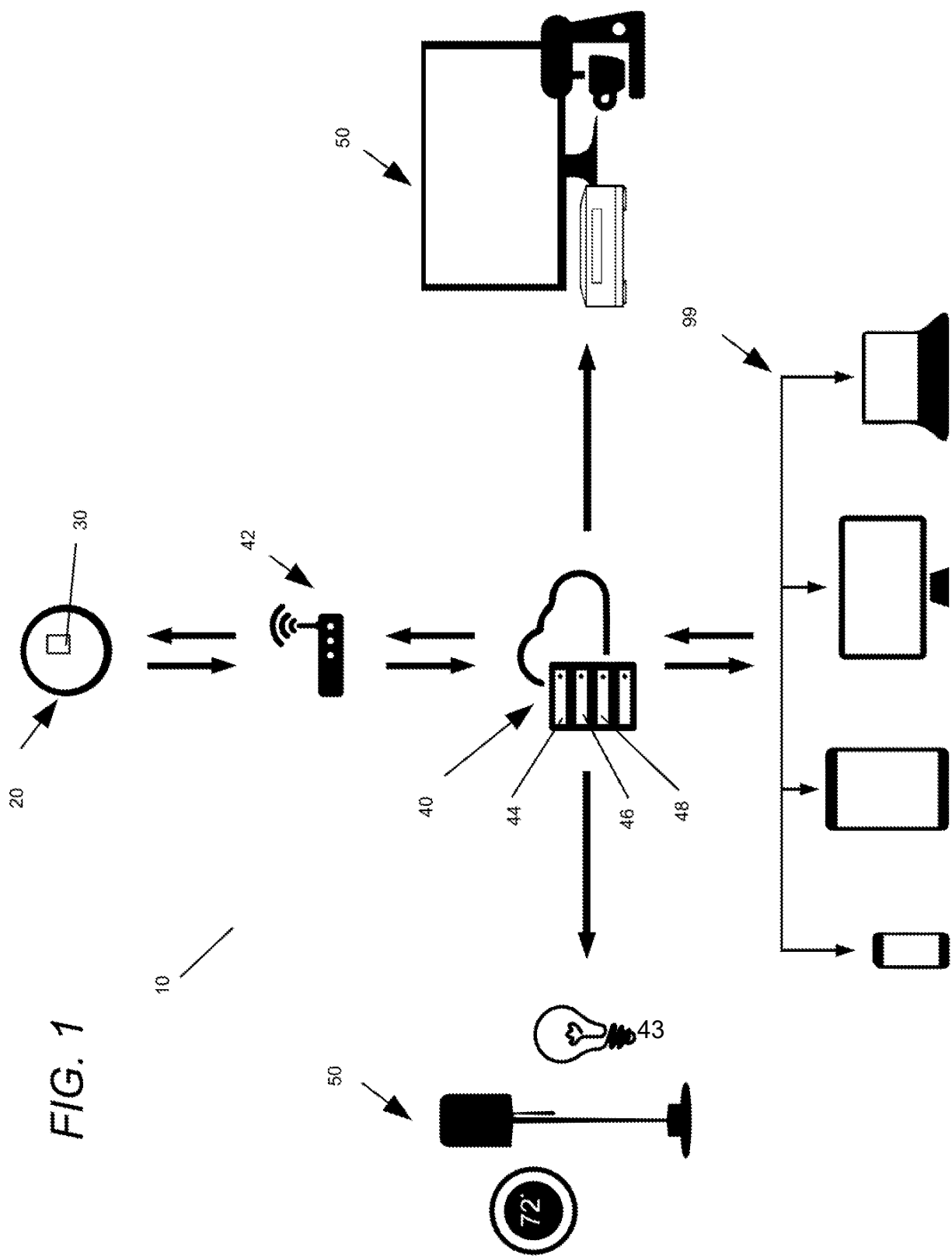
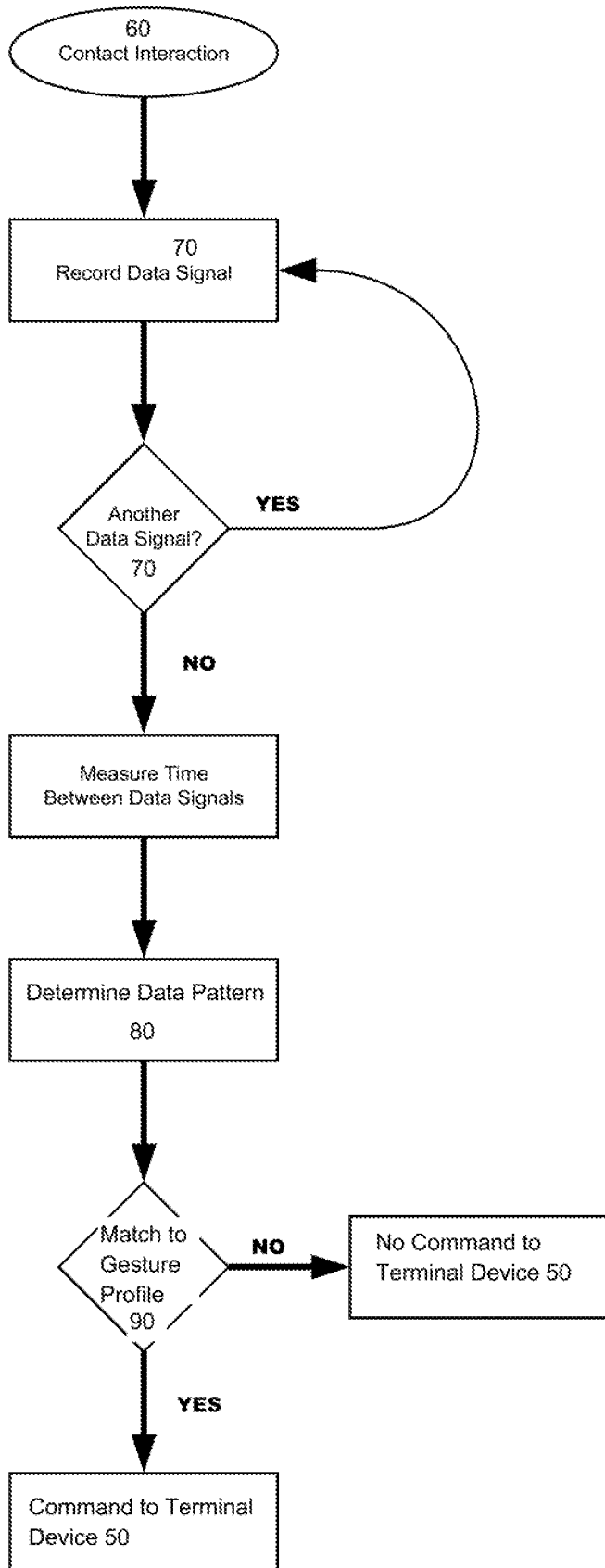


FIG. 2



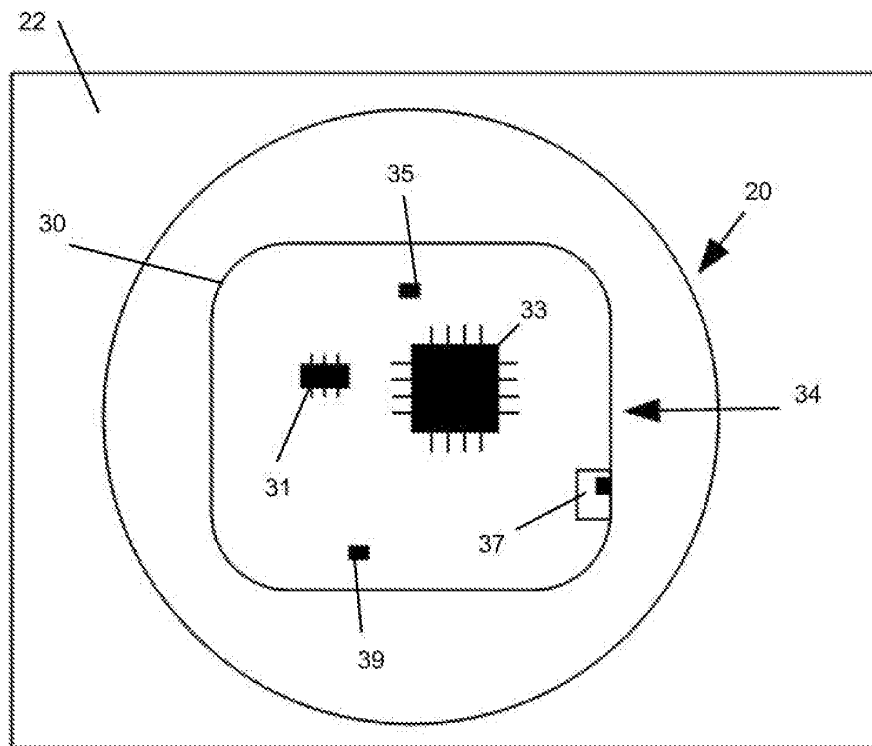


FIG. 3

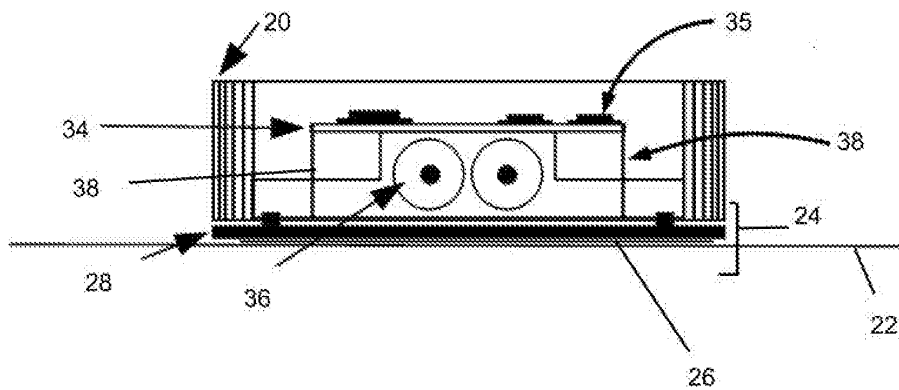
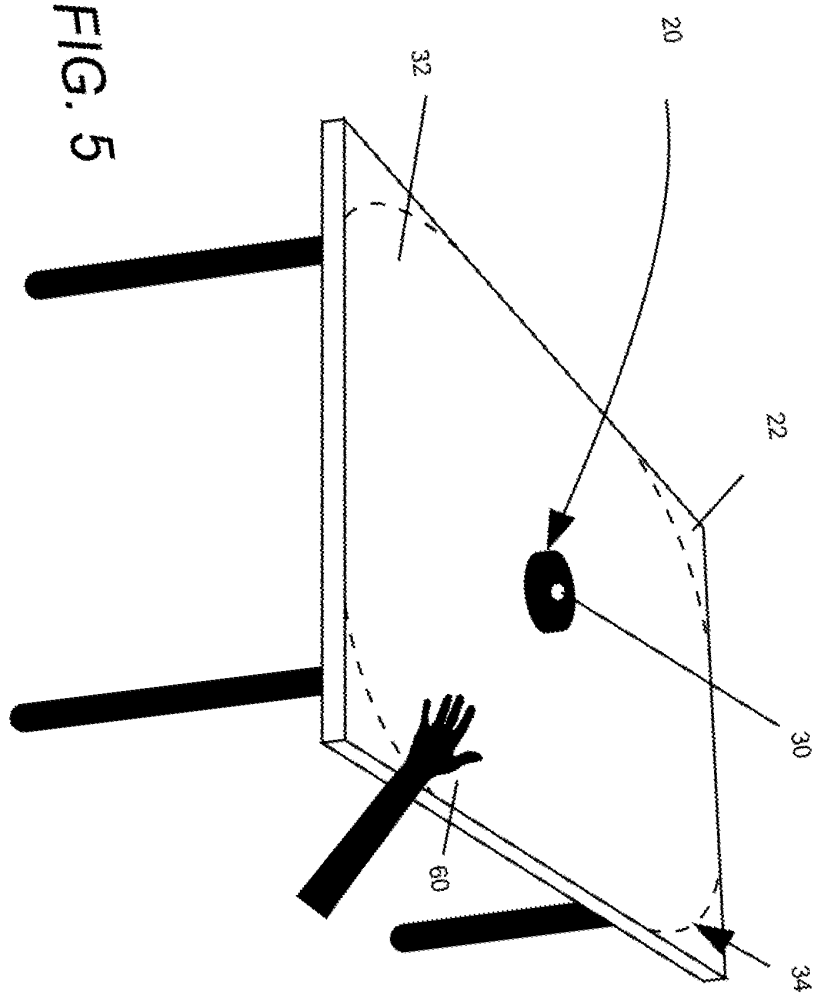


FIG. 4



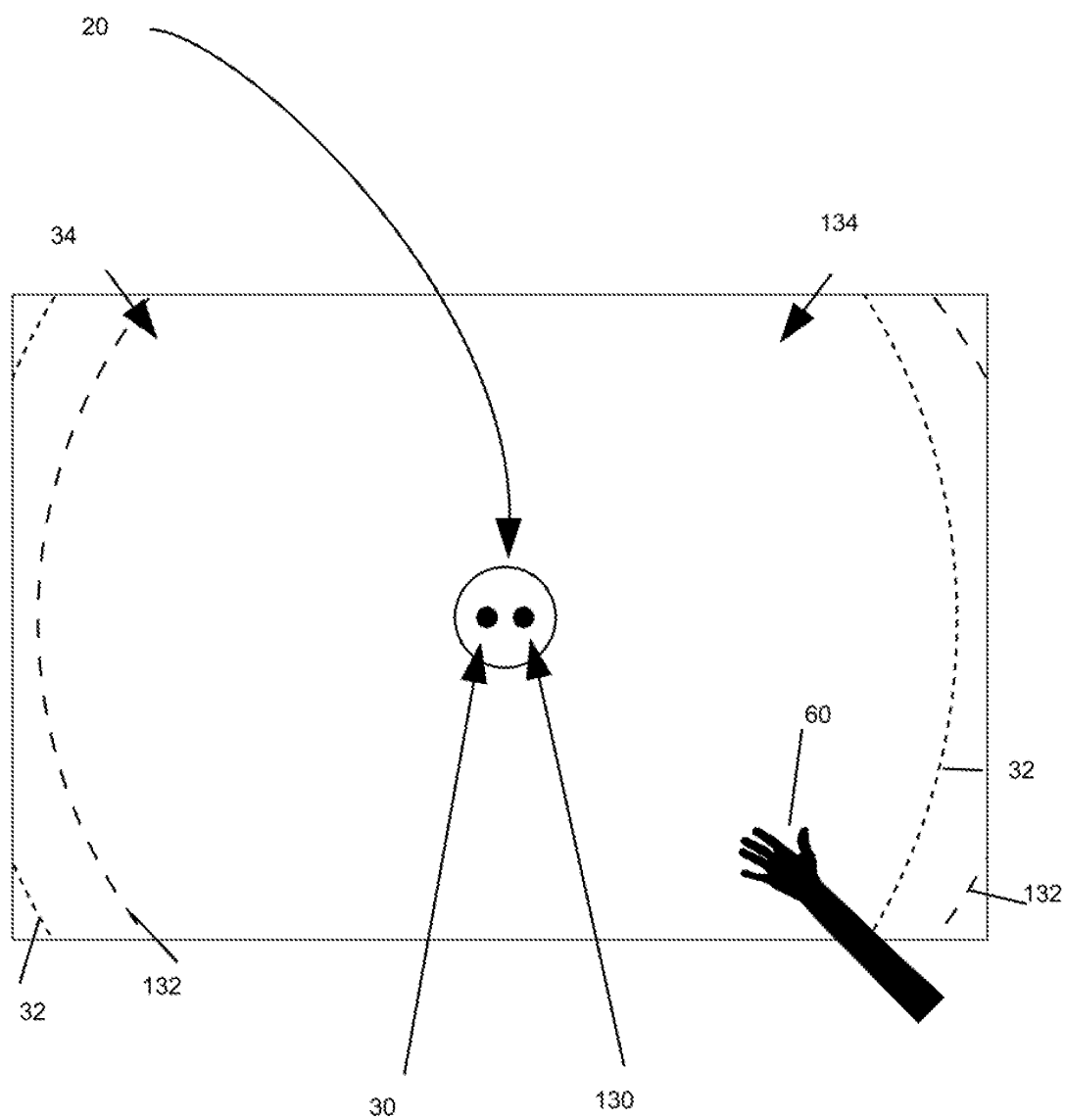


FIG. 6

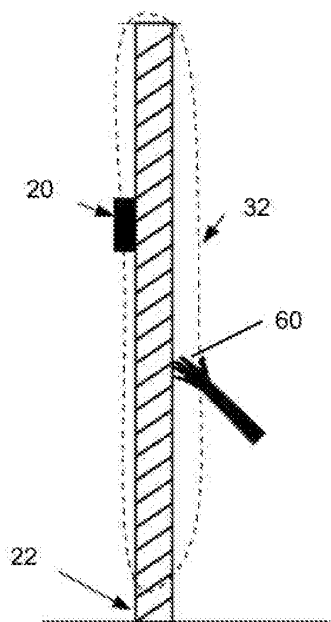


FIG. 7

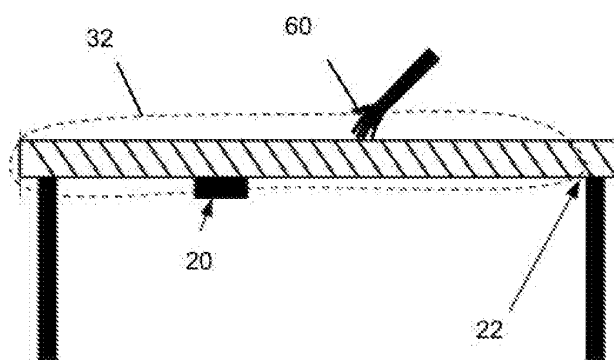


FIG. 8

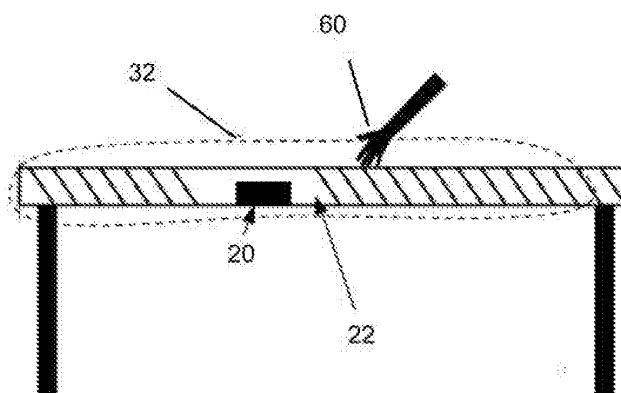


FIG. 9

Electronic Patent Application Fee Transmittal				
Application Number:				
Filing Date:				
Title of Invention:		SYSTEM AND METHOD FOR CONTROLLING A TERMINAL DEVICE		
First Named Inventor/Applicant Name:		Yaniv BOSHERNITZAN		
Filer:		Andrew W. Chu		
Attorney Docket Number:		571/8		
Filed as Small Entity				
Filing Fees for Utility under 35 USC 111(a)				
Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Basic Filing:				
Utility filing Fee (Electronic filing)	4011	1	70	70
Utility Search Fee	2111	1	300	300
Utility Examination Fee	2311	1	360	360
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Post-Allowance-and-Post-Issuance:				
Extension-of-Time:				
Miscellaneous:				
Total in USD (\$)				730

Electronic Acknowledgement Receipt	
EFS ID:	24908398
Application Number:	15043283
International Application Number:	
Confirmation Number:	8434
Title of Invention:	SYSTEM AND METHOD FOR CONTROLLING A TERMINAL DEVICE
First Named Inventor/Applicant Name:	Yaniv BOSHERNITZAN
Customer Number:	91209
Filer:	Andrew W. Chu
Filer Authorized By:	
Attorney Docket Number:	571/8
Receipt Date:	12-FEB-2016
Filing Date:	
Time Stamp:	18:30:59
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	Credit Card
Payment was successfully received in RAM	\$730
RAM confirmation Number	5295
Deposit Account	
Authorized User	
The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows:	

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Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Transmittal of New Application	571008xtal.pdf	266750	no	2
			f96c02e351789ce8a395397fdffc294025cf2176		
Warnings:					
Information:					
2	Application Data Sheet	571008ads1.pdf	1561153	no	7
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Warnings:					
Information:					
3	Oath or Declaration filed	571008decpoa1.pdf	350109	no	2
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Information:					
4		571008application.pdf	156915	yes	31
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	Multipart Description/PDF files in .zip description				
	Document Description	Start	End		
	Specification	1	23		
	Claims	24	30		
	Abstract	31	31		
Warnings:					
Information:					
5	Drawings-only black and white line drawings	571008drawings1a.pdf	375017	no	6
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Information:					
6	Fee Worksheet (SB06)	fee-info.pdf	35365	no	2
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Doc Code: PA..

Document Description: Power of Attorney

PTO/AIA/82A (07-12)

Approved for use through 11/30/2014. OMB 0651-0035

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Application Number	15043283
Filing Date	2016-02-12
First Named Inventor	BOSHERNITZAN, Yaniv et al
Title	SYSTEM AND METHOD FOR CONTROLLING A TERMINAL DEVICE
Art Unit	
Examiner Name	
Attorney Docket Number	571/8

SIGNATURE of Applicant or Patent Practitioner

Signature	/Andrew W. Chu/	Date	2016-02-26
Name	Andrew W. Chu	Telephone	7138029144
Registration Number	46625		

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 1 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.**

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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):

91209

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):

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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:

91209

OR

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Address

City

State

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Telephone

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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

Date

Name

Telephone

Title and Company

YASH BOSHERNITZAN

President of Swan Solutions Inc.

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 1 forms are submitted.

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STATEMENT UNDER 37 CFR 3.73(b)

Applicant/Patent Owner: BOSHERNITZAN, Yaniv et al

Application No./Patent No.: 15043283

Filed/Issue Date: 12 Feb 2016

Titled:

SYSTEM AND METHOD FOR CONTROLLING A TERMINAL DEVICE

SWAN SOLUTIONS, INC.

, a

corporation of the State of Delaware

(Name of Assignee)

(Type of Assignee, e.g., corporation, partnership, university, government agency, etc.)

states that it is:

1. ☒ the assignee of the entire right, title, and interest in;
2. ☐ an assignee of less than the entire right, title, and interest in
(The extent (by percentage) of its ownership interest is _____ %); or
3. ☐ the assignee of an undivided interest in the entirety of (a complete assignment from one of the joint inventors was made)

the patent application/patent identified above, by virtue of either:

- A. ☒ An assignment from the inventor(s) of the patent application/patent identified above. The assignment was recorded in the United States Patent and Trademark Office at Reel 037819, Frame 0902, or for which a copy therefore is attached.

OR

- B. ☐ A chain of title from the inventor(s), of the patent application/patent identified above, to the current assignee as follows:

1. From: _____ To: _____

The document was recorded in the United States Patent and Trademark Office at

Reel _____, Frame _____, or for which a copy thereof is attached.

2. From: _____ To: _____

The document was recorded in the United States Patent and Trademark Office at

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3. From: _____ To: _____

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☐ Additional documents in the chain of title are listed on a supplemental sheet(s).

- ☐ As required by 37 CFR 3.73(b)(1)(i), the documentary evidence of the chain of title from the original owner to the assignee was, or concurrently is being, submitted for recordation pursuant to 37 CFR 3.11.

