8394696

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United States Patent and Trademark Office

July 18, 2023

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APPLICATION NUMBER: ***15/871,044***
FILING DATE: ***January 14, 2018***
PATENT NUMBER: ***11028854***
ISSUE DATE: ***June 08, 2021***

UNITED STATES PATENT AND TRADEMARK OFFICE · DEPARTMENT OF COMMERCE

Certified by

Performing the Functions and Duties of the
Under Secretary of Commerce
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and Director of the United States
Patent and Trademark Office

PTO/AIA/14 (11-15)
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Application Data Sheet 37 CFR 1.76	Attorney Docket Number	WAC-10APP1
	Application Number	
Title of Invention	METHODS AND APPARATUS FOR CONTROLLING FAN DEVICES	

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
	Eric		Stefankiewicz	

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

City	State/Province	Country of Residence
Old Bethpage	NY	US

Mailing Address of Inventor:

Address 1	14 Kingswood Circle
Address 2	

City	State/Province	Postal Code	Country
Old Bethpage	NY	11804	US

Inventor 2 Remove

Legal Name

Prefix	Given Name	Middle Name	Family Name	Suffix
	Shelley		Wald	

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

City	State/Province	Country of Residence
Manhasset	NY	US

Mailing Address of Inventor:

Address 1	3 Fairway Lane
Address 2	

City	State/Province	Postal Code	Country
Manhasset	NY	11030	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	WAC-10APP1
	Application Number	
Title of Invention	METHODS AND APPARATUS FOR CONTROLLING FAN DEVICES	

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

Customer Number	149297		
Email Address	US_Docketing@straub-ip.com	Add Email	Remove Email
Email Address	stephen@straub-ip.com	Add Email	Remove Email

Application Information:

Title of the Invention	METHODS AND APPARATUS FOR CONTROLLING FAN DEVICES		
Attorney Docket Number	WAC-10APP1	**Small Entity Status Claimed**	☒
Application Type	Nonprovisional		
Subject Matter	Utility		
Total Number of Drawing Sheets (if any)	16	**Suggested Figure for Publication (if any)**	

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.

Please Select One:	● Customer Number	US Patent Practitioner	○ Limited Recognition (37 CFR 11.9)
Customer Number	149297		

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	Application Number	
Title of Invention	METHODS AND APPARATUS FOR CONTROLLING FAN DEVICES	

Domestic Benefit/National Stage Information:

This section allows for the applicant to either claim benefit under 35 U.S.C. 119(e), 120, 121, 365(c), or 386(c) or indicate National Stage entry from a PCT application. Providing benefit claim 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" field blank.

Prior Application Status	Pending		Remove
Application Number	Continuity Type	Prior Application Number	Filing or 371(c) Date (YYYY-MM-DD)
	Claims benefit of provisional	62617274	2018-01-14
Prior Application Status	Pending		Remove
Application Number	Continuity Type	Prior Application Number	Filing or 371(c) Date (YYYY-MM-DD)
	Claims benefit of provisional	62617152	2018-01-12

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. 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(i)(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 Number	
Title of Invention	METHODS AND APPARATUS FOR CONTROLLING FAN DEVICES	

Authorization or Opt-Out of Authorization to Permit Access:

When this Application Data Sheet is properly signed and filed with the application, applicant has provided written authority to permit a participating foreign intellectual property (IP) office access to the instant application-as-filed (see paragraph A in subsection 1 below) and the European Patent Office (EPO) access to any search results from the instant application (see paragraph B in subsection 1 below).

Should applicant choose not to provide an authorization identified in subsection 1 below, applicant **must opt-out** of the authorization by checking the corresponding box A or B or both in subsection 2 below.

NOTE: This section of the Application Data Sheet is **ONLY** reviewed and processed with the **INITIAL** filing of an application. After the initial filing of an application, an Application Data Sheet cannot be used to provide or rescind authorization for access by a foreign IP office(s). Instead, Form PTO/SB/39 or PTO/SB/69 must be used as appropriate.