[NOTE: A separate copy (i.e., a true copy of the original assignment document(s)) must be submitted to Assignment Division in accordance with 37 CFR Part 3, to record the assignment in the records of the USPTO. See MPEP 302.08]

The undersigned (whose title is supplied below) is authorized to act on behalf of the assignee.

/Andrew W. Chu/

2016-02-26

Signature

Date

Andrew W. Chu

attorney of record, 46625

Printed or Typed Name

Title

This collection of information is required by 37 CFR 3.73(b). 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 12 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.**

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

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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.
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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 inspection 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.

Electronic Acknowledgement Receipt	
EFS ID:	25038992
Application Number:	15043283
International Application Number:	
Confirmation Number:	8434
Title of Invention:	SYSTEM AND METHOD FOR CONTROLLING A TERMINAL DEVICE
First Named Inventor/Applicant Name:	Yaniv BOSHERNITZAN
Customer Number:	91209
Filer:	Andrew W. Chu
Filer Authorized By:	
Attorney Docket Number:	571/8
Receipt Date:	26-FEB-2016
Filing Date:	
Time Stamp:	17:33:31
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	Power of Attorney	571008poa1.pdf	697664	no	2
			38c6ab8f8b83b0a37f2bb84badc8c1992149c459		
Warnings:					
Information:					

2	Assignee showing of ownership per 37 CFR 3.73	571008asgnsttment.pdf	379326 09aa4cf347cb9f77e302e42da2a08d38a51e1261	no	2
Warnings:					
Information:					
Total Files Size (in bytes):			1076990		
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. <u>New Applications Under 35 U.S.C. 111</u> 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. <u>National Stage of an International Application under 35 U.S.C. 371</u> 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. <u>New International Application Filed with the USPTO as a Receiving Office</u> 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.					



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APPLICATION NUMBER	FILING or 371(c) DATE	GRP ART UNIT	FIL FEE REC'D	ATTY. DOCKET NO.	TOT CLAIMS	IND CLAIMS
15/043,283	02/12/2016	2838	730	571/8	20	2

CONFIRMATION NO. 8434

FILING RECEIPT



0000000081016488

91209

Andrew W. Chu
Craft Chu PLLC
1445 North Loop West
Suite 410
Houston, TX 77008

Date Mailed: 03/01/2016

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)

Yaniv BOSHERNITZAN, Houston, TX;
Ohad NEZER, Houston, TX;

Applicant(s)

Swan Solutions Inc., Houston, TX;

Power of Attorney: The patent practitioners associated with Customer Number 91209

Domestic Priority data as claimed by applicant

This appln claims benefit of 62/115,769 02/13/2015

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 Application via Priority Document Exchange: Yes

Permission to Access Search Results: No

Applicant may provide or rescind an authorization for access using Form PTO/SB/39 or Form PTO/SB/69 as appropriate.

If Required, Foreign Filing License Granted: 02/29/2016

The country code and number of your priority application, to be used for filing abroad under the Paris Convention, is **US 15/043,283**

Projected Publication Date: 08/18/2016

Non-Publication Request: No

Early Publication Request: No

**** SMALL ENTITY ****

Title

SYSTEM AND METHOD FOR CONTROLLING A TERMINAL DEVICE

Preliminary Class

323

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

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APPLICATION AS FILED - PART I							
(Column 1)		(Column 2)		SMALL ENTITY		OTHER THAN SMALL ENTITY	
FOR	NUMBER FILED	NUMBER EXTRA	RATE(\$)	FEE(\$)		RATE(\$)	FEE(\$)
BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A	N/A	70		N/A	
SEARCH FEE (37 CFR 1.16(k), (i), or (m))	N/A	N/A	N/A	300		N/A	
EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A	N/A	360		N/A	
TOTAL CLAIMS (37 CFR 1.16(i))	20	minus 20 = *	x 40 =	0.00			
INDEPENDENT CLAIMS (37 CFR 1.16(h))	2	minus 3 = *	x 210 =	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).			0.00			
MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))				0.00			
			TOTAL	730		TOTAL	
* If the difference in column 1 is less than zero, enter "0" in column 2.							
APPLICATION AS AMENDED - PART II							
(Column 1)		(Column 2)		(Column 3)		SMALL ENTITY	
AMENDMENT A	CLAIMS REMAINING AFTER AMENDMENT	HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	RATE(\$)	ADDITIONAL FEE(\$)		RATE(\$)
	Total (37 CFR 1.16(i))	*	Minus **	=	x =		x =
	Independent (37 CFR 1.16(h))	*	Minus ***	=	x =		x =
	Application Size Fee (37 CFR 1.16(s))						
	FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))						
				TOTAL ADD'L FEE			TOTAL ADD'L FEE
(Column 1)		(Column 2)		(Column 3)		SMALL ENTITY	
AMENDMENT B	CLAIMS REMAINING AFTER AMENDMENT	HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	RATE(\$)	ADDITIONAL FEE(\$)		RATE(\$)
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	Application Size Fee (37 CFR 1.16(s))						
	FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))						
				TOTAL ADD'L FEE			TOTAL ADD'L FEE
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	Filing Date	2016-02-12
	First Named Inventor	BOSHERNITZAN, Yaniv et al.
	Art Unit	2621
	Examiner Name	Awad, A. A.
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	3	20130321346		2013-12-05	Tyler et al	Abstract, Paragraphs 0025-0030	

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	Art Unit	2621
	Examiner Name	Awad, A. A.
Attorney Docket Number		571/8

4	20120249416	2012-10-04	Maciocci et al	Abstract, Paragraphs 0003-0008, Figures
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	Filing Date	2016-02-12
	First Named Inventor	BOSHERNITZAN, Yaniv et al.
	Art Unit	2621
	Examiner Name	Awad, A. A.
	Attorney Docket Number	571/8

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Signature	/Andrew W. Chu/	Date (YYYY-MM-DD)	2016-06-16
Name/Print	Andrew W. Chu	Registration Number	46625

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EFS ID:	26092722
Application Number:	15043283
International Application Number:	
Confirmation Number:	8434
Title of Invention:	SYSTEM AND METHOD FOR CONTROLLING A TERMINAL DEVICE
First Named Inventor/Applicant Name:	Yaniv BOSHERNITZAN
Customer Number:	91209
Filer:	Andrew W. Chu
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Attorney Docket Number:	571/8
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(74) Agents: **KOSH, Christopher Paul** et al.; Hewlett-Packard Company, Intellectual Property Administration, 3404 E. Harmony Road MS 35, Fort Collins, Colorado 80528-9599 (US).

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[Continued on next page]

(54) Title: CONTROL SIGNAL BASED ON A COMMAND TAPPED BY A USER

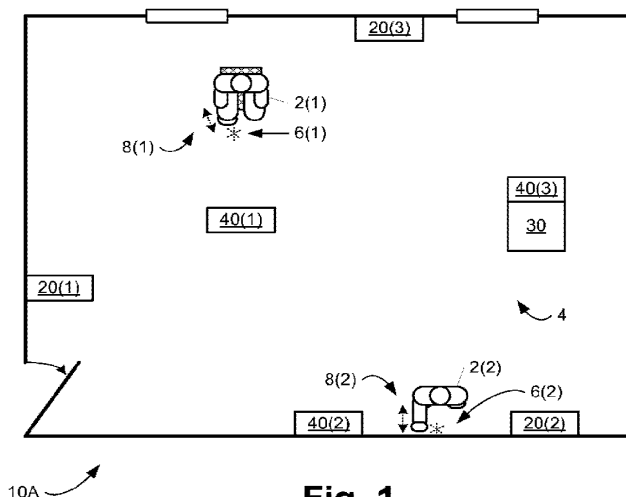


Fig. 1

(57) Abstract: A system includes at least three accelerometers disposed in different locations of an area with a surface to capture respective vibration data corresponding to a command tapped onto the surface by a user and a processing system to receive the vibration data from each accelerometer, identify the command and a location of the user from the vibration data, and generate a control signal based on the command and the location.

WO 2013/165348 A1

Declarations under Rule 4.17:

- *as to the identity of the inventor (Rule 4.17(i))*
- *as to applicant's entitlement to apply for and be granted a patent (Rule 4.17(ii))*

Published:

- *with international search report (Art. 21(3))*

CONTROL SIGNAL BASED ON A COMMAND TAPPED BY A USER

Background

[0001] Users of devices often seek new ways of controlling the operation of the devices. Methods to control a device generally involve the physical interaction of a user with either the device itself or a control device (e.g., a remote control) that controls the device of interest. Although some control devices may be used to control more than one other device, a user typically possesses the control device in order to operate it and control other devices. In addition, previous control devices may not have the capability to consider the location of the user in determining how to control a device.

Brief Description of the Drawings

[0002] Figure 1 is a schematic diagram illustrating one embodiment of a system for controlling devices based on commands tapped by a user.

[0003] Figure 2 is a flow chart illustrating one embodiment of a method for controlling devices based on commands tapped by a user.

[0004] Figure 3 is a flow chart illustrating one embodiment of a method for processing vibration data to identify a command tapped by a user and a location of the user.

[0005] Figure 4 is a flow chart illustrating one embodiment of a method for controlling devices based on commands tapped by a user and a location of the user.

[0006] Figure 5 is a block diagram illustrating one embodiment of a system for controlling devices based on commands tapped by a user.

Detailed Description

[0007] In the following detailed description, reference is made to the accompanying drawings, which form a part hereof, and in which is shown by way of illustration specific embodiments in which the disclosed subject matter may be practiced. It is to be understood that other embodiments may be utilized and structural or logical changes may be made without departing from the scope of the present disclosure. The following detailed description, therefore, is not to be taken in a limiting sense, and the scope of the present disclosure is defined by the appended claims.

[0008] As described herein, a system detects commands tapped from a user and controls devices based on the commands and the location of the user. The system includes at least three accelerometers disposed in an area with a surface that capture respective vibration data corresponding to a command tapped onto the surface by the user. The accelerometers each provide the captured vibration data to a processing system that identifies the command and a location of the user from the vibration data (e.g., by triangulation). The processing system generates a control signal based on the command and the location and provides the control signal to a device to perform a function associated with the command.

[0009] By analyzing the vibration data, the processing system controls predefined devices in the area without the use of hand held or other control apparatus by the user. The user simply provides a series of taps corresponding to a predefined command for a device onto any suitable solid surface in an

area. The vibrations of the taps transmit through from the tapping surface to the accelerometers through any solid structures between the tap surface and the accelerometers (e.g., floors, walls, ceilings, or other structures in the area). The accelerometers capture the vibrations of the taps in the vibration data. The accelerometers form a data network that enables the processing system to correlate and analyze the vibration data from the accelerometers in a coordinated manner. The processing system discerns the function to be performed and the device on which the function is to be performed using the detected series of taps in the vibration data and the location of the user determined by triangulation of vibration data from different accelerometers. Accordingly, the system described herein may be used to turn on lights, adjust the temperature, or notify authorities that someone has fallen and cannot get up, cannot reach a nurse call button, or is blocked from reaching a location, for example.

[0010] As used herein, the term device refers to any suitable apparatus that performs functions that are controllable in response to a signal from a processing system. In addition, the term vibration data refers to a set of data values that collectively represent the frequency and amplitude of the vibrations detected by an accelerometer over time. In addition, the term command refers to predefined series of taps that a user imparts to a surface in an area.

[0011] Figure 1 is a schematic diagram illustrating one embodiment 10A of a system 10 for controlling devices 40 based on commands tapped by users 2 on surfaces 6 in an area 4 as indicated by dotted arrows 8. System 10 includes at least three accelerometers 20 (e.g., accelerometers 20(1), 20(2), and 20(3) as shown in the example of Figure 1) disposed in different locations of area 4. Each accelerometer 20 captures vibration data (shown collectively as vibration data 162 in the embodiment of Figure 5) from vibrations present in area 4 and provides the vibration data to a processing system 30. The vibration data includes vibrations that represent commands tapped by users 2 to control devices 40 (i.e., cause functions to be performed by devices 40). Processing system 30 identifies commands from users 2 in the vibration data, identifies the locations of users 2 using triangulation of the vibration data, and generates

control signals based on the commands and locations of users 2. Processing system 30 provides the control signals to devices 40 to cause functions to be performed in accordance with the commands from users 2.

[0012] Users 2 may tap commands on any suitable solid surface 6 in area 4 to cause vibrations to transmit to accelerometers 20. Area 4 represents any suitable physical space that includes users 2, surfaces 6, and accelerometers 20 and possibly processing system 30 and one or more devices 40. For example, area 4 may represent one or more rooms inside a home (e.g., a house, condominium, town house, or apartment), an office, a place of business, or a location in a healthcare facility. Surfaces 6 may include structural components of the space of area 4, such as floors, walls, ceilings, windows, and doors, and other structures, objects, and apparatus present in area 4.

[0013] Accelerometers 20 are disposed in area 4 with a physical connection to one or more solid surfaces 6 to allow vibrations to transmit from the surfaces 6 tapped by users 2 to the surfaces 6 in physical contact with accelerometers 20. The vibrations transmit through any solid materials of area 4 between the tapped surfaces 6 and the surfaces in physical contact with accelerometers 20. In some embodiments, accelerometers 20 may be disposed on a foundation or other major structural components of a home or building to provide a continuous solid material contact with as many surfaces 6 in area 4 as possible.

[0014] Accelerometers 20 are disposed in different locations of area 4 to allow processing system 30 to triangulate a location of a user 2. For example, accelerometers 20 may be placed at corners of a room in area 4 or other strategic locations in area 4. Because accelerometers 20 are disposed in different locations, accelerometers 20 typically capture vibration data from user taps at slightly different times as a result of the different distances between accelerometers 20 and a surface 6 on which a user 2 taps. Processing system 30 correlates taps from the vibration data of the different accelerometers 20 and identifies the time differences in order to triangulate a location of a user 2 in area 4.

[0015] Each accelerometer 20 includes ultra-high sensitivity microfabricated accelerometer technology with three-phase sensing as described by United States Patent Nos. 6,882,019, 7,142,500, and 7,484,411 and incorporated by reference herein in their entirety. Each accelerometer 20 is a sensor which detects acceleration, i.e., a change in a rate of motion, with a high sensitivity and dynamic range. Because of the three-phase sensing technology, each accelerometer 20 may sense acceleration levels as low as 10's of nano-gravities (*ng*) and may be manufactured and housed in a device that has typical dimensions of 5 x 5 x 0.5 mm or less using Micro-Electro-Mechanical-Systems (MEMS) technology. The combination of high sensitivity and small device size enabled by three-phase sensing techniques allows accelerometers 20 to unobtrusively capture vibration data that includes vibrations tapped by users 2 that represents commands for devices 40 without direct contact between any of accelerometers 20 and users 2. Accelerometers 20 provide vibration data to processing system 30 over any suitable wired or wireless connections (e.g., connections 22 shown in the embodiment of Figure 5). Additional details of accelerometers 20 are shown and described with reference to Figure 5 below.

[0016] Processing system 30 receives vibration data from each accelerometer 20 over the wired or wireless connections. Processing system 30 includes or otherwise receives or accesses any suitable device configuration information (e.g., device database 166 shown in the embodiment of Figure 5) that identifies controllable devices 40 in area 4 and the commands that may be performed on each device 40. Processing system 30 registers device information for each device 40 to allow the device 40 to be controlled by processing system 30. The device information defines, explicitly or implicitly, a way of communicating with the device 40 (e.g., using a suitable wired or wireless connection such as a connection 42 shown in the embodiment of Figure 5) as well as the type and / or format of control signals to provide to devices 40 to cause desired functions to be performed by device 40. The device information also correlates the commands that may be provided by a user 2 and the locations of user 2 with the control signals to allow processing

system 30 to determine which control signal to provide to which device 40 upon receiving a command from a user 2 at an identified location in area 4.

[0017] Each command recognized by processing system 30 may be any predefined series of taps that a user 2 imparts to a surface 6 in area 4. Each series of taps may be arbitrarily defined by a user 2 (e.g., input by user 2 to processing system 30), selected by user 2 from a database of tap patterns suggested by processing system 30, and / or may follow a signaling convention such as Morse code or other recognizable patterns of signaling.

[0018] Processing system 30 is configured to disambiguate commands from a user 2 based on the user's location in area 4. Thus, the same series of taps may be used for controlling one device 40 when user 2 is in one location in area 4 and a different device 40 when user 2 is in another location in area 4. Processing system 30, therefore, may select which device 40 to control based on the location of user 2. The same series of taps may also be defined to simultaneously control multiple devices 40 depending on the location of user 2.

[0019] Upon detecting a command for one or more devices 40, processing system 30 generates one or more control signals (e.g., control signals 172 shown in the embodiment of Figure 5) for the one or more devices 40 and provides the one or more control signals to the one or more devices 40 in area 4. Each device 40 that receives a control signal may respond with an acknowledge signal or other suitable confirmation signal that indicates whether the function corresponding to the control signal was performed successfully. Processing system 30 may store a log of commands that were received as well as a status of the commands (e.g., success or failure) for later review or analysis by a user (e.g., in a command log 168 shown in the embodiment of Figure 5).

[0020] Each device 40 may be any suitable device configured to receive a control signal from processing system 30 and perform a function in response to the control signal. Devices 40 may be in one location in area 4 or distributed at different locations in area 4. One or more devices 40 may also be integrated with processing system 30 (e.g., device 40(3) as shown in the embodiment

Figure 1). Devices 40 communicate with processing system 30 using any suitable wired or wireless connection (e.g., a connection 42 shown in the embodiment of Figure 5).

[0021] In one example shown in Figure 1, a user 2(1) sitting in a chair in area 4 taps a command onto a surface 6(1) (e.g., the floor) as indicated by an arrow 8(1) to control a device 40(1). Device 40(1) may be a light switch or an electronic device that is near user 2(1), and the command may be to turn on or off device 40(1). Processing system 30 identifies the command and the location of user 2(1) and provides a control signal to device 40(1) based on the command and the location of user 2(1).

[0022] In another example, a user 2(2) standing near a wall in area 4 taps a command onto a surface 6(2) (e.g., the wall) as indicated by an arrow 8(2) to control a device 40(2). Device 40(2) may be a thermostat, and the command may be to increase or decrease the temperature in area 4. Processing system 30 identifies the command and the location of user 2(2) and provides a control signal to device 40(2) based on the command and the location of user 2(2).

[0023] In a further example, user 2(2) taps a different command onto surface 6(2) as indicated by arrow 8(2) to control a device 40(3). Device 40(3) may be a communications device that notifies authorities of an emergency, and the command may be a request for help. Processing system 30 identifies the command and the location of user 2(2) and provides a control signal to device 40(3) based on the command and the location of user 2(2).

[0024] The functions of system 10 are further illustrated in Figure 2 which is a flow chart illustrating one embodiment of a method for controlling devices 40 based on commands tapped by a user 2. In the embodiment of Figure 2, accelerometers 20 capture vibration data corresponding to a command tapped by a user 2 as indicated in a block 62. Each accelerometer 20 provides respective vibration data corresponding to the command to processing system 30. Processing system 30 generates a control signal based on the command and a location of user 2 identified from the vibration data as indicated in a block 64. Processing system 30 triangulates the location of user 2 using the

respective vibration data from accelerometers 20 and provides the control signal to a device 40 to cause a function corresponding to the control signal to be performed by device 40.

[0025] The functions of processing system 30 are further illustrated in Figure 3 which is a flow chart illustrating one embodiment of a method for processing vibration data to identify a command tapped by a user 2 and a location of user 2. In the embodiment of Figure 3, processing system 30 receives vibration data corresponding to a command from a user 2 from at least three accelerometers 20 as indicated in a block 70. Processing system 30 identifies the command from the vibration data as indicated in a block 72. Processing system 30 identifies a user location of user 2 from the vibration data using triangulation as indicated in a block 74.

[0026] Processing system 30 generates a control signal based on the command and the location as indicated in a block 76. In one embodiment, processing system 30 may generate a first control signal based on the command in response to the user location corresponding to a first predefined location in area 4 or a second control signal based on the command in response to the user location corresponding to a second predefined location in the area that differs from the first predefined location. Processing system 30 provides the control signal to a device as indicated in a block 78. In one embodiment, processing system 30 may provide the control signal to one device 40 in response to the user location corresponding to the first predefined location or to a different device 40 in response to the user location corresponding to the second predefined location. Accordingly, depending on the user location, the control signal may cause a function to be performed on one device 40 if the user is in the first predefined location or the same or a different function to be performed on another device 40 if the user is in the second predefined location.

[0027] The functions of processing system 30 are further illustrated in Figure 4 which is a flow chart illustrating one embodiment of a method for controlling devices 40 based on commands tapped by user 2 and a location of user 2. In Figure 4, processing system 30 registers devices 40 to be controlled as

indicated in a block 80. Processing system 30 registers devices 40, in one embodiment, by establishing a connection for communicating, identifying control signals that may be provided to devices 40 to cause functions to be performed, and associating commands and user locations with the control signals. Processing information 30 stores the registration information in device database 166 (shown in Figure 5) in some embodiments.

[0028] Processing system 30 receives vibration data from at least three accelerometers 20 that include a command tapped by a user as indicated in a block 81. Processing system 30 identifies the command as indicated in a block 82 and, if the command is valid, also identifies a user location of the user 2 that tapped the command as indicated in blocks 83 and 84. If the command is not valid, processing system 30 continues receiving vibration data as indicated in block 81.

[0029] For valid commands, processing system 30 generates a control signal based on the command and the user location as indicated in a block 85. Processing system 30 also logs the command in as indicated in a block 86. Processing system 30 may log the command in command log 168 (shown in Figure 5) in some embodiments. Processing system 30 provides the control signal to the device 40 as indicated in a block 87. Processing system 30 determines whether the function corresponding to the control signal was performed by the device 40 as indicated in a block 88. Processing system 30 may make this determination in response to receiving an acknowledge signal from the device 40 in some embodiments. Processing system 30 may omit this block for devices 40 that are not configured to provide an acknowledge signal or other confirmation signal to processing system 30. If the function was performed, processing system 30 continues receiving vibration data as indicated in block 81. If not, processing system 30 logs an error as indicated in a block 89. Processing system 30 may log the error in command log 168 (shown in Figure 5) in some embodiments.

[0030] Figure 5 is a block diagram illustrating one embodiment 10B of system 10 for controlling devices 40 based on commands tapped by users 2.

System 10B includes accelerometers 20(1)-20(*M*), where *M* is an integer greater than or equal to three, in communication with processing system 30 across respective connections 22(1)-22(*M*). System 10B also includes devices 40(1)-40(*N*), where *N* is an integer greater than or equal to one, in communication with processing system 30 across respective connections 42(1)-42(*N*). Processing system 30 receives vibration data 162 from accelerometers 20(1)-20(*M*) across connections 22(1)-22(*M*) that includes commands tapped by users and provides control signals 172 to appropriate devices 40(1)-40(*N*) across connections 42(1)-42(*N*). Processing system 30 may receive acknowledgement (ACK) signals 182 from any devices 40(1)-40(*N*) configured to provide signals 182 across connections 42(1)-42(*N*).

[0031] In the discussion below, accelerometer 20 refers to each accelerometer 20(1)-20(*M*) individually and accelerometers 20 refer to accelerometers 20(1)-20(*M*) collectively. Connection 22 refers to each connection 22(1)-22(*M*) individually and connections 22 refer to connections 22(1)-22(*M*) collectively. Likewise, device 40 refers to each device 40(1)-40(*N*) individually and devices 40 refer to devices 40(1)-40(*N*) collectively. Connection 42 refers to each connection 42(1)-42(*N*) individually and connections 42 refer to connections 42(1)-42(*N*) collectively.

[0032] In the embodiment of Figure 5, accelerometer 20 includes three layers, or "wafers." In particular, accelerometer 20 includes a stator wafer 103, a rotor wafer 106, and a cap wafer 109. Stator wafer 103 includes electronics 113 that may be electrically coupled to various electrical components in rotor wafer 106 and cap wafer 109. Also, electronics 113 may provide output ports for coupling to electronic components external to accelerometer 20.

[0033] Rotor wafer 106 includes support 116 that is mechanically coupled to a proof mass 119. Although the cross-sectional view of accelerometer 20 is shown, according to one embodiment, support 116 as a portion of rotor wafer 106 surrounds proof mass 119. Consequently, in one embodiment, stator wafer 103, support 116, and cap wafer 109 form a pocket within which proof mass 119 is suspended.

[0034] Together, stator wafer 103, support 116, and cap wafer 109 provide a support structure to which proof mass 119 is attached via a compliant coupling. The compliant coupling may, in one embodiment, comprise high aspect ratio flexural suspension elements 123 described in U.S. Patent No. 6,882,019.

[0035] Accelerometer 20 further includes a first electrode array 126 that is disposed on proof mass 119. In one embodiment, first electrode array 126 is located on a surface of proof mass 119 that is opposite the upper surface of stator wafer 103. The surface of the proof mass 119 upon which the first electrode array 126 is disposed is a substantially flat surface.

[0036] A second electrode array 129 is disposed on a surface of stator wafer 103 facing opposite first electrode array 126 disposed on proof mass 119. Because proof mass 126 is suspended over stator wafer 103, a substantially uniform gap 133 (denoted by d) is formed between first electrode array 126 and second electrode array 129. The distance d may comprise, for example, anywhere from 1 to 3 micrometers, or it may be another suitable distance.

[0037] Proof mass 119 is suspended above stator wafer 103 so that first electrode array 126 and second electrode array 129 substantially fall into planes that are parallel to each other and gap 133 is substantially uniform throughout the overlap between first and second electrode arrays 126 and 129. In other embodiments, electrode arrays 126 and 129 may be placed on other surfaces or structures of stator wafer 103 or proof mass 119.

[0038] High aspect ratio flexural suspension elements 123 offer a degree of compliance that allows proof mass 119 to move relative to the support structure of accelerometer 20 (not shown). Due to the design of flexural suspension elements 123, the displacement of proof mass 119 from a rest position is substantially restricted to a direction that is substantially parallel to second electrode array 129, which is disposed on the upper surface of stator wafer 103. Flexural suspension elements 123 are configured to allow for a predefined amount of movement of proof mass 119 in a direction parallel to second electrode array 129 such that gap 133 remains substantially uniform throughout the entire motion to the extent possible. The design of flexural suspension elements 123 provides for a minimum amount of motion of proof mass 119 in a

direction orthogonal to second electrode array 129 while allowing a desired amount of motion in the direction parallel to second electrode array 129.

[0039] As proof mass 119 moves, capacitances between first and second electrode arrays 126 and 129 vary with the shifting of the arrays with respect to each other. Electronics 113 and / or external electronics are employed to detect or sense the degree of the change in the capacitances between electrode arrays 126 and 129. Based upon the change in the capacitances, such circuitry can generate appropriate signals that are proportional to the vibrations from patient 2 experienced by accelerometer 20.

[0040] The operation of accelerometer 20 is enhanced by the use of three-phase sensing and actuation as described by United States Patent Nos. 6,882,019 and 7,484,411. Three-phase sensing uses an arrangement of sensing electrodes 126 and 129 and sensing electronics 113 to enhance the output signal of accelerometer 20 and allow for the sensitivity to be maximized in a desired range. It also allows the output of accelerometer 20 to be "reset" to zero electronically when the sensor is in any arbitrary orientation.

[0041] Processing system 30 represents any suitable processing device, or portion of a processing device, configured to implement the functions of the method shown in Figure 5 and described above. A processing device may be a laptop computer, a tablet computer, a desktop computer, a server, or another suitable type of computer system. A processing device may also be a mobile telephone with processing capabilities (i.e., a smart phone) or another suitable type of electronic device with processing capabilities. Processing capabilities refer to the ability of a device to execute instructions stored in a memory 144 with at least one processor 142. Processing system 30 represents one of a plurality of processing systems in a cloud computing environment in one embodiment.

[0042] Processing system 30 includes at least one processor 142 configured to execute machine readable instructions stored in a memory system 144. Processing system 30 may execute a basic input output system (BIOS), firmware, an operating system, a runtime execution environment, and / or other services and / or applications stored in memory 144 (not shown) that includes

machine readable instructions that are executable by processors 142 to manage the components of processing system 30 and provide a set of functions that allow other programs to access and use the components. Processing system 30 stores vibration data 162 received from accelerometers 20 in memory system 144 along with a command unit 164 that identifies commands from vibration data 162 and user locations from vibration data 162, generates control signals 172 based on the commands and user locations, and provides control signals 172 to devices 40 as described above with reference to Figures 1-4. Processing system 30 further stores device database 166 and command log 168 in some embodiments.

[0043] Processing system 30 may also include any suitable number of input / output devices 146, display devices 148, ports 150, and / or network devices 152. Processors 142, memory system 144, input / output devices 146, display devices 148, ports 150, and network devices 152 communicate using a set of interconnections 154 that includes any suitable type, number, and / or configuration of controllers, buses, interfaces, and / or other wired or wireless connections. Components of processing system 30 (for example, processors 142, memory system 144, input / output devices 146, display devices 148, ports 150, network devices 152, and interconnections 154) may be contained in a common housing with accelerometer 20 (not shown) or in any suitable number of separate housings separate from accelerometer 20 (not shown).

[0044] Each processor 142 is configured to access and execute instructions stored in memory system 144 including command unit 164. Each processor 142 may execute the instructions in conjunction with or in response to information received from input / output devices 146, display devices 148, ports 150, and / or network devices 152. Each processor 142 is also configured to access and store data, including vibration data 162, device database 166, and command log 168, in memory system 144.

[0045] Memory system 144 includes any suitable type, number, and configuration of volatile or non-volatile storage devices configured to store instructions and data. The storage devices of memory system 144 represent computer readable storage media that store computer-readable and computer-

executable instructions including command unit 164. Memory system 144 stores instructions and data received from processors 142, input / output devices 146, display devices 148, ports 150, and network devices 152. Memory system 144 provides stored instructions and data to processors 142, input / output devices 146, display devices 148, ports 150, and network devices 152. Examples of storage devices in memory system 144 include hard disk drives, random access memory (RAM), read only memory (ROM), flash memory drives and cards, and other suitable types of magnetic and / or optical disks.

[0046] Input / output devices 146 include any suitable type, number, and configuration of input / output devices configured to input instructions and / or data from a user to processing system 30 and output instructions and / or data from processing system 30 to the user. Examples of input / output devices 146 include a touchscreen, buttons, dials, knobs, switches, a keyboard, a mouse, and a touchpad.

[0047] Display devices 148 include any suitable type, number, and configuration of display devices configured to output image, textual, and / or graphical information to a user of processing system 30. Examples of display devices 148 include a display screen, a monitor, and a projector. Ports 150 include suitable type, number, and configuration of ports configured to input instructions and / or data from another device (not shown) to processing system 30 and output instructions and / or data from processing system 30 to another device.

[0048] Network devices 152 include any suitable type, number, and / or configuration of network devices configured to allow processing system 30 to communicate across one or more wired or wireless networks (not shown). Network devices 152 may operate according to any suitable networking protocol and / or configuration to allow information to be transmitted by processing system 30 to a network or received by processing system 152 from a network.

[0049] Connection 22 includes any suitable type and combination of wired and / or wireless connections that allow accelerometer 20 to provide vibration data 162 to processing system 30. Connection 22 may connect to one or more ports and / or one or more network devices 152 of processing system 30. For

example, connection 22 may comprise a wireless network connection that includes a wireless network device (not shown) that transmits vibration data 162 from accelerometer 20 to processing system 30. As another example, connection 22 may comprise a cable connected from accelerometer 20 to a port 150 to transmit vibration data 162 from accelerometer 20 to processing system 30.

[0050] Connection 42 includes any suitable type and combination of wired and / or wireless connections that allow device 40 to receive control signals 172 from processing system 30 and provide acknowledgement signals 182 from device 40 to processing system 30. Connection 42 may connect to one or more ports and / or one or more network devices 152 of processing system 30. For example, connection 42 may comprise a wireless network connection that includes a wireless network device (not shown) that receives control signals 172 from processing system 30 and transmits acknowledgement signals 182 from device 40 to processing system 30. As another example, connection 42 may comprise a cable connected from device 40 to a port 150 to receives control signals 172 from processing system 30 and transmits acknowledgement signals 182 from device 40 to processing system 30.

[0051] The above embodiments may advantageously provide a user with the ability to control devices with using no remote controls or devices that are carried with the user.

CLAIMS

What is claimed is:

1. A system comprising:
at least three accelerometers disposed in different locations of an area to capture respective vibration data corresponding to a command tapped onto the surface by a user, the area including a surface; and
a processing system to receive the vibration data from each accelerometer, identify the command and a location of the user from the vibration data, and generate a control signal based on the command and the location.
2. The system of claim 1 wherein the processing system is to provide the control signal to a device in the area.
3. The system of claim 2 wherein the processing system is to select the device for receiving the control signal based on the location of the user.
4. The system of claim 2 wherein the processing system is to register the device and the command prior to receiving the vibration data.
5. The system of claim 2 wherein the processing system is to receive an acknowledge signal from the device in response to the control signal.
6. The system of claim 1 wherein the processing system is to identify the location of the user using triangulation.
7. The system of claim 1 wherein the accelerometers each include a proof mass with a first electrode array suspended above a second electrode array disposed on a wafer.

8. The system of claim 1 wherein the accelerometers each include three-phase sensing and actuation.
9. The system of claim 1 wherein the accelerometers each detect changes in capacitances between a first electrode arrays disposed on a proof mass and a second electrode array disposed on a wafer.
10. A method performed by a processing system, the method comprising:
 - receiving vibration data captured by at least three accelerometers disposed in different locations of an area in response to a user tapping a command on a surface in the area;
 - processing the vibration data with the processing system to identify the command and a user location;
 - generating a first control signal based on the command in response to the user location corresponding to a first predefined location in the area; and
 - generating a second control signal based on the command in response to the user location corresponding to a second predefined location in the area that differs from the first predefined location.
11. The method of claim 10 further comprising:
 - providing the first control signal to a first device in response to the user location corresponding to the first predefined location; and
 - providing the second control signal to a second device in response to the user location corresponding to the second predefined location.
12. The method of claim 10 wherein the first control signal causes a first function to be performed on a device, and wherein the second control signal causes a second function to be performed on the device.
13. The method of claim 10 further comprising:

identifying the user location by triangulating the vibration data.

14. A computer-readable storage medium storing instructions that, when executed by a processing system, perform a method comprising:

receiving first vibration data captured by at least three accelerometers disposed in different locations of an area in response to a user tapping a first command on a first surface in the area; and

generating a first control signal to cause a first function to be performed based on the first command and a first user location determined from the first vibration data.

15. The computer-readable storage medium of claim 14, the method further comprising:

receiving second vibration data captured by the at least three accelerometers while the user tapped a second command on a second surface in the area; and

generating a second control signal to cause a second function to be performed based on the second command and a second user location determined from the second vibration data, the second user location differing from the first user location.

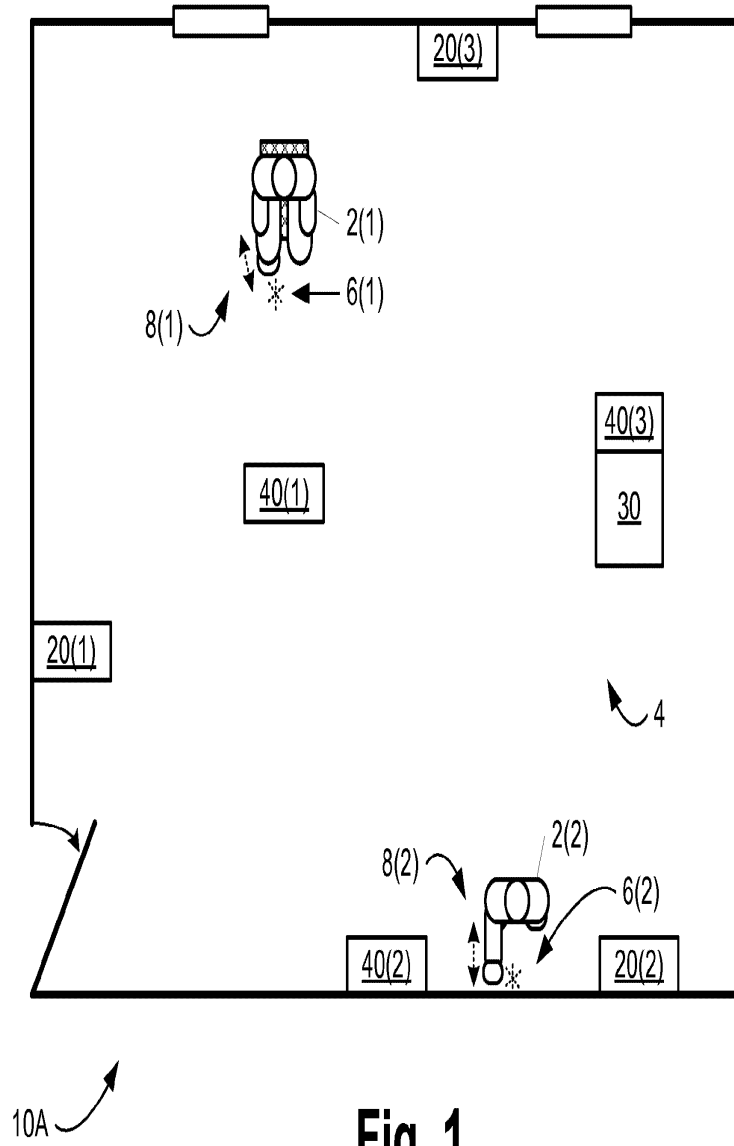
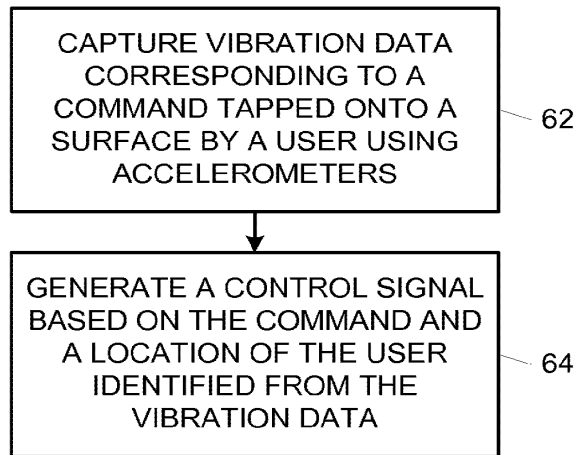
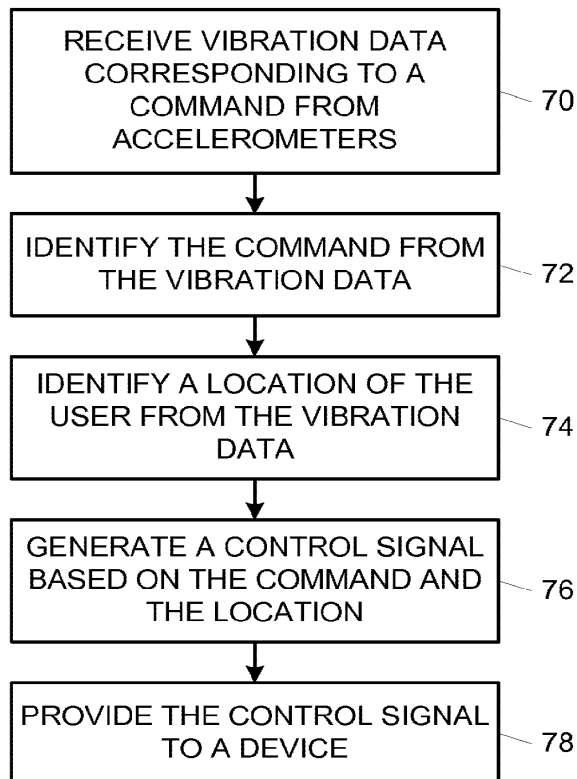
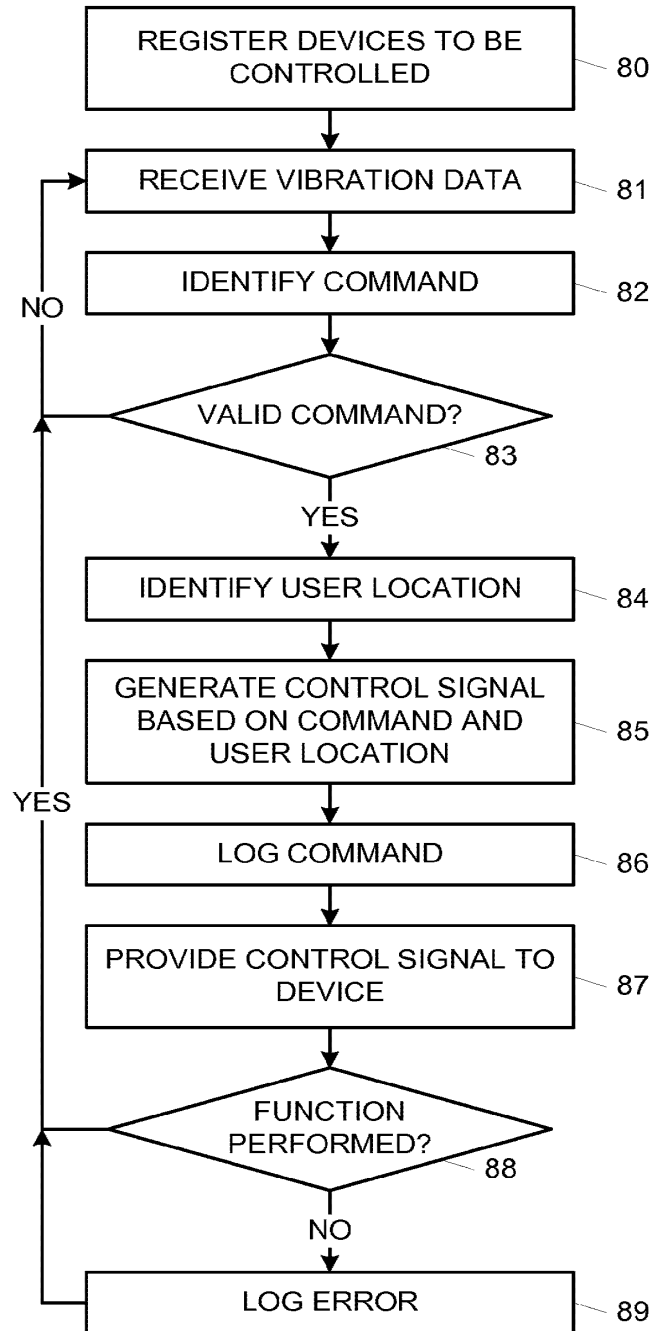


Fig. 1

2/4

**Fig. 2****Fig. 3**

**Fig. 4**

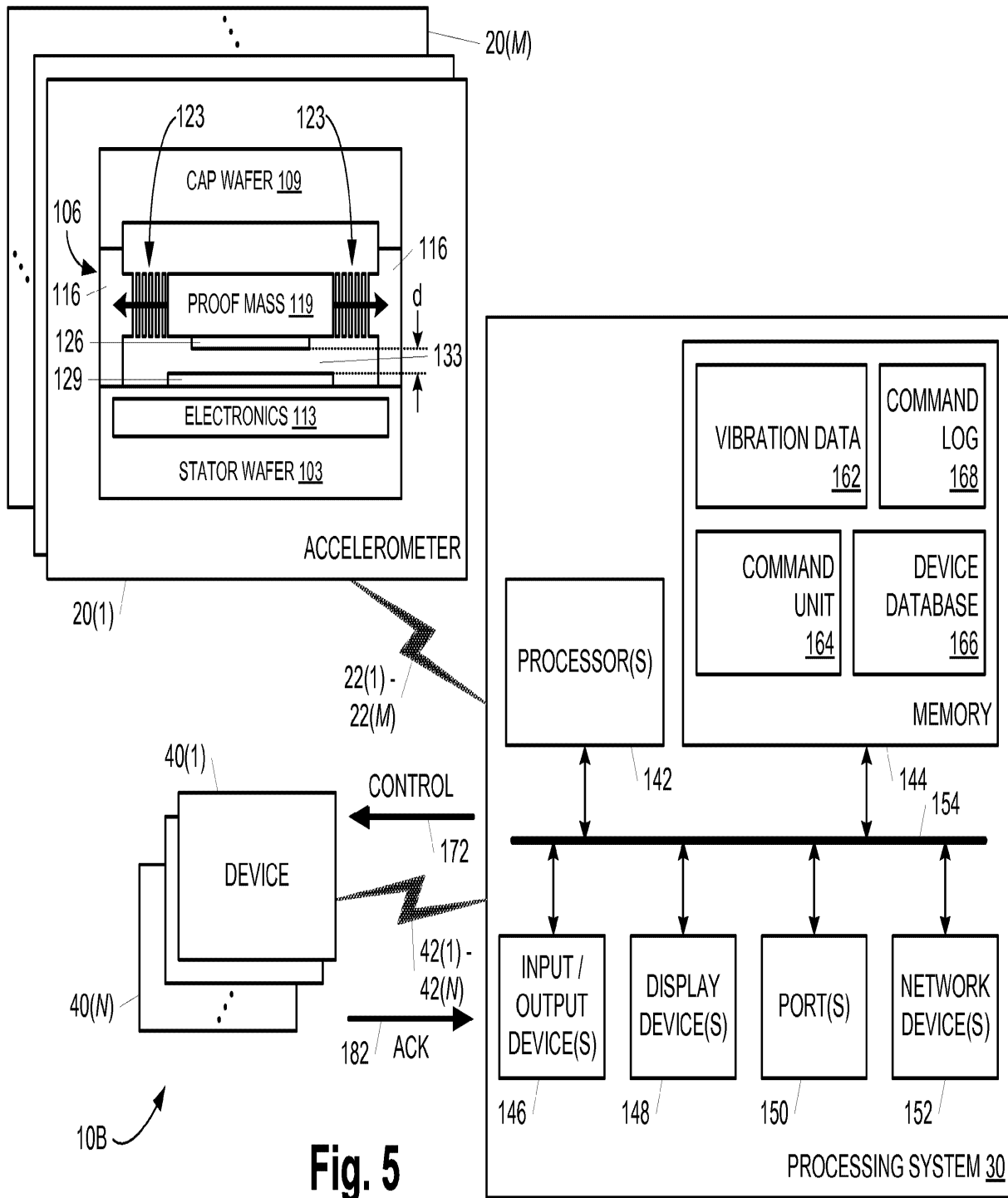


Fig. 5

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US2012/035777**A. CLASSIFICATION OF SUBJECT MATTER****G05B 19/02(2006.01)i, G01H 11/00(2006.01)i, G01H 1/00(2006.01)i, G01M 99/00(2011.01)i, G01P 15/097(2006.01)i**

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)

G05B 19/02; H04N 5/44; G06F 3/033; H04N 7/16; H04Q 5/22; G01S 3/801

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Korean utility models and applications for utility models

Japanese utility models and applications for utility models

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

eKOMPASS(KIPO internal) & Keywords: "accelerometer*,sensor*", "vibrat*,tap*", "locat*,positi*", "control*,command*"

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 7710824 B1 (ROBIN DALE KATZER et al.) 04 May 2010 See the abstract; column 3, lines 17-27, column 5, lines 5-7, column 7, lines 57-59; and figures 1,2,4.	1-15
A	US 2011-0080529 A1 (LING JUN WONG) 07 April 2011 See the abstract; paragraphs [0051]-[0064]; and figures 1,8.	1-15
A	US 2010-0123560 A1 (HARVEY A. NIX et al.) 20 May 2010 See the abstract; paragraphs [0041]-[0050]; and figures 5,5A,6,11.	1-15
A	US 2012-0066707 A1 (JIM PODER et al.) 15 March 2012 See the abstract; paragraphs [0063]-[0065]; and figures 1,12.	1-15



Further documents are listed in the continuation of Box C.