1. Authorization to Permit Access by a Foreign Intellectual Property Office(s)

A. Priority Document Exchange (PDX) - Unless box A in subsection 2 (opt-out of authorization) is 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 State Intellectual Property Office of the People's Republic of China (SIPO), the World Intellectual Property Organization (WIPO), and any other foreign intellectual property office participating with the USPTO in a bilateral or multilateral priority document exchange agreement in which a foreign application claiming priority to the instant patent application is filed, access to: (1) the instant patent application-as-filed and its related bibliographic data, (2) any foreign or domestic application to which priority or benefit is claimed by the instant application and its related bibliographic data, and (3) the date of filing of this Authorization. See 37 CFR 1.14(h)(1).

B. Search Results from U.S. Application to EPO - Unless box B in subsection 2 (opt-out of authorization) is checked, the undersigned hereby **grants the USPTO authority** to provide the EPO access to the bibliographic data and search results from the instant patent application when a European patent application claiming priority to the instant patent application is filed. See 37 CFR 1.14(h)(2).

The applicant is reminded that the EPO's Rule 141(1) EPC (European Patent Convention) requires applicants to submit a copy of search results from the instant application without delay in a European patent application that claims priority to the instant application.

2. Opt-Out of Authorizations to Permit Access by a Foreign Intellectual Property Office(s)

☐ A. Applicant **DOES NOT** authorize the USPTO to permit a participating foreign IP office access to the instant application-as-filed. If this box is checked, the USPTO will not be providing a participating foreign IP office with any documents and information identified in subsection 1A above.

☐ B. Applicant **DOES NOT** authorize the USPTO to transmit to the EPO any search results from the instant patent application. If this box is checked, the USPTO will not be providing the EPO with search results from the instant application.

NOTE: Once the application has published or is otherwise publicly available, the USPTO may provide access to the application in accordance with 37 CFR 1.14.

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Application Data Sheet 37 CFR 1.76	Attorney Docket Number	WAC-10APP1
	Application Number	
Title of Invention	METHODS AND APPARATUS FOR CONTROLLING FAN DEVICES	

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	Wangs Alliance Corporation		
Mailing Address Information For Applicant:			
Address 1	44 Harbor Park Drive		
Address 2			
City	Port Washington	**State/Province**	NY
Country	US	Postal Code	11050
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.

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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 i		Postal Code	
Phone Number		Fax Number	
Email Address			

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

Signature:

Remove

NOTE: This Application Data Sheet must be signed in accordance with 37 CFR 1.33(b). **However, if this Application Data Sheet is submitted with the INITIAL filing of the application and either box A or B is not checked in subsection 2 of the "Authorization or Opt-Out of Authorization to Permit Access" section, then this form must also be signed in accordance with 37 CFR 1.14(c).**

This Application Data Sheet **must** be signed by a patent practitioner if one or more of the applicants is a **juristic entity** (e.g., corporation or association). If the applicant is two or more joint inventors, this form must be signed by a patent practitioner, **all** joint inventors who are the applicant, or one or more joint inventor-applicants who have been given power of attorney (e.g., see USPTO Form PTO/AIA/81) on behalf of **all** joint inventor-applicants.

See 37 CFR 1.4(d) for the manner of making signatures and certifications.

Signature	/Stephen T. STRAUB, Reg. No. 43,938/			Date (YYYY-MM-DD)	2018-01-14
First Name	Stephen	Last Name	Straub	Registration Number	43938

Additional Signature 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	WAC-10APP1
	Application Number	
Title of Invention	METHODS AND APPARATUS FOR CONTROLLING FAN DEVICES	

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

Privacy Act Statement

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

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

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

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

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

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

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

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.