See patent family annex.

* Special categories of cited documents:	"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
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"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	

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21 DECEMBER 2012 (21.12.2012)

Date of mailing of the international search report

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JUNG, Sung Yun

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INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No.

PCT/US2012/035777

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 7710824 B1	04.05.2010	None	
US 2011-0080529 A1	07.04.2011	None	
US 2010-0123560 A1	20.05.2010	WO 2010-059678 A2 WO 2010-059678 A3	27.05.2010 27.05.2010
US 2012-0066707 A1	15.03.2012	CA 2751731 A1 EP 2431955 A2	15.03.2012 21.03.2012



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CONFIRMATION NO. 8434

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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.

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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.

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
15/043,283	02/12/2016	Yaniv BOSHERNITZAN	571/8	8434
91209	7590	05/24/2017	EXAMINER	
Andrew W. Chu Craft Chu PLLC 1445 North Loop West Suite 410 Houston, TX 77008			CHENG, JOE H	
			ART UNIT	PAPER NUMBER
			2696	
			NOTIFICATION DATE	DELIVERY MODE
			05/24/2017	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):

achu@craftchu.com
achu@awciplaw.com

Office Action Summary	Application No. 15/043,283	Applicant(s) BOSHERNITZAN ET AL.	
	Examiner JOE H. CHENG	Art Unit 2696	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 2/12/2016.
☐ 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 2/12/2016 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) | 3) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____. |
| 2) ☒ Information Disclosure Statement(s) (PTO/SB/08a and/or PTO/SB/08b)
Paper No(s)/Mail Date ____. | 4) ☐ Other: ____. |

DETAILED ACTION

Notice of Pre-AIA or AIA Status

1. The present application, filed on or after March 16, 2013, is being examined under the first inventor to file provisions of the AIA.

Drawings

2. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the claimed “means for initiating activity of the terminal device”, “additional terminal device” and “additional means for initiating activity of the additional terminal device” must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as “amended.” If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either “Replacement Sheet” or “New Sheet” pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will

be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

3. The disclosure is objected to because of the following informalities: The reference number “34” is unclear and confusing, because it is not understood as to whether it is referred to the “printed circuit board” or the “range”. In addition, the term “antenna 35” on Pg. 14, line 3 should be recited as --antenna 37--, so as to consist with the description of the same reference number. Appropriate correction is required.

Claim Objections

4. Claims 8 and 13 are objected to because of the following informalities: The terms “said last defined peak” (line 6 of claim 8) and “said additional sensor,” (lines 10 and 11 of claim 13) should be respectively recited as --said last defined peak.-- and --said additional sensor.--. Appropriate correction is required.

Claim Rejections - 35 USC § 112

5. The following is a quotation of 35 U.S.C. 112(f):

(f) Element in Claim for a Combination. – An element in a claim for a combination may be expressed as a means or step for performing a specified function without the recital of structure, material, or acts in support thereof, and such claim shall be construed to cover the corresponding structure, material, or acts described in the specification and equivalents thereof.

The following is a quotation of pre-AIA 35 U.S.C. 112, sixth paragraph:

An element in a claim for a combination may be expressed as a means or step for performing a specified function without the recital of structure, material, or acts in support thereof, and such claim

shall be construed to cover the corresponding structure, material, or acts described in the specification and equivalents thereof.

6. Claim elements of “engagement means” (as per claims 1, 5 and 13) and “means for initiating activity of said terminal device” (as per claims 1 and 16) are the limitations that invoke 35 U.S.C. 112(f) or pre-AIA 35 U.S.C. 112, sixth paragraph. However, the written description fails to disclose the corresponding structure, material, or acts for the claimed function. The specification fails to clearly link or associate that structure to the function recited in a means-plus-function claim limitation, and one skill in the art cannot identify what structure, material, or acts disclosed in the written description in the specification perform the claimed function.

Claim limitation of “engagement means” (as per claims 1, 5 and 13) and “means for initiating activity of said terminal device” (as per claims 1 and 16) has/have been interpreted under 35 U.S.C. 112(f) or pre-AIA 35 U.S.C. 112, sixth paragraph, because it uses/they use a generic placeholder “engagement means” coupled with functional language “for a mounting surface”, or “means” coupled with functional language “for initiating activity of said terminal device” without reciting sufficient structure to achieve the function. Furthermore, the generic placeholder is not preceded by a structural modifier. The generic placeholder is not recognized as the name of a structure but is merely a substitute for the term “means”.

Since the claim limitation(s) invokes 35 U.S.C. 112(f) or pre-AIA 35 U.S.C. 112, sixth paragraph, claim(s) 11, 13 and 15-17 has/have been interpreted to cover the corresponding structure described in the specification that achieves the claimed function, and equivalents thereof.

A review of the specification shows that the following appears to be the corresponding structure described in the specification for the 35 U.S.C. 112(f) or pre-AIA 35 U.S.C. 112, sixth

paragraph limitation: For example, the engagement means can be interpreted as the an attachment means between the housing to the mounting surface cited in [0026], and the means for initiating activity can be interpreted as the switch or other actuating mechanism to change the status of the terminal device cited in [0030] of the specification.

If applicant wishes to provide further explanation or dispute the examiner's interpretation of the corresponding structure, applicant must identify the corresponding structure with reference to the specification by page and line number, and to the drawing, if any, by reference characters in response to this Office action.

If applicant does not intend to have the claim limitation(s) treated under 35 U.S.C. 112(f) or pre-AIA 35 U.S.C. 112 , sixth paragraph, applicant may amend the claim(s) so that it/they will clearly not invoke 35 U.S.C. 112(f) or pre-AIA 35 U.S.C. 112, sixth paragraph, or present a sufficient showing that the claim recites/recite sufficient structure, material, or acts for performing the claimed function to preclude application of 35 U.S.C. 112(f) or pre-AIA 35 U.S.C. 112, sixth paragraph.

For more information, see MPEP § 2173 *et seq.* and *Supplementary Examination Guidelines for Determining Compliance With 35 U.S.C. 112 and for Treatment of Related Issues in Patent Applications*, 76 FR 7162, 7167 (Feb. 9, 2011).

Claim Rejections - 35 USC § 103

7. 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.

8. 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.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103 are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

9. Claims 1-4, 7-9, 11, 13 and 15-20 are rejected under 35 U.S.C. 103 as being unpatentable over Zimmerman (US Pat. No. 5,103,085) in view of Sloo et al (US Pub. No. 2015/0100167 A1).

Regarding claim 1, Figs. 1A, 1B, 4 and 6 of Zimmerman broadly discloses the control system (see Fig. 4) comprising a housing (e.g. the housing of the photoelectric proximity switch panel 150 or touch panel 301) having an engagement means for a mounting surface (i.e. the touch panel installed onto the glass panel 9 of the window 156); a sensor (i.e. the infrared phototransistor (IRPT) 13) contained within the housing, the sensor forming an interactive zone defined by a range of the sensor, the interactive zone being aligned with the mounting surface (see column 9, lines 9-12 and 21-26 and column 10, lines 23-33), the sensor being in a fixed position relative to the engagement means, wherein a contact interaction associated with the mounting surface within the interactive zone is detected by the sensor as data signals (i.e. the

user touch the window 156 coming within the range of the photoelectric proximity switch panel 150; column 9, lines 9-11); and an output module (e.g. the monitor 154) connected to the processing module (i.e. the control unit 152) for initiating activity of the terminal device (e.g. the video disk player 153) corresponding to the command (column 9, lines 9-20). It is noted that the teaching of Zimmerman does not specifically disclose the server and routing module as required. However, Fig. 1 of Sloo et al broadly discloses that such features of the server (i.e. central server 164) in communication with the sensor (e.g. the ultrasonic or passive IR sensor, or ambient light sensor, or photoresistor sensor, or occupancy sensor, ... etc.; [0137], [0143]-[0145])([0067], [0068]), the server being comprised of the routing module (wireless router 160)([0247],[0248]), the processing module determining a data pattern corresponding to the data signals of the contact interaction and matching the data pattern with a gesture profile ([0089], [0094], [0111], [0121]). Hence, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the system of Zimmerman with the features of the server and routing module as taught by Sloo et al as both Zimmerman and Sloo et al are directed to the control system, so as to provide a variety of detection objectives in the smart environment.

Regarding claims 2-4, Figs. 1B and 4 of Zimmerman broadly discloses that the interactive zone of said sensor aligns with said mounting surface, and the interactive zone being coplanar with the mounting surface (as per claim 2), or the interactive zone overlaying the mounting surface (as per claim 3), or the interactive zone being made integral with said mounting surface (as per claim 4).

Regarding claim 7, the teaching of Sloo et al broadly discloses that the impact on the mounting surface ([0063]), the data signals having a respective defined peak corresponding to

each impact, a defined time period after a last defined peak, the data pattern being comprised of each defined peak and the defined time period after the last defined peak ([0078], [0085], [0096], [0267]).

Regarding claim 8, the teaching of Sloo et al broadly discloses that the contact interaction is comprised of a plurality of impacts on the mounting surface ([0063]), the data signals having a respective defined peak corresponding to each impact, a measured time period between each defined peak, and a defined time period after a last defined peak, the data pattern being comprised of each defined peak and the defined time period after the last defined peak, each measured time period, and said defined time period after said last defined peak ([0078], [0085], [0096], [0267]).

Regarding claims 9 and 11, the teaching of Sloo et al broadly discloses that the sensor is comprised of an acoustic sensor, the data signals being comprised of sound data of the contact interaction ([0147]).

Regarding claim 15, the teaching of Zimmerman broadly discloses that the terminal device is comprised of one device selected from a group consisting of: a television, a thermostat, a computer, a software system, a game console, a fan, a mattress adjustor, an alarm clock, and a lighting fixture (column 5, lines 18-24 and column 9, lines 4-8).

Regarding claim 16, the teaching of Zimmerman broadly discloses that the additional terminal device comprised of an additional receiving module and additional means for initiating activity of the additional terminal device corresponding to an additional command (column 5, lines 18-24 and column 9, lines 4-8). It is noted that the teaching of Zimmerman does not specifically disclose the server as required. However, Fig. 1 of Sloo et al broadly discloses that

such features of the additional terminal device being in communication with the server (i.e. central server 164) ([0089], [0094], [0111], [0121], [0247],[0248]). Hence, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the system of Zimmerman with the features of the server as taught by Sloo et al as both Zimmerman and Sloo et al are directed to the control system.

Regarding claims 17-20, the claims are directed to the method of controlling a terminal device of claims 1, 7, 8 and 13 and are similar in scope to claims 1, 7, 8 and 13. Therefore claims 17-20 are rejected under the same rationale set forth in claims 1, 7, 8 and 13.

10. Claim 5 is rejected under 35 U.S.C. 103 as being unpatentable over Zimmerman (US Pat. No. 5,103,085) in view of Sloo et al (US Pub. No. 2015/0100167 A1) and further in view of Marks et al (US Pub. No. 2007/0080819 A1).

Regarding claim 5, it is noted that the teachings of Zimmerman and Sloo et al do not specifically disclose the attachment means as required. However, Fig. 6 of Marks et al broadly discloses that such feature of the attachment means (27) is old and well known. Hence, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the system of Zimmerman and Sloo et al with the attachment means as taught by Marks et al as both Zimmerman, Sloo et al and Marks et al are directed to the control system, so as to attach the housing of the sensor to the mounting surface.

11. Claim 6 is rejected under 35 U.S.C. 103 as being unpatentable over Zimmerman (US Pat. No. 5,103,085) in view of Sloo et al (US Pub. No. 2015/0100167 A1) further in view of Marks et

al (US Pub. No. 2007/0080819 A1) and furthermore in view of Tillman, Sr. (US Pat. No. 5,971,761).

Regarding claim 6, it is noted that the teachings of Zimmerman, Sloo et al and Marks et al do not specifically disclose the spring loaded portion as required. However, Figs. 2 and 2a of Tillman, Sr. broadly discloses that such feature of the spring loaded portion (22; see column 4, lines 11-20) is old and well known. Hence, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the system of Zimmerman, Sloo et al and Marks et al with the spring loaded portion as taught by Tillman, Sr. as both Zimmerman, Sloo et al, Marks et al and Tillman, Sr. are directed to the control system, so as to reduce damping of the contact interaction.

12. Claims 10 and 12-14 are rejected under 35 U.S.C. 103 as being unpatentable over Zimmerman (US Pat. No. 5,103,085) in view of Sloo et al (US Pub. No. 2015/0100167 A1) and further in view of Breed (US Pub. No. 2005/0046584 A1).

Regarding claims 10 and 12, it is noted that the teachings of Zimmerman and Sloo et al do not specifically disclose the sensor is comprised of an accelerometer as required. However, the teaching of Breed broadly discloses that such feature of the sensor is comprised of an accelerometer, the data signals being comprised of vibration data of the contact interaction ([1248], [1914]) is old and well known. Hence, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the system of Zimmerman and Sloo et al with the sensor is comprised of an accelerometer as taught by Breed as both Zimmerman,

Sloo et al and Breed are directed to the control system, so as to provide the vibration data of the contact interaction.

Regarding claim 13, it is noted that the teachings of Zimmerman and Sloo et al do not specifically disclose the additional sensor contained within the housing as required. However, the teaching of Breed broadly discloses that such feature of the additional sensor contained within the housing ([3214], [3225], [3229]) is old and well known. Hence, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the system of Zimmerman and Sloo et al with the additional sensor contained within the housing as taught by Breed as both Zimmerman, Sloo et al and Breed are directed to the control system, so as to provide the additional interactive zone.

Regarding claim 14, it is noted that the teachings of Zimmerman, Sloo et al and Breed do not specifically disclose that the interactive zone of the sensor overlaps with the additional interactive zone of the additional sensor as required. However, such limitation of that the interactive zone of the sensor overlaps with the additional interactive zone of the additional sensor is considered an arbitrary obvious design choice, so as to overlap the interactive zone.

Conclusion

13. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Simon et al (US Pat. No. 4,377,049) teaches capacitive switching panel.

Tani et al (US Pat. No. 6,335,722 B1) discloses the video or information processing method and processing apparatus, and monitoring method and monitoring apparatus using the same.

Kanazawa et al (US Pub. No. 2004/0214617 A1) teaches the electronic apparatus and service providing method used in the electronic apparatus.

Harvey et al (US Pub. No. 2006/0164253 A1) discloses the hazard detection.

Beniyama et al (US Pub. No. 2010/0017407 A1) teaches the three-dimensional object recognition system and inventory system using the same.

Lewis et al (US Pub. No. 2010/0053152 A1) discloses the system and method for the interactive display of data in a motion capture environment.

Koshiyama et al (US Pat. No. 8,665,237 B2) teaches the information display apparatus with proximity detection performance and information display method using the same.

Yashiro et al (US Pub. No. 2014/0088794 A1) discloses the remote control system for in-vehicle device.

Ybanez Zepeda (US Pub. No. 2014/0191938 A1) teaches the virtual sensor systems and methods.

Yamaguchi et al (US Pub. No. 2014/0249681 A1) discloses the appliance control system and remote controller.

Boshernitzan et al (US Pub. No. 2016/0266636 A1) teaches the method for regulating a system for controlling a terminal device.

14. Any inquiry concerning this communication or earlier communications from the examiner should be directed to JOE H. CHENG whose telephone number is (571)272-4433. The examiner can normally be reached on Mon. - Fri..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Temesghen Ghebretinsae can be reached on (571) 272-3017. 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.

/JOE H CHENG/
Primary Examiner
Art Unit 2696

Notice of References Cited	Application/Control No. 15/043,283	Applicant(s)/Patent Under Reexamination BOSHERNITZAN ET AL.	
	Examiner JOE H. CHENG	Art Unit 2696	Page 1 of 2

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*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	CPC Classification	US Classification
*	A	US-4,377,049 A	03-1983	Simon; Donald R.	G09F3/18	200/309
*	B	US-5,103,085 A	04-1992	Zimmerman; Thomas G.	G01S17/06	250/214B
*	C	US-6,335,722 B1	01-2002	Tani; Masayuki	G05B23/0216	345/173
*	D	US-2004/0214617 A1	10-2004	Kanazawa, Koji	H04L12/2823	455/574
*	E	US-2005/0046584 A1	03-2005	Breed, David S.	B60C11/24	340/13.31
*	F	US-2006/0164253 A1	07-2006	Harvey; AnnM	G08B29/26	340/628
*	G	US-2007/0080819 A1	04-2007	Marks; Mitchell J.	G08B17/10	340/628
*	H	US-2010/0017407 A1	01-2010	BENIYAMA; Fumiko	G06F17/30259	707/E17.016
*	I	US-2010/0053152 A1	03-2010	Lewis; George Steven	G06T19/00	345/419
*	J	US-8,665,237 B2	03-2014	Koshiyama; Atsushi	G06F3/0412	345/156
*	K	US-2014/0088794 A1	03-2014	YASHIRO; Hiroyuki	G08C17/02	701/2
*	L	US-2014/0191938 A1	07-2014	Ybanez Zepeda; Jose Alonso	G06F3/017	345/156
*	M	US-2014/0249681 A1	09-2014	Yamaguchi; Hideaki	G08C17/02	700/276

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*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Country	Name	CPC Classification
	N					
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Notice of References Cited	Application/Control No. 15/043,283	Applicant(s)/Patent Under Reexamination BOSHERNITZAN ET AL.	
	Examiner JOE H. CHENG	Art Unit 2696	Page 2 of 2

U.S. PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	CPC Classification	US Classification
*	A	US-2015/0100167 A1	04-2015	Sloo; David	H04L67/025	700/278
*	B	US-2016/0266636 A1	09-2016	BOSHERNITZAN; Yaniv	G06F1/3231	1/1
	C	US-				
	D	US-				
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BIB DATA SHEET

CONFIRMATION NO. 8434

SERIAL NUMBER	FILING or 371(c) DATE	CLASS	GROUP ART UNIT	ATTORNEY DOCKET NO.		
15/043,283	02/12/2016	345	2696	571/8		
RULE						
APPLICANTS Swan Solutions Inc., Houston, TX; INVENTORS Yaniv BOSHERNITZAN, Houston, TX; Ohad NEZER, Houston, TX; ** CONTINUING DATA ***** This appln claims benefit of 62/115,769 02/13/2015 ** FOREIGN APPLICATIONS ***** ** IF REQUIRED, FOREIGN FILING LICENSE GRANTED ** ** SMALL ENTITY ** 02/29/2016						
Foreign Priority claimed ☐ Yes ☒ No 35 USC 119(a-d) conditions met ☐ Yes ☒ No Verified and Acknowledged <u>/JOE H CHENG/</u> Examiner's Signature		☐ Met after Allowance Initials	STATE OR COUNTRY TX	SHEETS DRAWINGS 6	TOTAL CLAIMS 20	INDEPENDENT CLAIMS 2
ADDRESS Andrew W. Chu Craft Chu PLLC 1445 North Loop West Suite 410 Houston, TX 77008 UNITED STATES						
TITLE SYSTEM AND METHOD FOR CONTROLLING A TERMINAL DEVICE						
FILING FEE RECEIVED 730	FEES: Authority has been given in Paper No. _____ to charge/credit DEPOSIT ACCOUNT No. _____ for following:			☐ All Fees		
				☐ 1.16 Fees (Filing)		
				☐ 1.17 Fees (Processing Ext. of time)		
				☐ 1.18 Fees (Issue)		
				☐ Other _____		
			☐ Credit			

Search Notes 	Application/Control No. 15043283	Applicant(s)/Patent Under Reexamination BOSHERNITZAN ET AL.
	Examiner JOE H CHENG	Art Unit 2696

CPC- SEARCHED		
Symbol	Date	Examiner
G06F 3/017,0414,0433,0436,0488		
G06K 9/00335,3233,6201	5/14/2017	JC

CPC COMBINATION SETS - SEARCHED		
Symbol	Date	Examiner

US CLASSIFICATION SEARCHED			
Class	Subclass	Date	Examiner

SEARCH NOTES		
Search Notes	Date	Examiner
EAST search	5/14/2017	JC

INTERFERENCE SEARCH			
US Class/ CPC Symbol	US Subclass / CPC Group	Date	Examiner
EAST search		5/14/2017	JC

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<i>Index of Claims</i> 	Application/Control No. 15043283	Applicant(s)/Patent Under Reexamination BOSHERNITZAN ET AL.
	Examiner JOE H CHENG	Art Unit 2696

✓	Rejected	-	Cancelled	N	Non-Elected	A	Appeal
=	Allowed	÷	Restricted	I	Interference	O	Objected

☐ Claims renumbered in the same order as presented by applicant			☐ CPA			☐ T.D.			☐ R.1.47		
CLAIM		DATE									
Final	Original	05/14/2017									
	1	✓									
	2	✓									
	3	✓									
	4	✓									
	5	✓									
	6	✓									
	7	✓									
	8	✓									
	9	✓									
	10	✓									
	11	✓									
	12	✓									
	13	✓									
	14	✓									
	15	✓									
	16	✓									
	17	✓									
	18	✓									
	19	✓									
	20	✓									

EAST Search History

EAST Search History (Prior Art)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
L1	6	(boshernitzan-yaniv or nezer-ohad).inv.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2017/05/14 19:46
L2	2	swan-solutions-\$.as.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2017/05/14 19:46
L3	0	1 and 2	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2017/05/14 19:46
L4	0	(15/068401).APP.	USPAT; USOCR	OR	OFF	2017/05/14 19:48
L5	8	("8788978" "8228315" "5971761" "20140225824" "20140111483" "20130321346" "20120249416" "20100001992").PN.	US-PGPUB; USPAT	OR	OFF	2017/05/14 19:51
L8	102244	(G06F3/017,0414,0433,0436,0488 or G06K9/00335,3233,6201).qpc.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2017/05/14 20:01
L9	0	((range or (interactive near3 zone\$1)) near5 (sensor\$1 or monitor1 or detector\$1)) and ((range or (interactive near3 zone\$1)) near4 ((align\$3 or coplanar or overlay\$3 or integral) near4 (mount\$3 near3 surface))) and (server same (router or (rout\$3 near3 module))) and ((gesture near3 (pattern or profile)) near3 command) and (command with (((initat\$3 or begin\$4 or start\$3) near3 activity) or activat\$3 or actuat\$3 or (turn near3 on) or active) near3 ((terminal near3 derice) or appliance or television or tv or thermostat or computer ot tablet or (game near3 console) or smartphone or fan or (mattress near3 adjuster) or alarm or clock or (light\$3 near3	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2017/05/14 20:24

		fixture))))				
L10	3	((range or (interactive near3 zone\$1)) near5 (sensor\$1 or monitor1 or detector\$1)) and ((range or (interactive near3 zone\$1)) near4 ((align\$3 or coplanar or overlay\$3 or integral) near4 (mount\$3 near3 surface)))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2017/05/14 20:26
L11	6	((range or (interactive near3 zone\$1)) near5 (sensor\$1 or monitor1 or detector\$1)) same ((align\$3 or coplanar or overlay\$3 or integral) near4 (mount\$3 near3 surface)))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2017/05/14 20:27
L12	0	(14/716613).APP.	USPAT; USOCR	OR	OFF	2017/05/14 20:28
L13	1	("8847772").PN.	US-PGPUB; USPAT	OR	OFF	2017/05/14 20:29
L14	25	("20010006366" "20010038337" "20020126016" "20060164253" "4357602" "4750118" "5905438" "5907279" "6624750" "6753786" "6762688" "6975223").PN. OR ("8847772").URPN.	US-PGPUB; USPAT; USOCR	OR	OFF	2017/05/14 20:29
L15	13	("20040214617" "20060082455" "20070080819" "20130278397" "20140088794" "20140249681" "20150022367" "20150100167" "20160371961" "20160373917" "20160374120" "20160374133" "8847772").PN. OR ("9635536").URPN.	US-PGPUB; USPAT; USOCR	OR	OFF	2017/05/14 20:31
L16	3	((sensor\$1 or monitor1 or detector\$1) or ((vibrat\$3 or force or pressure or audio) near3 (sensor\$1 or monitor1 or detector\$1))) and ((range or (interactive near3 zone\$1)) near4 ((align\$3 or coplanar or overlay\$3 or integral) near4 (mount\$3 near3 surface))) and server and ((gesture or hand or finger\$1 or palm) near3 (pattern or profile))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2017/05/14 20:41
L17	140	((house or case or housing) near3((sensor\$1 or monitor1 or detector\$1) or ((vibrat\$3 or force or pressure or audio) near3 (sensor\$1 or monitor1 or detector\$1)))) and (mount\$3 near3 (surface or wall or table or desk)) and server and ((gesture or hand or finger\$1 or palm) near3 (pattern or profile))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2017/05/14 20:44
L18	0	((house or case or housing) near3((sensor\$1 or monitor1 or detector\$1) or ((vibrat\$3 or force or pressure or audio) near3 (sensor\$1 or monitor1 or detector\$1)))) and (mount\$3 near3 (surface or wall or table or desk)) and server and (((gesture or hand or finger\$1 or palm) near3 (pattern or profile))near3 command) and (command with (((initat\$3 or begin\$4 or start\$3) near3 activity) or activat\$3 or actuat\$3	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2017/05/14 20:45

		or (turn near3 on) or active) near3 (((terminal near3 derice) or appliance or television or tv or thermostat or computer ot tablet or (game near3 console) or smartphone or fan or (mattress near3 adjuster) or alarm or clock or (light\$3 near3 fixture))))				
L19	8	((house or case or housing) near3((sensor\$1 or monitor1 or detector\$1) or ((vibrat\$3 or force or pressure or audio) near3 (sensor\$1 or monitor1 or detector\$1)))) and (mount\$3 near3 (surface or wall or table or desk)) and server and ((gesture or hand or finger\$1 or palm) near3 (pattern or profile)) and (command with (((initat\$3 or begin\$4 or start\$3) near3 activity) or activat\$3 or actuat\$3 or (turn near3 on) or active) near3 (((terminal near3 derice) or appliance or television or tv or thermostat or computer ot tablet or (game near3 console) or smartphone or fan or (mattress near3 adjuster) or alarm or clock or (light\$3 near3 fixture))))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2017/05/14 20:48
L20	4	((house or container or housing) near3((sensor\$1 or monitor1 or detector\$1) or ((vibrat\$3 or force or pressure or audio) near3 (sensor\$1 or monitor1 or detector\$1)))) and (mount\$3 near3 (surface or wall or table or desk)) and server and ((gesture or hand or finger\$1 or palm) near3 (pattern or profile)) and (command with (((initat\$3 or begin\$4 or start\$3) near3 activity) or activat\$3 or actuat\$3 or (turn near3 on) or active) near3 (((terminal near3 derice) or appliance or television or tv or thermostat or computer ot tablet or (game near3 console) or smartphone or fan or (mattress near3 adjuster) or alarm or clock or (light\$3 near3 fixture))))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2017/05/14 20:52
L21	1	(10/940881).APP.	USPAT; USOCR	OR	OFF	2017/05/14 20:54
L22	173	("20040110472" "3971028" "4315249" "4750197" "4802114" "4912463" "5086385" "5278547" "5619190" "5646608" "5699055" "5815086" "5903226" "5917433" "5969595" "6005508" "6069570" "6236911" "6308083" "6429810" "6437702" "6437836" "6542076" "6556813" "6681110" "6812829" "6826514" "6914893").PN. OR ("7663502").URPN.	US-PGPUB; USPAT; USOCR	OR	OFF	2017/05/14 20:54
L23	32	("20020000977" "20020060668" "20020196238" "20060012581" "20060161871" "20060278444" "20080165141" "20080278450" "20080288895" "20080309631" "20090289914" "4377049" "5103085" "5305017" "5543590" "5579037" "5736974" "5790106" "5844506"	US-PGPUB; USPAT; USOCR	OR	OFF	2017/05/14 21:01

		"5896575" "5923267" "6222528" "6459424" "6680677" "7002556" "7113175" "7126587" "8059100").PN. OR ("8665237").URPN.				
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L25	1	(13/736628).APP.	USPAT; USOCR	OR	OFF	2017/05/14 21:15
L26	7	("20060139314" "20100017407" "20100053152" "20100060570" "20100107099" "20120218395" "20140063232").PN. OR ("9182812").URPN.	US-PGPUB; USPAT; USOCR	OR	OFF	2017/05/14 21:15
L28	0	5 and server and ((gesture or hand or finger\$1 or palm) near3 (pattern or profile)) and (command with (((initat\$3 or begin\$4 or start\$3) near3 activity) or activat\$3 or actuat\$3 or (turn near3 on) or active) near3 ((terminal near3 derice) or appliance or television or tv or thermostat or computer ot tablet or (game near3 console) or smartphone or fan or (mattress near3 adjuster) or alarm or clock or (light\$3 near3 fixture))))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2017/05/14 21:24
L29	0	5 and ((gesture or hand or finger\$1 or palm) near3 (pattern or profile)) and (command with (((initat\$3 or begin\$4 or start\$3) near3 activity) or activat\$3 or actuat\$3 or (turn near3 on) or active) near3 ((terminal near3 derice) or appliance or television or tv or thermostat or computer ot tablet or (game near3 console) or smartphone or fan or (mattress near3 adjuster) or alarm or clock or (light\$3 near3 fixture))))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2017/05/14 21:24
L30	0	5 and (command with (((initat\$3 or begin\$4 or start\$3) near3 activity) or activat\$3 or actuat\$3 or (turn near3 on) or active) near3 ((terminal near3 derice) or appliance or television or tv or thermostat or computer ot tablet or (game near3 console) or smartphone or fan or (mattress near3 adjuster) or alarm or clock or (light\$3 near3 fixture))))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2017/05/14 21:24

EAST Search History (Interference)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
L27	0	((house or case or housing) near3((sensor\$1 or monitor1 or detector\$1) or ((vibrat\$3 or force or pressure or audio) near3 (sensor\$1 or	US- PGPUB; USPAT	OR	OFF	2017/05/14 21:17

		monitor1 or detector\$1)))) and (mount\$3 near3 (surface or wall or table or desk)) and server and ((gesture or hand or finger\$1 or palm) near3 (pattern or profile)) and (command with (((initat\$3 or begin\$4 or start\$3) near3 activity) or activat\$3 or actuat\$3 or (turn near3 on) or active) near3 ((terminal near3 derice) or appliance or television or tv or thermostat or computer ot tablet or (game near3 console) or smartphone or fan or (mattress near3 adjuster) or alarm or clock or (light\$3 near3 fixture))))).clm.				
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5/ 14/ 2017 9:25:28 PM

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Receipt date: 06/16/2016

15043283 - GAU: 2696

Doc code: IDS

Doc description: Information Disclosure Statement (IDS) Filed

PTO/SB/08a (03-15)

Approved for use through 07/31/2016. OMB 0651-0031

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)	Application Number	15043283
	Filing Date	2016-02-12
	First Named Inventor	BOSHERNITZAN, Yaniv et al.
	Art Unit	2621
	Examiner Name	Awad, A. A.
	Attorney Docket Number	571/8

U.S.PATENTS							Remove
Examiner Initial*	Cite No	Patent Number	Kind Code ¹	Issue Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear	
	1	8788978		2014-07-22	Stedman et al	Abstract, Col. 1, l. 6 to Col. 4, l. 41	
	2	8228315		2012-07-24	Starnier et al	Abstract, Col. 1, l. 35 to Col. 2, l. 22, Figures	
	3	5971761		1999-10-26	Tillman Sr.	Col. 1, l. 64 to Col. 2, l. 57, Fig. 1	
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	1	20140225824		2014-08-14	Shpunt et al	Abstract, Figures	
	2	20140111483		2014-04-24	Harrison et al	Paragraphs 0005-0006, Figures 1-4B	
	3	20130321346		2013-12-05	Tyler et al	Abstract, Paragraphs 0025-0030	

**INFORMATION DISCLOSURE
STATEMENT BY APPLICANT**
(Not for submission under 37 CFR 1.99)

Application Number	15043283
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First Named Inventor	BOSHERNITZAN, Yaniv et al.
Art Unit	2621
Examiner Name	Awad, A. A.
Attorney Docket Number	571/8

4	20120249416	2012-10-04	Maciocci et al	Abstract, Paragraphs 0003-0008, Figures
5	20100001992	2010-01-28	Van Loenen et al	entire document as background

If you wish to add additional U.S. Published Application citation information please click the Add button.

FOREIGN PATENT DOCUMENTS

Examiner Initial*	Cite No	Foreign Document Number ³	Country Code ²	Kind Code ⁴	Publication Date	Name of Patentee or Applicant of cited Document	Pages, Columns, Lines where Relevant Passages or Relevant Figures Appear	T ⁵
	1	2013165348	WO		2013-11-07	Bess et al	entire document, US2014/327526 US version	

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NON-PATENT LITERATURE DOCUMENTS

Examiner Initials*	Cite No	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, pages(s), volume-issue number(s), publisher, city and/or country where published.	T ⁵
	1		

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EXAMINER SIGNATURE

Examiner Signature	/JOE H CHENG/	Date Considered	05/08/2017
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*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through a citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

¹ See Kind Codes of USPTO Patent Documents at www.USPTO.GOV or MPEP 901.04. ² Enter office that issued the document, by the two-letter code (WIPO Standard ST.3). ³ For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. ⁴ Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. ⁵ Applicant is to place a check mark here if English language translation is attached.

**INFORMATION DISCLOSURE
STATEMENT BY APPLICANT**
(Not for submission under 37 CFR 1.99)

Application Number	15043283
Filing Date	2016-02-12
First Named Inventor	BOSHERNITZAN, Yaniv et al.
Art Unit	2621
Examiner Name	Awad, A. A.
Attorney Docket Number	571/8

CERTIFICATION STATEMENT

Please see 37 CFR 1.97 and 1.98 to make the appropriate selection(s):

That each item of information contained in the information disclosure statement was first cited in any communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(1).

OR

☐ That no item of information contained in the information disclosure statement was cited in a communication from a foreign patent office in a counterpart foreign application, and, to the knowledge of the person signing the certification after making reasonable inquiry, no item of information contained in the information disclosure statement was known to any individual designated in 37 CFR 1.56(c) more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(2).

See attached certification statement.

The fee set forth in 37 CFR 1.17 (p) has been submitted herewith.

A certification statement is not submitted herewith.

SIGNATURE

A signature of the applicant or representative is required in accordance with CFR 1.33, 10.18. Please see CFR 1.4(d) for the form of the signature.

Signature	/Andrew W. Chu/	Date (YYYY-MM-DD)	2016-06-16
Name/Print	Andrew W. Chu	Registration Number	46625

This collection of information is required by 37 CFR 1.97 and 1.98. 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 1 hour 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.**

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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.
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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
15/043,283	02/12/2016	Yaniv BOSHERNITZAN	571/8	8434
91209	7590	10/26/2017	EXAMINER	
Andrew W. Chu Craft Chu PLLC 1445 North Loop West Suite 410 Houston, TX 77008			CHENG, JOE H	
			ART UNIT	PAPER NUMBER
			2696	
			NOTIFICATION DATE	DELIVERY MODE
			10/26/2017	ELECTRONIC

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The time period for reply, if any, is set in the attached communication.

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achu@craftchu.com
achu@awciplaw.com



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APPLICATION NO./ CONTROL NO.	FILING DATE	FIRST NAMED INVENTOR / PATENT IN REEXAMINATION	ATTORNEY DOCKET NO.
15/043,283	12 February, 2016	BOSHERNITZAN ET AL.	571/8

Andrew W. Chu Craft Chu PLLC 1445 North Loop West Suite 410 Houston, TX 77008		EXAMINER	
		RICHARD ELLIS	
		ART UNIT	PAPER
		OPIM	20171023-154502

DATE MAILED:

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Commissioner for Patents

The time period for reply set forth in the previous non-final action is being restarted to run from the mail date of the instant communication. Please refer to the non-final action for information on extensions of time if needed for the reply.

The time period is being restarted because the USPTO has identified that the zip code of the correspondence address of the instant application is in an area affected by a recent hurricane. In addition, the non-final action was outstanding on the applicable date and the statutory time period for reply has not yet expired.

If a reply to the non-final action has been filed, no reply to the instant communication is required.

For a copy of the relevant notice on the relief available due to the recent hurricane, see <https://www.uspto.gov/learning-and-resources/operational-status/customers-affected-hurricane-harvey>

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICANT: BOSHERNITZAN, Yaniv, et al

SERIAL NO.: 15043283

ART UNIT: 2696 (8434)

FILING DATE: 2016-02-12

EXAMINER: CHENG, J. H.

TITLE: SYSTEM AND METHOD FOR CONTROLLING A TERMINAL DEVICE

AMENDMENT A

Director of the U.S. Patent
And Trademark Office
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

In response to the Office Action on 24 May 2017, a response being due with a hurricane extension to 26 January 2018 and a Petition for Extension of Time for one month by 26 February 2018, please enter the amendments provided herein and consider the following remarks:

The drawings are amended.

The specification is amended.

The claims have been amended.

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

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CERTIFICATE OF MAILING UNDER 37 CFR 1.8(a)

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

Sir:

I hereby certify that the attached correspondence comprising:

AMENDMENT A

Is being deposited with the United States Postal Service with sufficient postage
as first class mail in an envelope addressed to :

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

or by electronic filing on 2018-02-26.

Respectfully submitted:

/Andrew W. Chu/
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Date: 2018-02-26

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

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Amendment A: Drawing Amendments

Please find the attached Replacement Sheet for Figure 1 and Figures 3-4.

Figure 1 is amended to indicate means for initiating activity of the terminal device 50', additional terminal device 50'', and additional means for initiating activity of the terminal device 50'''. Only lead lines and reference numerals are added. No new structures or components are added. The basis is Paragraphs 30, 50, and Figure 1. No new matter is added.

Figures 3-4 are amended to correct the reference numeral "34" to "34'" for the printed circuit board. The correction is needed for consistency with the other figures and the specification. Only the reference numeral changed. No new matter is added.

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Amendment A: Specification Amendments

Please amend Paragraph 42 as follows:

[42] The control system 10 of the present invention includes a sensor 30 as shown in Figures 3-4. The housing 20 contains the sensor 30 comprised of a printed circuit board 34 34' with a flash memory 31, microcontroller unit (MCU) 33, the sensor unit 35, antenna 37, and light emitting diode 39. The sensor unit 35 can be an accelerometer or acoustic sensor. The microcontroller unit 33 and antenna ~~35~~ 37 can have wifi capability for communication with the server 40. The relationship between the sensor unit 35 of the sensor 30 and the transmission portion 28 of the housing 20 is shown. The rigid position of the sensor 30 establishes the transmission of the contact interaction to the sensor 30. Other parts in the housing 20 include batteries 36 as a known power supply for the control system 10. The stable construction of the housing 20 and the sensor 30 enable the accurate and efficient conversion of the gestures into commands for the terminal device 50.

Please amend Paragraph 45 as follows:

[45] The engagement means 24 of the housing 20 is cooperative with the sensor 30 so that any contact interaction generates data signals of the sensor through the transmission portion 28 of the engagement means 24. There is less damping of

the contact interaction as sound or vibration. The transmission portion 28 can have less damping than the mounting surface 22 or the actual surface of the knocking in the interactive zone 32. In some embodiments, the transmission portion 28 affects transmission of the data signal to the sensor 30. The rigid position of the sensor 30 relative to the mounting surface 22 reduces damping of the contact interaction through the transmission portion 28. The transmission portion 28 can be comprised of a rigid material, such an injection molded frame with flexibility different than the materials of the mounting surface 22 or surface of the contact interaction, if different from the mounting surface 22. In the embodiment with the spring loaded portion (not shown), the spring loaded portion of the transmission portion 28 has less damping than the mounting surface 22 or surface of the contact interaction, if not the same. Sound or vibration has less damping through a spring loaded portion for the transmission of the contact interaction through the transmission portion 28 to the sensor 30. For example, the spring loaded portion as the transmission portion 28 may hold the housing 20 closer and stronger to the mounting surface 22 so as to reduce damping sound or vibration of contact interaction. The data signals of the sensor 30 may have improved clarity and accuracy than systems without the relationship of the sensor 30 within the housing 20 relative to the mounting surface 22 for transmission through to the sensor 30. The sensor 30 can be stabilized relative to the housing 20 on both sides of the printed circuit board 34 34'. Alternatively, the printed circuit board 34 34' may be held along multiple points along the perimeter of the printed circuit board 34 34', including brackets spaced every 120 degrees or ever 90 degrees. The sensor 30

is held in position to prevent flopping and vibrating separate from the mounting surface so that the sensor 30 maintains the proper relationship to the mounting surface 22.

Please amend Paragraph 50 as follows:

[50] In the control system 10, the terminal device 50 can be an appliance, such as a television, stereo or coffee machine with a switch 50'''. Alternatively, the terminal device 50 may be a device running software, a light with a switch 50' or climate regulator, such as a thermostat, fan or lighting fixture. The activity of the terminal device 50 depends upon the terminal device 50. The activity is dedicated to the particular terminal device 50. The command associated with the gesture profile 90 relates to the particular terminal device 50. Knocking twice on a tabletop can be converted by the control system 10 into a command to change channels on a television or to lower the temperature of a thermostat or to create an entry in an online calendar software program on a computer. The control system 10 can also be used with multiple terminal devices 50 , 50''. A gesture profile 90 for a command is specific for an activity for a particular terminal device 50. More than one terminal device 50 can be connected to the server 40 to receive the commands from the sensor 30.

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TITLE: SYSTEM AND METHOD FOR CONTROLLING A TERMINAL DEVICE

Amendment A: Claim Amendments

1. (Currently amended) A control system comprising:

a housing having an engagement means for a mounting surface;

a sensor contained within said housing, said sensor forming an interactive zone defined by a range of said sensor, said sensor being comprised of an accelerometer, said interactive zone being aligned with said mounting surface and overlaying said mounting surface outside a perimeter of said housing, said sensor being in a fixed position relative to said engagement means, wherein a contact interaction associated with said mounting surface within said interactive zone is detected by said sensor as data signals, said contact interaction being comprised of an impact on said mounting surface, said data signals being comprised of vibration data of said contact interaction;

a server in communication with said sensor, said server being comprised of a routing module, a processing module being connected to said routing module, and an output module connected to said processing module, said routing module receiving said data signals from said sensor, said processing module determining a data pattern corresponding to said data signals of said

contact interaction and matching said data pattern with a gesture profile, said gesture profile being associated with a command; and

a terminal device being comprised of a receiving module and means for initiating activity of said terminal device corresponding to said command, said terminal device being in communication with said server, said output module transmitting said command to said receiving module,

wherein said engagement means of said housing comprises:

an attachment means between said housing to said mounting surface; and

a transmission portion connecting said sensor to said attachment means of said housing and being comprised of a material with flexibility different than said mounting surface so as to set a rigid position of said sensor relative to said mounting surface, said contact interaction generating said data signals of said sensor through said transmission portion.

2. (original) The control system, according to Claim 1, wherein said interactive zone of said sensor aligns with said mounting surface, said interactive zone being coplanar with said mounting surface.

Claims 3-5 (canceled)

6. (Currently amended) The control system, according to Claim 5 1, wherein said transmission portion is comprised of a spring loaded portion so as to reduce damping of said contact interaction.

7. (Original) The control system, according to Claim 1, wherein said contact interaction is comprised of an impact on said mounting surface, said data signals having a respective defined peak corresponding to each impact, a defined time period after a last defined peak, said data pattern being comprised of each defined peak and said defined time period after said last defined peak.

8. (Currently amended) The control system, according to Claim 1, wherein said contact interaction is comprised of a plurality of impacts on said mounting surface, said data signals having a respective defined peak corresponding to each impact, a measured time period between each defined peak, and a defined time period after a last defined peak, said data pattern being comprised of each defined peak, each measured time period, and said defined time period after said last defined peak.

Claims 9-12 (canceled)

13. (Currently amended) The control system, according to Claim 1, further comprising:

an additional sensor contained within said housing, said additional sensor forming an additional interactive zone defined by an additional range of said additional sensor, said additional interactive zone being aligned with said mounting surface, said additional sensor being in a fixed position relative to said engagement means, said server being in communication with said additional sensor,

wherein said contact interaction with said mounting surface within said additional interactive zone is detected by said additional sensor as additional data signals,

wherein said processing module determines said data pattern corresponding to said data signals of said sensor and said additional data signals of said additional ~~sensor~~, sensor.

14. (Original) The control system, according to Claim 13, wherein said interactive zone of said sensor overlaps with said additional interactive zone of said additional sensor.

15. (Original) The control system, according to Claim 1, wherein said terminal device is comprised of one device selected from a group consisting of: a television, a thermostat, a computer, a software system, a game console, a fan, a mattress adjuster, an alarm clock, and a lighting fixture.

16. (Original) The control system, according to Claim 1, further comprising:

an additional terminal device being comprised of an additional receiving module and additional means for initiating activity of said additional terminal device corresponding to an additional command, said additional terminal device being in communication with said server, said output module transmitting said additional command to said additional receiving module.

17. (Currently amended) A method of controlling a terminal device, the method comprising the steps of:

installing a housing on a mounting surface by an engagement device, said housing being comprised of a sensor contained within said housing, said sensor being comprised of an accelerometer, said sensor forming an interactive zone defined by a range of said sensor, said interactive zone being aligned with said mounting surface and overlaying said mounting surface outside a perimeter of said housing, said sensor being in a fixed position relative to said engagement device,

wherein said engagement device of said housing comprises:

an attachment device between said housing to said mounting surface; and

a transmission portion connecting said sensor to said attachment device of said housing and being comprised of a material with flexibility different than said mounting surface so as to set a rigid position of said sensor relative to said mounting surface;

connecting a server in communication with said sensor, said server being comprised of a routing module, a processing module being connected to said routing module, and an output module connected to said processing module;

connecting a terminal device in communication with said server, said terminal device being comprised of a receiving module;

making a physical impact on said mounting surface so as to generate a contact interaction;

detecting said contact interaction as data signals with said sensor,
said data signals being comprised of vibration data of said contact interaction, said
contact interaction generating said data signals of said sensor through said
transmission portion;

receiving said data signals from said sensor with said routing module
of said server;

determining a data pattern corresponding to said data signals of said
contact interaction with said processing module;

matching said data pattern to a gesture profile with said processing
module, said gesture profile being associated with a command;

transmitting said command to said receiving module of terminal
device with said output module of said server, said command corresponding to
activity of said terminal device; and

performing said activity with said terminal device.

18. (Original) The method of controlling the terminal device, according to
Claim 17, wherein the step of making a physical impact on said mounting surface
further comprises making a plurality of physical impacts on said mounting surface,
said contact interaction being associated with more than one physical impact.

19. (Original) The method of controlling the terminal device, according to
Claim 17, wherein said housing is further comprised of an additional sensor, said
additional sensor being connected to said server,

wherein the step of detecting said contact interaction as data signals with said sensor further comprises detecting said contact interaction as additional data signals with said additional sensor;

wherein the step of receiving said data signals from said sensor with said routing module further comprises receiving said additional data signals from said additional sensor with said routing module, and

wherein the step of determining said data pattern further comprises determining said data pattern corresponding to said data signals and said additional data signals with said processing module.

20. (Original) The method of controlling the terminal device, according to Claim 19, wherein the step of making a physical impact on said mounting surface further comprises making a plurality of physical impacts on said mounting surface, said contact interaction being associated with more than one physical impact.

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FILING DATE: 2016-02-12

EXAMINER: CHENG, J. H.

TITLE: SYSTEM AND METHOD FOR CONTROLLING A TERMINAL DEVICE

Amendment A: Remarks

Upon entry of the present amendments, Claims 1,2, 6-8 and 13-20 remain pending in the present application. Claims 1, 6, 8, 13, and 17 are amended. Claims 3-5 and 9-12 are canceled. Claims 2, 7, 14-16, and 18-20 are re-presented. Reconsideration of the rejections, in light of the forgoing amendments and present remarks, is respectfully requested. The present amendments have been entered for the purpose of distinguishing the present invention from the prior art and placing the application into a condition for allowance.

DRAWINGS

Figure 1 is amended to indicate means for initiating activity of the terminal device 50', additional terminal device 50'', and additional means for initiating activity of the terminal device 50'''. Only lead lines and reference numerals are added. No new structures or components are added. The basis is Paragraphs 30, 50, and Figure 1. No new matter is added.

Figures 3-4 are amended to correct the reference numeral "34" to "34'" for the printed circuit board. The correction is needed for consistency with the other figures and the specification. Only the reference numeral changed. No new matter is added.

SPECIFICATION

Paragraph 42 is amended for consistency in the reference numerals, including 34' and 37. No new matter is added.

Paragraph 45 is amended for consistency in the reference numerals, including 34'. No new matter is added.

Paragraph 50 is amended for consistency in the reference numerals, including 50', 50" and 50'" and the structure original disclosed in Figure 1. No new matter is added.

35 US 112, Sixth Paragraph, means + function

The means + function format is confirmed. Paragraphs 30 and 50 recite the switch and corresponding means for initiating activity of the terminal device. Paragraphs 44-45 recite the attachment means 26 and transmission portion 28 corresponding to the engagement means 24. The structures corresponding to the attachment means 26 include an adhesive, mechanical fasteners, threaded screws or other components to hold the housing 20 to the mounting surface 22, according to Paragraph 41.

CLAIM REJECTION 35 USC 103

Claim 1 has been amended to incorporate subject matter of Claims 3, 5, 10, and 12 and Paragraphs 44-45. No new matter is added. Claim 1 recites the sensor as an accelerometer with an interactive zone outside a perimeter of the housing, a contact interaction as physical impact on the mounting surface, the engagement means comprised of an attachment means and transmission portion. Additionally, the transmission portion is further described according to Paragraph 44-45 for the rigid position of the sensor relative to the mounting surface. Claim 1 is no longer made obvious by the prior art combinations.

The relevant prior art combination is Zimmerman/Sloo/Marks/Breed because the subject matter of Claims 3, 5, 10 and 12 have been incorporated into Claim 1. This prior art combination fails to disclose the present invention as now claimed. The broad disclosures of detecting gestures in Zimmerman patent rely on a visual field and line of sight to register a contact interaction, and Claim 1 now recites an interactive zone beyond the perimeter or line of sight of the housing. Additionally, Claim 1 recites the embodiment of the sensor as an accelerometer in a particular relationship to a mounting surface for physical impacts. The additions of the Sloo publication to expand to the full range of the sensors beyond the perimeter of the housing, the Marks publication for attachment means of the housing to the mounting surface, and the Breed publication for the sensor as an accelerometer still fails to disclose the relationship of the sensor to the mounting surface in the interactive zone of the present invention as claimed.

There is no suggestion, motivation, or teaching for the transmission portion of the engagement means and relationship of the sensor relative to the mounting

surface set by the transmission portion. As discussed in Paragraphs 3 and 44-45, the background noise of incidental gestures and environmental vibrations affect the accuracy and precision of the present invention. The system of the Zimmerman patent with accelerometers of the Breed publication attached to surfaces by the Marks publication all over surfaces in a room of the Sloo publication do not lead one with ordinary skill in the art to the sensor, transmission portion, and mounting surface as now claimed. The Sloo publication has redundant sensors to verify and confirm gestures to filter meaningful vibrations from background noise. The Marks publication and the Breed publication only add that one of the redundant sensors can be an accelerometer attached to a surface.

The present invention only enhances one surface, using a particular type of sensor, an accelerometer. The prior art makes no teaching, suggestion, or motivation for distinguishing meaningful vibration data caused by a gesture on one surface with a transmission portion as claimed. The generic attachment means of the Marks publication is silent on dampening vibrations, and there is no teaching for why dampening would be a concern. The Sloo publication suggests multiple sensors and multiple surfaces for confirming meaningful gestures. There is no need to focus on one surface or filtering data from only one surface. There is no teaching in the prior art combination either way for how vibration data from gestures on one surface can be filtered for determining meaningful gestures. There is no teaching, suggestion, or motivation for how dampening can be used to affect the system or how dampening reduction by the set position of the sensor through the transmission portion, even with a known attachment means of the Marks

publication, can affect distinguishing meaningful vibration data of a gesture on one surface. One with ordinary skill in the art would not combine the prior art references to disclose present invention as now recited in Claim 1.

Claims 2, 6-8, and 13-16 are amended to be consistent with the changes to Claim 1. Claims 2, 6-8, and 13-16 are now in a condition for allowance as being dependent upon an allowable base independent claim.

Claim 17 has been amended to incorporate the analogous changes of Claim 1. Claim 17 is in a condition for allowance over the prior art for identical reasons discussed for Claim 1.

Claims 18-20 are now in a condition for allowance as being dependent upon an allowable base independent claim.

SUPPLEMENTAL REFERENCE

U. S. Patent publication No. 20140050354, published for Heim, et al on 20 February 2014, (the Heim publication) is a supplemental prior art reference submitted concurrent with the present amendment. The Heim publication was a cited reference for an inventive step (obviousness) rejection in the international PCT version of the present invention. The Heim publication is now presented in compliance with 37 CFR 1.97 (c) and 37 1.97 (e), including the requisite government fee under 37 CFR 1.17(p).

The same amendments to Claim 1 distinguish the present invention from the Heim publication. The sensor as an accelerometer with an interactive zone

outside a perimeter of the housing, a contact interaction as physical impact on the mounting surface, and the engagement means comprised of an attachment means and transmission portion are not made obvious by the keyboard button patterns as gestures in the Heim publication. The Heim publication no longer makes the present invention obvious as now claimed.

Claims 1 and 17 remain in a condition for allowance.

No new matter is added by the present amendments and remarks.

No additional claim fees are due beyond the amount originally paid.

A Petition for Extension of Time for one month and the requisite government fee are being filed concurrent with the present amendment.

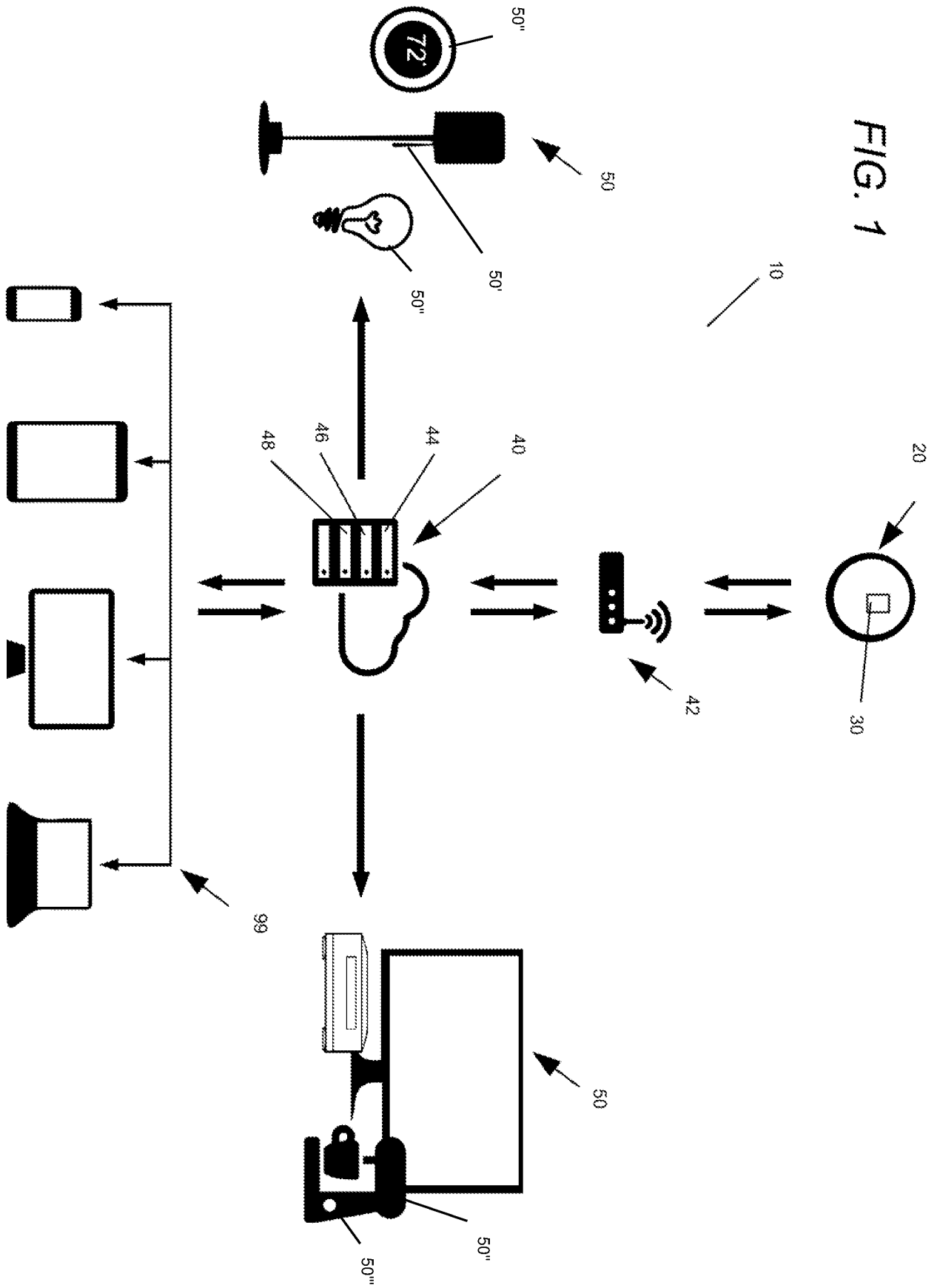
Based upon the foregoing analysis, Applicant contends that independent Claims 1 and 17 are now in a proper condition for allowance. Additionally, those claims, which are dependent upon these independent claims, should also be in condition for allowance. Reconsideration of the rejections and allowance of the claims at an early date is earnestly solicited. Since no new claims have been added above those originally paid for, no additional fee is required.

Respectfully submitted:

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Date: 2018-02-26

FIG. 1



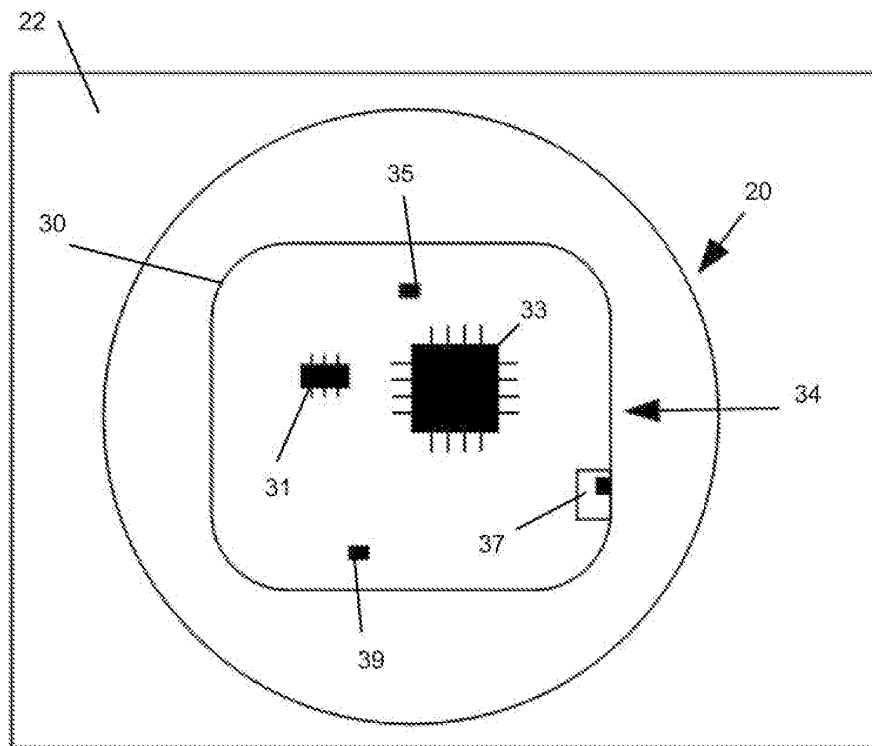


FIG. 3

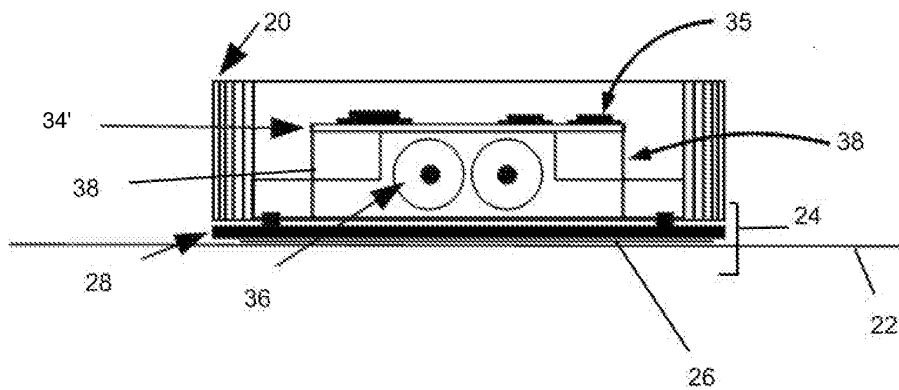


FIG. 4

PETITION FOR EXTENSION OF TIME UNDER 37 CFR 1.136(a)		Docket Number (Optional) 571/8																														
Application Number 15043283	Filed 2016-02-12																															
For SYSTEM AND METHOD FOR CONTROLLING A TERMINAL DEVICE																																
Art Unit 2696	Examiner Cheng, J. H.																															
This is a request under the provisions of 37 CFR 1.136(a) to extend the period for filing a reply in the above-identified application. The requested extension and fee are as follows (check time period desired and enter the appropriate fee below): <table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left;"></th> <th style="text-align: center;"><u>Fee</u></th> <th style="text-align: center;"><u>Small Entity Fee</u></th> <th style="text-align: center;"><u>Micro Entity Fee</u></th> <th style="text-align: center;"></th> </tr> </thead> <tbody> <tr> <td>☒ One month (37 CFR 1.17(a)(1))</td> <td style="text-align: center;">\$200</td> <td style="text-align: center;">\$100</td> <td style="text-align: center;">\$50</td> <td style="text-align: center;">\$ <u>100</u></td> </tr> <tr> <td>☐ Two months (37 CFR 1.17(a)(2))</td> <td style="text-align: center;">\$600</td> <td style="text-align: center;">\$300</td> <td style="text-align: center;">\$150</td> <td style="text-align: center;">\$ _____</td> </tr> <tr> <td>☐ Three months (37 CFR 1.17(a)(3))</td> <td style="text-align: center;">\$1,400</td> <td style="text-align: center;">\$700</td> <td style="text-align: center;">\$350</td> <td style="text-align: center;">\$ _____</td> </tr> <tr> <td>☐ Four months (37 CFR 1.17(a)(4))</td> <td style="text-align: center;">\$2,200</td> <td style="text-align: center;">\$1,100</td> <td style="text-align: center;">\$550</td> <td style="text-align: center;">\$ _____</td> </tr> <tr> <td>☐ Five months (37 CFR 1.17(a)(5))</td> <td style="text-align: center;">\$3,000</td> <td style="text-align: center;">\$1,500</td> <td style="text-align: center;">\$750</td> <td style="text-align: center;">\$ _____</td> </tr> </tbody> </table> ☐ Applicant asserts small entity status. See 37 CFR 1.27. ☐ Applicant certifies micro entity status. See 37 CFR 1.29. Form PTO/SB/15A or B or equivalent must either be enclosed or have been submitted previously. ☐ A check in the amount of the fee is enclosed. ☐ Payment by credit card. Form PTO-2038 is attached. ☐ The Director has already been authorized to charge fees in this application to a Deposit Account. ☐ The Director is hereby authorized to charge any fees which may be required, or credit any overpayment, to Deposit Account Number <u>505090</u>. ☒ Payment made via EFS-Web. WARNING: Information on this form may become public. Credit card information should not be included on this form. Provide credit card information and authorization on PTO-2038. I am the ☐ applicant. ☒ attorney or agent of record. Registration number <u>46625</u>. ☐ attorney or agent acting under 37 CFR 1.34. Registration number _____. <u>/Andrew W. Chu/</u> <u>2018-02-26</u> Signature Date <u>Andrew W. Chu</u> <u>7138029144</u> Typed or printed name Telephone Number NOTE: This form must be signed in accordance with 37 CFR 1.33. See 37 CFR 1.4 for signature requirements and certifications. Submit multiple forms if more than one signature is required, see below*.				<u>Fee</u>	<u>Small Entity Fee</u>	<u>Micro Entity Fee</u>		☒ One month (37 CFR 1.17(a)(1))	\$200	\$100	\$50	\$ <u>100</u>	☐ Two months (37 CFR 1.17(a)(2))	\$600	\$300	\$150	\$ _____	☐ Three months (37 CFR 1.17(a)(3))	\$1,400	\$700	\$350	\$ _____	☐ Four months (37 CFR 1.17(a)(4))	\$2,200	\$1,100	\$550	\$ _____	☐ Five months (37 CFR 1.17(a)(5))	\$3,000	\$1,500	\$750	\$ _____
	<u>Fee</u>	<u>Small Entity Fee</u>	<u>Micro Entity Fee</u>																													
☒ One month (37 CFR 1.17(a)(1))	\$200	\$100	\$50	\$ <u>100</u>																												
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☐ Four months (37 CFR 1.17(a)(4))	\$2,200	\$1,100	\$550	\$ _____																												
☐ Five months (37 CFR 1.17(a)(5))	\$3,000	\$1,500	\$750	\$ _____																												

☒ * Total of <u>one</u> forms are submitted.
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This collection of information is required by 37 CFR 1.136(a). 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 6 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: Mail Stop PCT, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

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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 disclosure of these records is required by the Freedom of Information Act.
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 inspection 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.

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)	Application Number	15043283
	Filing Date	2016-02-12
	First Named Inventor	BOSHERNITZAN, Yaniv, et al
	Art Unit	2696
	Examiner Name	Cheng, J. H. (8434)
	Attorney Docket Number	571/8

U.S.PATENTS							Remove
Examiner Initial*	Cite No	Patent Number	Kind Code ¹	Issue Date	Name of Patentee or Applicant of cited Document	Pages, Columns, Lines where Relevant Passages or Relevant Figures Appear	
	1						

If you wish to add additional U.S. Patent citation information please click the Add button.

Add

U.S.PATENT APPLICATION PUBLICATIONS							Remove
Examiner Initial*	Cite No	Publication Number	Kind Code ¹	Publication Date	Name of Patentee or Applicant of cited Document	Pages, Columns, Lines where Relevant Passages or Relevant Figures Appear	
	1	20140050354	A1	2014-02-20	Heim	abstract; paras. 7-9, 31, 51, 54, 60, and 68-70	

If you wish to add additional U.S. Published Application citation information please click the Add button.

Add

FOREIGN PATENT DOCUMENTS								Remove
Examiner Initial*	Cite No	Foreign Document Number ³	Country Code ²ⁱ	Kind Code ⁴	Publication Date	Name of Patentee or Applicant of cited Document	Pages, Columns, Lines where Relevant Passages or Relevant Figures Appear	T ⁵
	1							

If you wish to add additional Foreign Patent Document citation information please click the Add button

Add

NON-PATENT LITERATURE DOCUMENTS			Remove
Examiner Initials*	Cite No	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, pages(s), volume-issue number(s), publisher, city and/or country where published.	T ⁵

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)	Application Number	15043283
	Filing Date	2016-02-12
	First Named Inventor	BOSHERNITZAN, Yaniv, et al
	Art Unit	2696
	Examiner Name	Cheng, J. H. (8434)
	Attorney Docket Number	571/8

1			
If you wish to add additional non-patent literature document citation information please click the Add button Add			
EXAMINER SIGNATURE			
Examiner Signature			Date Considered
*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through a citation if not in conformance and not considered. Include copy of this form with next communication to applicant.			
¹ See Kind Codes of USPTO Patent Documents at www.USPTO.GOV or MPEP 901.04. ² Enter office that issued the document, by the two-letter code (WIPO Standard ST.3). ³ For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. ⁴ Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. ⁵ Applicant is to place a check mark here if English language translation is attached.			

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)	Application Number	15043283
	Filing Date	2016-02-12
	First Named Inventor	BOSHERNITZAN, Yaniv, et al
	Art Unit	2696
	Examiner Name	Cheng, J. H. (8434)
	Attorney Docket Number	571/8

CERTIFICATION STATEMENT

Please see 37 CFR 1.97 and 1.98 to make the appropriate selection(s):

That each item of information contained in the information disclosure statement was first cited in any communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(1).

OR

☐ That no item of information contained in the information disclosure statement was cited in a communication from a foreign patent office in a counterpart foreign application, and, to the knowledge of the person signing the certification after making reasonable inquiry, no item of information contained in the information disclosure statement was known to any individual designated in 37 CFR 1.56(c) more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(2).

See attached certification statement.

The fee set forth in 37 CFR 1.17 (p) has been submitted herewith.

A certification statement is not submitted herewith.

SIGNATURE

A signature of the applicant or representative is required in accordance with CFR 1.33, 10.18. Please see CFR 1.4(d) for the form of the signature.

Signature	/Andrew W. Chu/	Date (YYYY-MM-DD)	2018-02-26
Name/Print	Andrew W. Chu	Registration Number	46625

This collection of information is required by 37 CFR 1.97 and 1.98. 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 1 hour 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.**

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.

Electronic Patent Application Fee Transmittal				
Application Number:		15043283		
Filing Date:		12-Feb-2016		
Title of Invention:		SYSTEM AND METHOD FOR CONTROLLING A TERMINAL DEVICE		
First Named Inventor/Applicant Name:		Yaniv BOSHERNITZAN		
Filer:		Andrew W. Chu		
Attorney Docket Number:		571/8		
Filed as Small Entity				
Filing Fees for Utility under 35 USC 111(a)				
Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Basic Filing:				
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				
Extension-of-Time:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Extension - 1 month with \$0 paid	2251	1	100	100
Miscellaneous:				
SUBMISSION- INFORMATION DISCLOSURE STMT	2806	1	120	120
Total in USD (\$)				220

Electronic Acknowledgement Receipt	
EFS ID:	31892995
Application Number:	15043283
International Application Number:	
Confirmation Number:	8434
Title of Invention:	SYSTEM AND METHOD FOR CONTROLLING A TERMINAL DEVICE
First Named Inventor/Applicant Name:	Yaniv BOSHERNITZAN
Customer Number:	91209
Filer:	Andrew W. Chu
Filer Authorized By:	
Attorney Docket Number:	571/8
Receipt Date:	26-FEB-2018
Filing Date:	12-FEB-2016
Time Stamp:	19:13:09
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	CARD
Payment was successfully received in RAM	\$220
RAM confirmation Number	022718INTEFSW19134800
Deposit Account	
Authorized User	

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

File Listing:					
Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1		571008amendmenta.pdf	140262	yes	20
			6fc75449447cd8a865bfc3ad8d0eba1846b80f6		
	Multipart Description/PDF files in .zip description				
	Document Description		Start		End
	Amendment/Req. Reconsideration-After Non-Final Reject		1		3
	Specification		4		6
	Claims		7		13
	Applicant Arguments/Remarks Made in an Amendment		14		20
Warnings:					
Information:					
2	Drawings-only black and white line drawings	571008drawings2.pdf	222249	no	2
			6bee92e4c437156f77771ca12c7ef7c4485d589		
Warnings:					
Information:					
3	Extension of Time	571008exttime.pdf	156672	no	2
			af6dc30e79b69af813eb15dbdbb8b35c64e779fa		
Warnings:					
Information:					
4	Information Disclosure Statement (IDS) Form (SB08)	571008ids2.pdf	570718	no	4
			a74673cc12d8c9078799eea754664bfaa3fc3fb9		
Warnings:					
Information:					

5	Fee Worksheet (SB06)	fee-info.pdf	32430 5d5d963a84865900be63704ee1338a317f57a997	no	2
Warnings:					
Information:					
Total Files Size (in bytes):			1122331		
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. <u>New Applications Under 35 U.S.C. 111</u> 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. <u>National Stage of an International Application under 35 U.S.C. 371</u> 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. <u>New International Application Filed with the USPTO as a Receiving Office</u> 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.					

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.

PATENT APPLICATION FEE DETERMINATION RECORD Substitute for Form PTO-875				Application or Docket Number 15/043,283		Filing Date 02/12/2016		☐ To be Mailed	
---	--	--	--	---	--	----------------------------------	--	---------------------------------------	--

ENTITY: ☐ LARGE ☒ SMALL ☐ MICRO									
APPLICATION AS FILED – PART I									
		(Column 1)		(Column 2)					
FOR		NUMBER FILED		NUMBER EXTRA		RATE (\$)		FEE (\$)	
☐ BASIC FEE (37 CFR 1.16(a), (b), or (c))		N/A		N/A		N/A			
☐ SEARCH FEE (37 CFR 1.16(k), (i), or (m))		N/A		N/A		N/A			
☐ EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))		N/A		N/A		N/A			
TOTAL CLAIMS (37 CFR 1.16(i))		minus 20 =		*		X \$		=	
INDEPENDENT CLAIMS (37 CFR 1.16(h))		minus 3 =		*		X \$		=	
☐ 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).							
☐ MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))									
						TOTAL			
* If the difference in column 1 is less than zero, enter "0" in column 2.									

APPLICATION AS AMENDED – PART II										
		(Column 1)		(Column 2)		(Column 3)				
AMENDMENT	02/26/2018		CLAIMS REMAINING AFTER AMENDMENT				HIGHEST NUMBER PREVIOUSLY PAID FOR		PRESENT EXTRA	
	Total (37 CFR 1.16(i))		* 13		Minus		** 20		= 0	
	Independent (37 CFR 1.16(h))		* 1		Minus		*** 3		= 0	
	☐ Application Size Fee (37 CFR 1.16(s))									
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))									
						TOTAL ADD'L FEE		0		
		(Column 1)		(Column 2)		(Column 3)				
AMENDMENT			CLAIMS REMAINING AFTER AMENDMENT				HIGHEST NUMBER PREVIOUSLY PAID FOR		PRESENT EXTRA	
	Total (37 CFR 1.16(i))		*		Minus		**		=	
	Independent (37 CFR 1.16(h))		*		Minus		***		=	
	☐ Application Size Fee (37 CFR 1.16(s))									
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))									
						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 number found in the appropriate box in column 1.										

This collection of information is required by 37 CFR 1.16. 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 12 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.



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

NOTICE OF ALLOWANCE AND FEE(S) DUE

91209 7590 04/09/2018
Andrew W. Chu
Craft Chu PLLC
1445 North Loop West
Suite 410
Houston, TX 77008

EXAMINER

CHENG, JOE H

ART UNIT

PAPER NUMBER

2696

DATE MAILED: 04/09/2018

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
15/043,283	02/12/2016	Yaniv BOSHERNITZAN	571/8	8434

TITLE OF INVENTION: SYSTEM AND METHOD FOR CONTROLLING A TERMINAL DEVICE

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	SMALL	\$500	\$0	\$0	\$500	07/09/2018

THE APPLICATION IDENTIFIED ABOVE HAS BEEN EXAMINED AND IS ALLOWED FOR ISSUANCE AS A PATENT. PROSECUTION ON THE MERITS IS CLOSED. THIS NOTICE OF ALLOWANCE IS NOT A GRANT OF PATENT RIGHTS. THIS APPLICATION IS SUBJECT TO WITHDRAWAL FROM ISSUE AT THE INITIATIVE OF THE OFFICE OR UPON PETITION BY THE APPLICANT. SEE 37 CFR 1.313 AND MPEP 1308.

THE ISSUE FEE AND PUBLICATION FEE (IF REQUIRED) MUST BE PAID WITHIN THREE MONTHS FROM THE MAILING DATE OF THIS NOTICE OR THIS APPLICATION SHALL BE REGARDED AS ABANDONED. THIS STATUTORY PERIOD CANNOT BE EXTENDED. SEE 35 U.S.C. 151. THE ISSUE FEE DUE INDICATED ABOVE DOES NOT REFLECT A CREDIT FOR ANY PREVIOUSLY PAID ISSUE FEE IN THIS APPLICATION. IF AN ISSUE FEE HAS PREVIOUSLY BEEN PAID IN THIS APPLICATION (AS SHOWN ABOVE), THE RETURN OF PART B OF THIS FORM WILL BE CONSIDERED A REQUEST TO REAPPLY THE PREVIOUSLY PAID ISSUE FEE TOWARD THE ISSUE FEE NOW DUE.

HOW TO REPLY TO THIS NOTICE:

I. Review the ENTITY STATUS shown above. If the ENTITY STATUS is shown as SMALL or MICRO, verify whether entitlement to that entity status still applies.

If the ENTITY STATUS is the same as shown above, pay the TOTAL FEE(S) DUE shown above.

If the ENTITY STATUS is changed from that shown above, on PART B - FEE(S) TRANSMITTAL, complete section number 5 titled "Change in Entity Status (from status indicated above)".

For purposes of this notice, small entity fees are 1/2 the amount of undiscounted fees, and micro entity fees are 1/2 the amount of small entity fees.

II. PART B - FEE(S) TRANSMITTAL, or its equivalent, must be completed and returned to the United States Patent and Trademark Office (USPTO) with your ISSUE FEE and PUBLICATION FEE (if required). If you are charging the fee(s) to your deposit account, section "4b" of Part B - Fee(s) Transmittal should be completed and an extra copy of the form should be submitted. If an equivalent of Part B is filed, a request to reapply a previously paid issue fee must be clearly made, and delays in processing may occur due to the difficulty in recognizing the paper as an equivalent of Part B.

III. All communications regarding this application must give the application number. Please direct all communications prior to issuance to Mail Stop ISSUE FEE unless advised to the contrary.

IMPORTANT REMINDER: Maintenance fees are due in utility patents issuing on applications filed on or after Dec. 12, 1980. It is patentee's responsibility to ensure timely payment of maintenance fees when due. More information is available at www.uspto.gov/PatentMaintenanceFees.

PART B - FEE(S) TRANSMITTAL

**Complete and send this form, together with applicable fee(s), to: Mail Mail Stop ISSUE FEE
Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450
or Fax (571)-273-2885**

INSTRUCTIONS: This form should be used for transmitting the ISSUE FEE and PUBLICATION FEE (if required). Blocks 1 through 5 should be completed where appropriate. All further correspondence including the Patent, advance orders and notification of maintenance fees will be mailed to the current correspondence address as indicated unless corrected below or directed otherwise in Block 1, by (a) specifying a new correspondence address; and/or (b) indicating a separate "FEE ADDRESS" for maintenance fee notifications.

CURRENT CORRESPONDENCE ADDRESS (Note: Use Block 1 for any change of address)

91209 7590 04/09/2018
Andrew W. Chu
Craft Chu PLLC
1445 North Loop West
Suite 410
Houston, TX 77008

Note: A certificate of mailing can only be used for domestic mailings of the Fee(s) Transmittal. This certificate cannot be used for any other accompanying papers. Each additional paper, such as an assignment or formal drawing, must have its own certificate of mailing or transmission.

Certificate of Mailing or Transmission

I hereby certify that this Fee(s) Transmittal is being deposited with the United States Postal Service with sufficient postage for first class mail in an envelope addressed to the Mail Stop ISSUE FEE address above, or being facsimile transmitted to the USPTO (571) 273-2885, on the date indicated below.

(Depositor's name)
(Signature)
(Date)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
15/043,283	02/12/2016	Yaniv BOSHERNITZAN	571/8	8434

TITLE OF INVENTION: SYSTEM AND METHOD FOR CONTROLLING A TERMINAL DEVICE

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	SMALL	\$500	\$0	\$0	\$500	07/09/2018

EXAMINER	ART UNIT	CLASS-SUBCLASS
CHENG, JOE H	2696	345-177000

1. Change of correspondence address or indication of "Fee Address" (37 CFR 1.363).

- ☐ Change of correspondence address (or Change of Correspondence Address form PTO/SB/122) attached.
☐ "Fee Address" indication (or "Fee Address" Indication form PTO/SB/47; Rev 03-02 or more recent) attached. **Use of a Customer Number is required.**

2. For printing on the patent front page, list

- (1) The names of up to 3 registered patent attorneys or agents OR, alternatively, 1 _____
(2) The name of a single firm (having as a member a registered attorney or agent) and the names of up to 2 registered patent attorneys or agents. If no name is listed, no name will be printed. 2 _____
3 _____

3. ASSIGNEE NAME AND RESIDENCE DATA TO BE PRINTED ON THE PATENT (print or type)

PLEASE NOTE: Unless an assignee is identified below, no assignee data will appear on the patent. If an assignee is identified below, the document has been filed for recordation as set forth in 37 CFR 3.11. Completion of this form is NOT a substitute for filing an assignment.

(A) NAME OF ASSIGNEE

(B) RESIDENCE: (CITY and STATE OR COUNTRY)

Please check the appropriate assignee category or categories (will not be printed on the patent): ☐ Individual ☐ Corporation or other private group entity ☐ Government

4a. The following fee(s) are submitted:

- ☐ Issue Fee
☐ Publication Fee (No small entity discount permitted)
☐ Advance Order - # of Copies _____

4b. Payment of Fee(s): (Please first reapply any previously paid issue fee shown above)

- ☐ A check is enclosed.
☐ Payment by credit card. Form PTO-2038 is attached.
☐ The director is hereby authorized to charge the required fee(s), any deficiency, or credits any overpayment, to Deposit Account Number _____ (enclose an extra copy of this form).

5. Change in Entity Status (from status indicated above)

- ☐ Applicant certifying micro entity status. See 37 CFR 1.29
☐ Applicant asserting small entity status. See 37 CFR 1.27
☐ Applicant changing to regular undiscounted fee status.

NOTE: Absent a valid certification of Micro Entity Status (see forms PTO/SB/15A and 15B), issue fee payment in the micro entity amount will not be accepted at the risk of application abandonment.

NOTE: If the application was previously under micro entity status, checking this box will be taken to be a notification of loss of entitlement to micro entity status.

NOTE: Checking this box will be taken to be a notification of loss of entitlement to small or micro entity status, as applicable.

NOTE: This form must be signed in accordance with 37 CFR 1.31 and 1.33. See 37 CFR 1.4 for signature requirements and certifications.

Authorized Signature _____

Date _____

Typed or printed name _____

Registration No. _____



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.
15/043,283	02/12/2016	Yaniv BOSHERNITZAN	571/8	8434

91209	7590	04/09/2018
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Andrew W. Chu
Craft Chu PLLC
1445 North Loop West
Suite 410
Houston, TX 77008

EXAMINER
CHENG, JOE H

ART UNIT	PAPER NUMBER
2696	

DATE MAILED: 04/09/2018

Determination of Patent Term Adjustment under 35 U.S.C. 154 (b) (Applications filed on or after May 29, 2000)

The Office has discontinued providing a Patent Term Adjustment (PTA) calculation with the Notice of Allowance.

Section 1(h)(2) of the AIA Technical Corrections Act amended 35 U.S.C. 154(b)(3)(B)(i) to eliminate the requirement that the Office provide a patent term adjustment determination with the notice of allowance. See Revisions to Patent Term Adjustment, 78 Fed. Reg. 19416, 19417 (Apr. 1, 2013). Therefore, the Office is no longer providing an initial patent term adjustment determination with the notice of allowance. The Office will continue to provide a patent term adjustment determination with the Issue Notification Letter that is mailed to applicant approximately three weeks prior to the issue date of the patent, and will include the patent term adjustment on the patent. Any request for reconsideration of the patent term adjustment determination (or reinstatement of patent term adjustment) should follow the process outlined in 37 CFR 1.705.

Any questions regarding the Patent Term Extension or Adjustment determination should be directed to the Office of Patent Legal Administration at (571)-272-7702. Questions relating to issue and publication fee payments should be directed to the Customer Service Center of the Office of Patent Publication at 1-(888)-786-0101 or (571)-272-4200.

OMB Clearance and PRA Burden Statement for PTOL-85 Part B

The Paperwork Reduction Act (PRA) of 1995 requires Federal agencies to obtain Office of Management and Budget approval before requesting most types of information from the public. When OMB approves an agency request to collect information from the public, OMB (i) provides a valid OMB Control Number and expiration date for the agency to display on the instrument that will be used to collect the information and (ii) requires the agency to inform the public about the OMB Control Number's legal significance in accordance with 5 CFR 1320.5(b).

The information collected by PTOL-85 Part B is required by 37 CFR 1.311. 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 12 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, Virginia 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450. 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.

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 disclosure of these records is required by the Freedom of Information Act.
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 inspection 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.

Notice of Allowability	Application No. 15/043,283	Applicant(s) BOSHERNITZAN ET AL.	
	Examiner JOE H. CHENG	Art Unit 2696	AIA (First Inventor to File) Status Yes

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to the Amendment filed 2/26/2018.
☐ A declaration(s)/affidavit(s) under **37 CFR 1.130(b)** was/were filed on _____.

2. ☐ 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.

3. ☒ The allowed claim(s) is/are 1,2,6-8 and 13-20. As a result of the allowed claim(s), 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.

4. ☐ 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)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.

Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).

6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)	
1. ☒ Notice of References Cited (PTO-892) 2. ☒ Information Disclosure Statements (PTO/SB/08), Paper No./Mail Date _____ 3. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material 4. ☐ Interview Summary (PTO-413), Paper No./Mail Date _____ .	5. ☐ Examiner's Amendment/Comment 6. ☐ Examiner's Statement of Reasons for Allowance 7. ☐ Other _____.

/JOE H CHENG/ Primary Examiner, Art Unit 2696	
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Notice of References Cited	Application/Control No. 15/043,283	Applicant(s)/Patent Under Reexamination BOSHERNITZAN ET AL.	
	Examiner JOE H. CHENG	Art Unit 2696	Page 1 of 1

U.S. PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	CPC Classification	US Classification
*	A	US-2017/0131783 A1	05-2017	BOSHERNITZAN; Yaniv	G06F3/017	1/1
*	B	US-9,812,004 B1	11-2017	Boshernitzan; Yaniv	G08C17/02	1/1
	C	US-				
	D	US-				
	E	US-				
	F	US-				
	G	US-				
	H	US-				
	I	US-				
	J	US-				
	K	US-				
	L	US-				
	M	US-				

FOREIGN PATENT DOCUMENTS

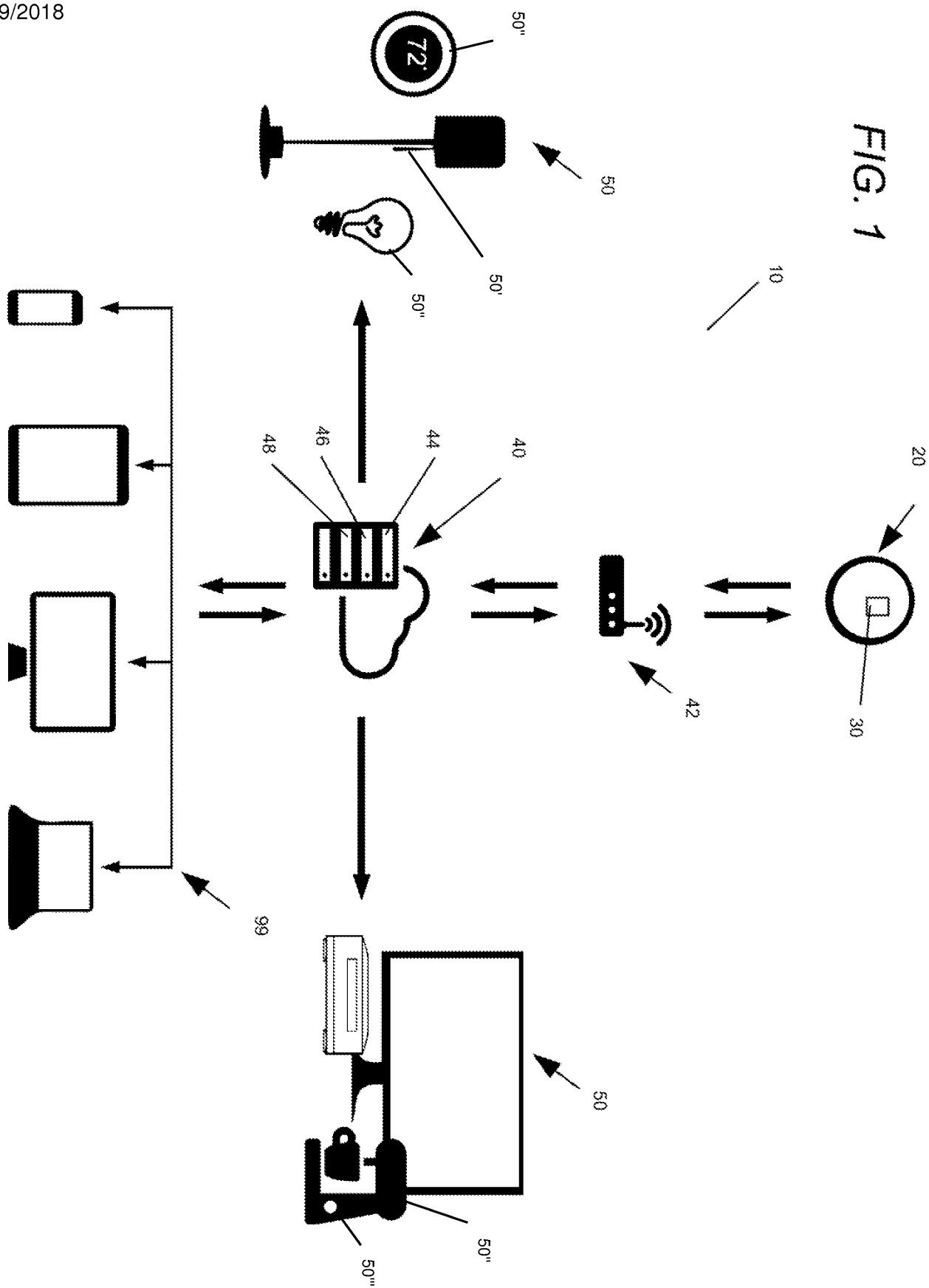
*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Country	Name	CPC Classification
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	O					
	P					
	Q					
	R					
	S					
	T					

NON-PATENT DOCUMENTS

*		Include as applicable: Author, Title Date, Publisher, Edition or Volume, Pertinent Pages)
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	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.

FIG. 1



EAST Search History

EAST Search History (Prior Art)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
L1	119005	(G06F3/017,0414,0433,0436,0488 or G06K9/00335,3233,6201).cpc.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2018/03/30 16:20
L2	297956	345/\$.ccls.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2018/03/30 16:20
L3	398307	1 or 2	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2018/03/30 16:20
L4	295	((range or (interactive near3 zone)) near4 ((sensor\$1 or monitor\$1 or detector\$1) or ((vibrat\$3 or force or pressure or audio) near3 (sensor\$1 or monitor\$1 or detector\$1)))) and (((sensor\$1 or monitor\$1 or detector\$1) or ((vibrat\$3 or force or pressure or audio) near3 (sensor\$1 or monitor\$1 or detector\$1))) near5 (server or rout\$3)) and ((gesture or hand or finger\$1 or palm\$1 or head) near3 (file or profile))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2018/03/30 16:30
L5	8	((range or (interactive near3 zone)) near4 ((sensor\$1 or monitor\$1 or detector\$1) or ((vibrat\$3 or force or pressure or audio or impact or contact) near3 (sensor\$1 or monitor\$1 or detector\$1)))) and (((sensor\$1 or monitor\$1 or detector\$1) or ((vibrat\$3 or force or pressure or audio) near3 (sensor\$1 or monitor\$1 or detector\$1))) near5 (server or rout\$3)) and ((engagement or engag\$3 or attachment or attach\$3 or mount\$3) near3 (housing near3 ((sensor\$1 or monitor\$1 or detector\$1) or ((vibrat\$3 or force or pressure or audio or impact or contact) near3 (sensor\$1 or monitor\$1 or detector\$1)))) and ((gesture or hand or finger\$1 or palm\$1 or head) near3 (file or profile))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2018/03/30 16:37

L6	8	((range or (interactive near3 zone)) near4 ((sensor\$1 or monitor\$1 or detector\$1) or ((vibrat\$3 or force or pressure or audio or impact or contact) near3 (sensor\$1 or monitor\$1 or detector\$1)) or accelerometer)) and (((sensor\$1 or monitor\$1 or detector\$1) or ((vibrat\$3 or force or pressure or audio) near3 (sensor\$1 or monitor\$1 or detector\$1))) near5 (server or rout\$3)) and ((engagement or engag\$3 or attachment or attach\$3 or mount\$3) near3 (housing near3 ((sensor\$1 or monitor\$1 or detector\$1) or ((vibrat\$3 or force or pressure or audio or impact or contact) near3 (sensor\$1 or monitor\$1 or detector\$1)) or accelerometer))) and ((gesture or hand or finger\$1 or palm\$1 or head) near3 (file or profile))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2018/03/30 16:38
L7	549901	((range or (interactive near3 zone)) near4 ((sen\$4 or monitor\$3 or detect\$3) or ((vibrat\$3 or force or pressure or audio or impact or contact or tap\$4 or knock\$3) near3 (sensor\$1 or monitor\$1 or detector\$1)) or accelerometer))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2018/03/30 17:05
L8	123	((engagement or engag\$3 or attachment or attach\$3 or mount\$3) near3 (housing near3 ((sen\$4 or monitor\$3 or detect\$3) or ((vibrat\$3 or force or pressure or audio or impact or contact or tap\$4 or knock\$3) near3 (sen\$4 or monitor\$3 or detect\$3)) or accelerometer))) and ((gesture or hand or finger\$1 or palm\$1 or head) near3 (file or profile))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2018/03/30 17:05
L9	375	((range or (interactive near3 zone)) near4 ((sen\$4 or monitor\$3 or detect\$3) or ((vibrat\$3 or force or pressure or audio or impact or contact or tap\$4 or knock\$3) near3 (sensor\$1 or monitor\$1 or detector\$1)) or accelerometer)) and (server near3 (rout\$3 and process\$3 and output))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2018/03/30 17:10
L10	35	7 and 8	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2018/03/30 17:11
L11	3	9 and 8	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2018/03/30 17:12
L12	9	("20140050354" "20100001992" "20120249416" "20130321346" "20140111483" "20140225824" "5971761" "8228315" "8788978").PN.	US-PGPUB; USPAT	OR	ON	2018/03/30 17:15

L13	0	12 and ((range or (interactive near3 zone)) near4 ((sen\$4 or monitor\$3 or detect\$3) or ((vibrat\$3 or force or pressure or audio or impact or contact or tap\$4 or knock\$3) near3 (sensor\$1 or monitor\$1 or detector\$1)) or accelerometer)) and (server near3 (rout\$3 and process\$3 and output))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2018/03/30 17:15
L14	15	("4377049" "5103085" "6335722" "20040214617" "20050046584" "20060164253" "20070080819" "20100017407" "20100053152" "8665237" "20140088794" "20140191938" "20140249681" "20150100167" "20160266636").PN.	US-PGPUB; USPAT	OR	ON	2018/03/30 17:20
L15	1	14 and ((range or (interactive near3 zone)) near4 ((sen\$4 or monitor\$3 or detect\$3) or ((vibrat\$3 or force or pressure or audio or impact or contact or tap\$4 or knock\$3) near3 (sensor\$1 or monitor\$1 or detector\$1)) or accelerometer)) and (server near3 (rout\$3 and process\$3 and output))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2018/03/30 17:20
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L18	3	("20100313050" "20110037734" "20150301615").PN.	US-PGPUB; USPAT	OR	ON	2018/03/30 17:22
L19	0	18 and ((range or (interactive near3 zone)) near4 ((sen\$4 or monitor\$3 or detect\$3) or ((vibrat\$3 or force or pressure or audio or impact or contact or tap\$4 or knock\$3) near3 (sensor\$1 or monitor\$1 or detector\$1)) or accelerometer)) and (server near3 (rout\$3 and process\$3 and output))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2018/03/30 17:23
L21	1	("9130651").PN.	US-PGPUB; USPAT	OR	ON	2018/03/30 17:24
L22	0	21 and ((range or (interactive near3 zone)) near4 ((sen\$4 or monitor\$3 or detect\$3) or ((vibrat\$3 or force or pressure or audio or impact or contact or tap\$4 or knock\$3) near3 (sensor\$1 or monitor\$1 or detector\$1)) or accelerometer)) and (server near3 (rout\$3 and process\$3 and output))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2018/03/30 17:25
L24	17	3 and ((range or (interactive near3 zone)) near4 ((sen\$4 or monitor\$3 or detect\$3) or ((vibrat\$3 or force or pressure or audio or impact or contact or tap\$4 or knock\$3) near3 (sensor\$1 or monitor\$1 or detector\$1)) or	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT;	OR	ON	2018/03/30 17:31

		accelerometer)) and (server near3 (rout\$3 and process\$3 and output))	IBM_TDB			
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EAST Search History (Interference)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
L23	3	((range or (interactive near3 zone)) near4 ((sensor\$1 or monitor\$1 or detector\$1) or ((vibrat\$3 or force or pressure or audio or impact or contact) near3 (sensor\$1 or monitor\$1 or detector\$1)) or accelerometer)) and (((sensor\$1 or monitor\$1 or detector\$1) or ((vibrat\$3 or force or pressure or audio) near3 (sensor\$1 or monitor\$1 or detector\$1))) near5 (server or rout\$3)) and ((engagement or engag\$3 or attachment or attach\$3 or mount\$3) near3 (housing near3 ((sensor\$1 or monitor\$1 or detector\$1) or ((vibrat\$3 or force or pressure or audio or impact or contact) near3 (sensor\$1 or monitor\$1 or detector\$1)) or accelerometer))) and ((gesture or hand or finger\$1 or palm\$1 or head) near3 (file or profile))).clm.	US-PGPUB; USPAT	OR	ON	2018/03/30 17:26

3/ 30/ 2018 5:33:54 PM**C:\ Users\ jcheng\ Documents\ EAST\ Workspaces\ Default EAST Workspace (Flat Panel LANDSCAPE).wsp**

Search Notes 	Application/Control No. 15043283	Applicant(s)/Patent Under Reexamination BOSHERNITZAN ET AL.
	Examiner JOE H CHENG	Art Unit 2696

CPC- SEARCHED		
Symbol	Date	Examiner
G06F 3/017,0414,0433,0436,0488		
G06K 9/00335,3233,6201	5/14/2017	JC
Same as above	3/30/2018	JC

CPC COMBINATION SETS - SEARCHED		
Symbol	Date	Examiner

US CLASSIFICATION SEARCHED			
Class	Subclass	Date	Examiner
345	All	3/30/2018	JC

* See search history printout included with this form or the SEARCH NOTES box below to determine the scope of the search.

SEARCH NOTES		
Search Notes	Date	Examiner
EAST search	5/14/2017	JC
EAST search	3/30/2018	JC

INTERFERENCE SEARCH			
US Class/ CPC Symbol	US Subclass / CPC Group	Date	Examiner
EAST search		5/14/2017	JC
EAST search		3/30/2018	JC

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<i>Index of Claims</i> 	Application/Control No. 15043283	Applicant(s)/Patent Under Reexamination BOSHERNITZAN ET AL.
	Examiner JOE H CHENG	Art Unit 2696

✓	Rejected	-	Cancelled	N	Non-Elected	A	Appeal
=	Allowed	÷	Restricted	I	Interference	O	Objected

☐ Claims renumbered in the same order as presented by applicant				☐ CPA				☐ T.D.				☐ R.1.47			
CLAIM		DATE													
Final	Original	05/14/2017	03/30/2018												
1	1	✓	=												
2	2	✓	=												
	3	✓	-												
	4	✓	-												
	5	✓	-												
3	6	✓	=												
4	7	✓	=												
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	9	✓	-												
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9	16	✓	=												
10	17	✓	=												
11	18	✓	=												
12	19	✓	=												
13	20	✓	=												

Receipt date: 02/26/2018

15/043,283 - GAU: 2696

Doc code: IDS

Doc description: Information Disclosure Statement (IDS) Filed

PTO/SB/08a (01-10)

Approved for use through 07/31/2012. OMB 0651-0031

U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)	Application Number	15043283
	Filing Date	2016-02-12
	First Named Inventor	BOSHERNITZAN, Yaniv, et al
	Art Unit	2696
	Examiner Name	Cheng, J. H. (8434)
	Attorney Docket Number	571/8

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Receipt date: 02/26/2018

15/043,283 - GAU: 2696

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)	Application Number		15043283
	Filing Date		2016-02-12
	First Named Inventor	BOSHERNITZAN, Yaniv, et al	
	Art Unit	2696	
	Examiner Name	Cheng, J. H. (8434)	
	Attorney Docket Number	571/8	

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EXAMINER SIGNATURE			
Examiner Signature	/JOE H CHENG/	Date Considered	03/29/2018

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through a citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

¹ See Kind Codes of USPTO Patent Documents at www.USPTO.GOV or MPEP 901.04. ² Enter office that issued the document, by the two-letter code (WIPO Standard ST.3). ³ For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. ⁴ Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. ⁵ Applicant is to place a check mark here if English language translation is attached.

**INFORMATION DISCLOSURE
STATEMENT BY APPLICANT**
(Not for submission under 37 CFR 1.99)

Application Number	15043283
Filing Date	2016-02-12
First Named Inventor	BOSHERNITZAN, Yaniv, et al
Art Unit	2696
Examiner Name	Cheng, J. H. (8434)
Attorney Docket Number	571/8

CERTIFICATION STATEMENT

Please see 37 CFR 1.97 and 1.98 to make the appropriate selection(s):

That each item of information contained in the information disclosure statement was first cited in any communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(1).

OR

☐ That no item of information contained in the information disclosure statement was cited in a communication from a foreign patent office in a counterpart foreign application, and, to the knowledge of the person signing the certification after making reasonable inquiry, no item of information contained in the information disclosure statement was known to any individual designated in 37 CFR 1.56(c) more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(2).

See attached certification statement.

The fee set forth in 37 CFR 1.17 (p) has been submitted herewith.

A certification statement is not submitted herewith.

SIGNATURE

A signature of the applicant or representative is required in accordance with CFR 1.33, 10.18. Please see CFR 1.4(d) for the form of the signature.

Signature	/Andrew W. Chu/	Date (YYYY-MM-DD)	2018-02-26
Name/Print	Andrew W. Chu	Registration Number	46625

This collection of information is required by 37 CFR 1.97 and 1.98. 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 1 hour 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.**

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.

Issue Classification 	Application/Control No. 15043283	Applicant(s)/Patent Under Reexamination BOSHERNITZAN ET AL.	
	Examiner JOE H CHENG	Art Unit 2696	

CPC						
Symbol					Type	Version
G06K		9		00335	F	2013-01-01
G06F		3		0416	I	2013-01-01
G06F		3		043	I	2013-01-01
G06K		9		3233	A	2013-01-01

CPC Combination Sets						
Symbol			Type	Set	Ranking	Version

NONE (Assistant Examiner) _____ (Date) _____		Total Claims Allowed: 13	
/JOE H CHENG/ Primary Examiner.Art Unit 2696 (Primary Examiner) _____ (Date) _____		03/30/2018 O.G. Print Claim(s) 1	O.G. Print Figure 1 and 7

Issue Classification 	Application/Control No. 15043283	Applicant(s)/Patent Under Reexamination BOSHERNITZAN ET AL.
	Examiner JOE H CHENG	Art Unit 2696

US ORIGINAL CLASSIFICATION						INTERNATIONAL CLASSIFICATION														
CLASS			SUBCLASS			CLAIMED					NON-CLAIMED									
345			177			G	0	6	F	3 / 043 (2006.01.01)										
CROSS REFERENCE(S)																				
CLASS	SUBCLASS (ONE SUBCLASS PER BLOCK)																			

NONE		Total Claims Allowed:	
		13	
(Assistant Examiner)	(Date)		
/JOE H CHENG/ Primary Examiner.Art Unit 2696	03/30/2018	O.G. Print Claim(s)	O.G. Print Figure
(Primary Examiner)	(Date)	1	1 and 7

Issue Classification 	Application/Control No. 15043283	Applicant(s)/Patent Under Reexamination BOSHERNITZAN ET AL.
	Examiner JOE H CHENG	Art Unit 2696

☐ Claims renumbered in the same order as presented by applicant				☐ CPA				☐ T.D.				☐ R.1.47			
Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original
1	1	10	17												
2	2	11	18												
	3	12	19												
	4	13	20												
	5														
3	6														
4	7														
5	8														
	9														
	10														
	11														
	12														
6	13														
7	14														
8	15														
9	16														

NONE (Assistant Examiner) _____ (Date) _____		Total Claims Allowed: 13	
/JOE H CHENG/ Primary Examiner, Art Unit 2696 (Primary Examiner) _____ (Date) _____		03/30/2018 (Date) _____	O.G. Print Claim(s) 1
			O.G. Print Figure 1 and 7

FEE ADDRESS INDICATION FORM			
Application Number	15043283	Art Unit	2696
Filing Date	12-Feb-2016	Examiner Name	JOE CHENG
First Name Inventor	Yaniv BOSHERNITZAN	Attorney Doc. Number	571/8
INSTRUCTIONS: In order for the fee address identified on this form to be effective, the issue fee must have been paid for the application listed on this form. Only an address represented by a customer number can be established as the fee address for maintenance fee purposes (hereafter, fee address). A fee address should be established when correspondence related to maintenance fees should be mailed to a different address than the correspondence address for the application. For more information on customer numbers, see the Manual of Patent Examining Procedure (MPEP) § 403.			
Please recognize as the Fee Address under the provisions of 37 CFR 1.363 the address associated with:			
Customer Number:	91209		

Signature :

I certify, in accordance with 37 CFR 1.4(d)(4) that I am an attorney or agent registered to practice before the Patent and Trademark Office who has filed and has been granted power of attorney in this application.

Signature	/Andrew W. Chu/	Date	05-13-2018
Name	Andrew W. Chu	Registration Number	46625

Electronic Patent Application Fee Transmittal				
Application Number:		15043283		
Filing Date:		12-Feb-2016		
Title of Invention:		SYSTEM AND METHOD FOR CONTROLLING A TERMINAL DEVICE		
First Named Inventor/Applicant Name:		Yaniv BOSHERNITZAN		
Filer:		Andrew W. Chu		
Attorney Docket Number:		571/8		
Filed as Small Entity				
Filing Fees for Utility under 35 USC 111(a)				
Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Basic Filing:				
UTILITY APPL ISSUE FEE	2501	1	500	500
PUBL. FEE- EARLY, VOLUNTARY, OR NORMAL	1504	1	0	0
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Post-Allowance-and-Post-Issuance:				
Extension-of-Time:				
Miscellaneous:				
Total in USD (\$)				500

Electronic Acknowledgement Receipt	
EFS ID:	32607875
Application Number:	15043283
International Application Number:	
Confirmation Number:	8434
Title of Invention:	SYSTEM AND METHOD FOR CONTROLLING A TERMINAL DEVICE
First Named Inventor/Applicant Name:	Yaniv BOSHERNITZAN
Customer Number:	91209
Filer:	Andrew W. Chu
Filer Authorized By:	
Attorney Docket Number:	571/8
Receipt Date:	13-MAY-2018
Filing Date:	12-FEB-2016
Time Stamp:	12:07:23
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	CARD
Payment was successfully received in RAM	\$500
RAM confirmation Number	051418INTEFSW12072000
Deposit Account	
Authorized User	

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

File Listing:					
Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Issue Fee Payment (PTO-85B)	Web85b.pdf	46258	no	2
			2eefc011b764cecb75abdbcf08f7ac028f3ae071		
Warnings:					
Information:					
2	Maintenance Fee Address Change	web85feeaddress.pdf	32576	no	1
			4db2e7a56ebe350d2a54ffc9a9975780d0247b93		
Warnings:					
Information:					
3	Fee Worksheet (SB06)	fee-info.pdf	31984	no	2
			959f5041080e11ad018bf79f0a8cd30ab3b0dc5f		
Warnings:					
Information:					
Total Files Size (in bytes):			110818		
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. <u>New Applications Under 35 U.S.C. 111</u> 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. <u>National Stage of an International Application under 35 U.S.C. 371</u> 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. <u>New International Application Filed with the USPTO as a Receiving Office</u> 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.					

Document Description: Issue Fee Payment (PTO-85B)

Issue Fee Transmittal Form

Application Number	Filing Date	First Named Inventor	Atty. Docket No.	Confirmation No.
15043283	12-Feb-2016	Yaniv BOSHERNITZAN	571/8	8434

TITLE OF INVENTION :

SYSTEM AND METHOD FOR CONTROLLING A TERMINAL DEVICE

Entity Status	Application Type	Art Unit	Class - Subclass	EXAMINER
Small	Utility under 35 USC 111(a)	2696	177000	JOE CHENG
Issue Fee Due	Publication Due	Total Fee(s) Due	Date Due	Prev. Paid Fee
\$500	\$0	\$500	09-Jul-2018	\$0

1.Change of Correspondence Address and/or Indication Of Fee Address (37 CFR 1.33 & 1.363)

Current Correspondence Address:	Current Indicated Fee Address :
91209 Andrew W. Chu Craft Chu PLLC 1445 North Loop West Suite 410 Houston TX 77008 UNITED STATES 713-802-9144 achu@awcplaw.com	
☐ Change of correspondence address requested, system generated AIA/122-EFS form attached	☒ Fee Address indication requested, system generated SB/47-EFS form attached

2.Entity Status**Change in Entity Status**

- Applicant certifying micro entity status; system generated Micro Entity certification form attached. See 37 CFR 1.29.
 Note: Absent a valid certification of micro entity status, issue fee payment in the micro entity amount will not be accepted at the risk of application abandonment.
☐ If this box is checked, you will be prompted to choose a micro entity status on the gross income basis (37 CFR 1.29(a)) or the institution of higher education basis (37 CFR 1.29(d)), and make the applicable certification online.
- ☒ Applicant asserting small entity status. See 37 CFR 1.27.
 Note: If the application was previously under micro entity status, checking this box will be taken to be a notification of loss of entitlement to micro entity status.
- ☐ Applicant changing to regular undiscounted fee status.
 Note: Checking this box will be taken to be a notification of loss of entitlement to small or micro entity status, as applicable.

Document Description: Issue Fee Payment (PTO-85B)

3.The Following Fee(s) Are Submitted:☒ Issue Fee☐ I authorize USPTO to apply my previously paid issue fee to the current fees due☐ Publication Fee☐ The Director is hereby authorized to apply my previously paid issue fee to the current fee due and to charge deficient fees to Deposit Account Number _____☐ Advance Order - # of copies _____

If **in addition to** the payment of the issue fee amount submitted with this form, there are any discrepancies in any amount(s) due, the Director is authorized to charge any deficiency, or credit any overpayment, to Deposit Account Number 505090.

☒ The **issue fee must be submitted** with this form. **If payment of the issue fee does not accompany this form, checking this box and providing a deposit account number will NOT be effective to satisfy full payment of the fee(s) due.**

4.Firm and/or Attorney Names To Be Printed**NOTE: If no name is listed, no name will be printed**

For printing on the patent front page, list to be displayed as entered

1. Andrew W. Chu

2. Craft Chu PLLC

3.

5.Assignee Name(s) and Residence Data To Be Printed

PLEASE NOTE: Unless an assignee is identified below, no assignee data will appear on the patent. If an assignee is identified below, the document has been filed for recordation as set forth in 37 CFR 3.11. Completion of this form is NOT a substitute for filing an assignment.

Name	City	State	Country	Category
Swan Solutions, Inc.	Austin	TEXAS	united states	corporation

6.Signature

I certify, in accordance with 37 CFR 1.4(d)(4) that I am an attorney or agent registered to practice before the Patent and Trademark Office who has filed and has been granted power of attorney in this application. I also certify that this Fee(s) Transmittal form is being transmitted to the USPTO via EFS-WEB on the date indicated below.

Signature	/Andrew W. Chu/	Date	05-13-2018
Name	Andrew W. Chu	Registration Number	46625



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.	ISSUE DATE	PATENT NO.	ATTORNEY DOCKET NO.	CONFIRMATION NO.
15/043,283	06/12/2018	9996738	571/8	8434

91209 7590 05/23/2018
Andrew W. Chu
Craft Chu PLLC
1445 North Loop West
Suite 410
Houston, TX 77008

ISSUE NOTIFICATION

The projected patent number and issue date are specified above.

Determination of Patent Term Adjustment under 35 U.S.C. 154 (b) (application filed on or after May 29, 2000)

The Patent Term Adjustment is 11 day(s). Any patent to issue from the above-identified application will include an indication of the adjustment on the front page.

If a Continued Prosecution Application (CPA) was filed in the above-identified application, the filing date that determines Patent Term Adjustment is the filing date of the most recent CPA.

Applicant will be able to obtain more detailed information by accessing the Patent Application Information Retrieval (PAIR) WEB site (<http://pair.uspto.gov>).

Any questions regarding the Patent Term Extension or Adjustment determination should be directed to the Office of Patent Legal Administration at (571)-272-7702. Questions relating to issue and publication fee payments should be directed to the Application Assistance Unit (AAU) of the Office of Data Management (ODM) at (571)-272-4200.

APPLICANT(s) (Please see PAIR WEB site <http://pair.uspto.gov> for additional applicants):

Yaniv BOSHERNITZAN, Houston, TX;
Swan Solutions Inc., Houston, TX;
Ohad NEZER, Houston, TX;

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 USA offers tremendous resources and advantages for those who invest and manufacture goods here. Through SelectUSA, our nation works to encourage and facilitate business investment. To learn more about why the USA is the best country in the world to develop technology, manufacture products, and grow your business, visit SelectUSA.gov.

AO 120 (Rev. 08/10)

TO: Mail Stop 8 Director of the U.S. Patent and Trademark Office P.O. Box 1450 Alexandria, VA 22313-1450	REPORT ON THE FILING OR DETERMINATION OF AN ACTION REGARDING A PATENT OR TRADEMARK
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In Compliance with 35 U.S.C. § 290 and/or 15 U.S.C. § 1116 you are hereby advised that a court action has been
filed in the U.S. District Court **Western District of Texas - Austin Division** on the following

☐ Trademarks or ☒ Patents. (☐ the patent action involves 35 U.S.C. § 292.)

DOCKET NO. 1:23-cv-1351-DII	DATE FILED 11/6/2023	U.S. DISTRICT COURT Western District of Texas - Austin Division
PLAINTIFF Haptic, Inc.		DEFENDANT Apple, Inc.
PATENT OR TRADEMARK NO.	DATE OF PATENT OR TRADEMARK	HOLDER OF PATENT OR TRADEMARK
1 9,996,738	6/12/2018	Haptic, Inc.
2		
3		
4		
5		

In the above—entitled case, the following patent(s)/ trademark(s) have been included:

DATE INCLUDED	INCLUDED BY		
	☐ Amendment ☐ Answer ☐ Cross Bill ☐ Other Pleading		
PATENT OR TRADEMARK NO.	DATE OF PATENT OR TRADEMARK	HOLDER OF PATENT OR TRADEMARK	
1			
2			
3			
4			
5			

In the above—entitled case, the following decision has been rendered or judgement issued:

DECISION/JUDGEMENT

CLERK PHILIP J. DEVLIN	(BY) DEPUTY CLERK <i>Kyle Patton</i>	DATE 11/06/2023
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Copy 1—Upon initiation of action, mail this copy to Director Copy 3—Upon termination of action, mail this copy to Director
Copy 2—Upon filing document adding patent(s), mail this copy to Director Copy 4—Case file copy