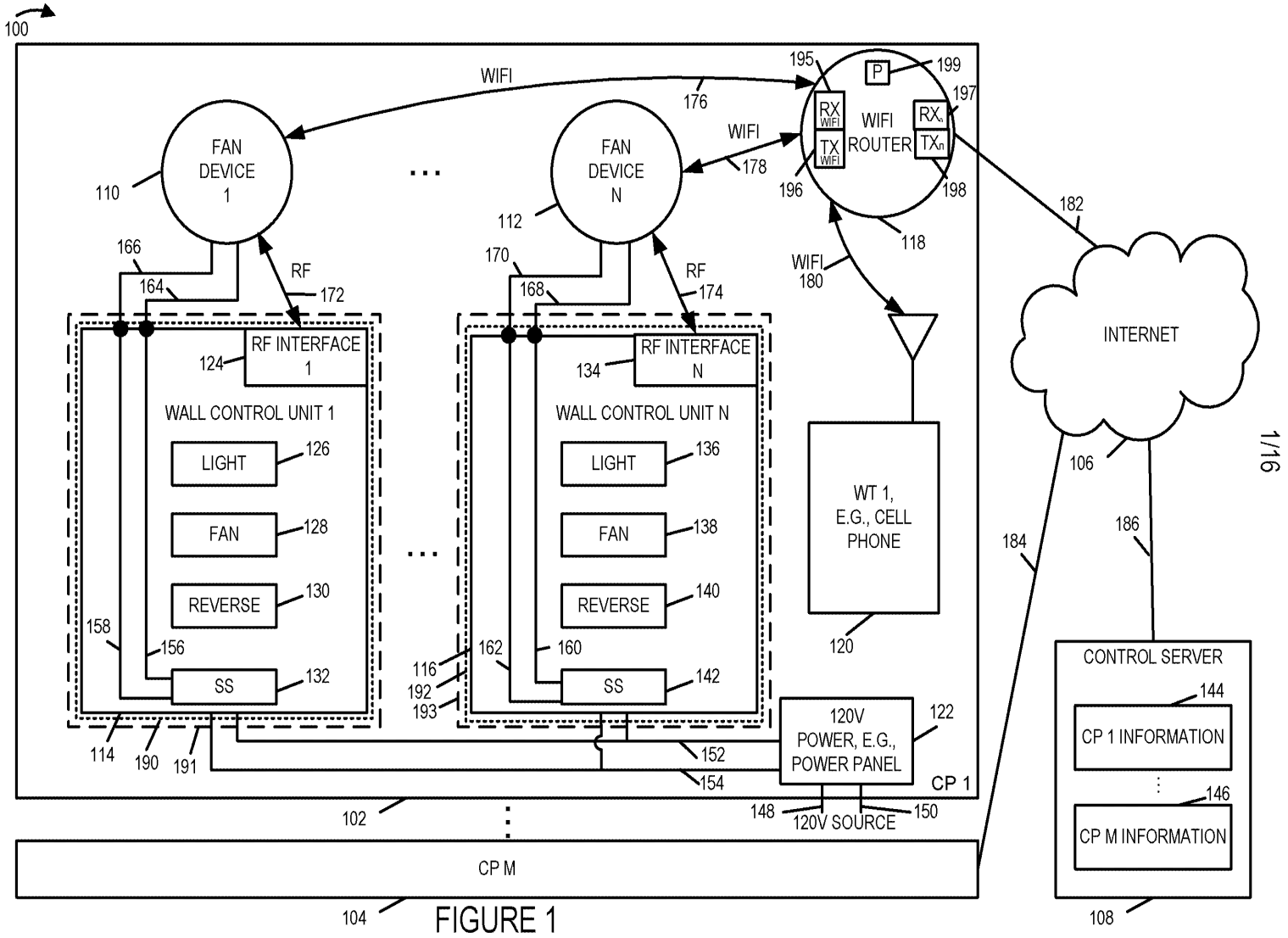

100
WIFI
176
195
199
197
FAN DEVICE 1
110
FAN DEVICE N
112
WIFI
178
WIFI ROUTER
196
198
118
182
166
164
RF
172
170
168
RF
174
WIFI
180
INTERNET
RF INTERFACE 1
124
RF INTERFACE N
134
WALL CONTROL UNIT 1
WALL CONTROL UNIT N
LIGHT
126
LIGHT
136
FAN
128
FAN
138
REVERSE
130
REVERSE
140
158
156
SS
132
162
160
SS
142
116
192
193
WT 1, E.G., CELL PHONE
120
106
184
186
CONTROL SERVER
144
CP 1 INFORMATION
146
CP M INFORMATION
114
190
191
152
154
120V POWER, E.G., POWER PANEL
122
CP 1
102
148
120V SOURCE
150
CP M
104
108

FIGURE 1

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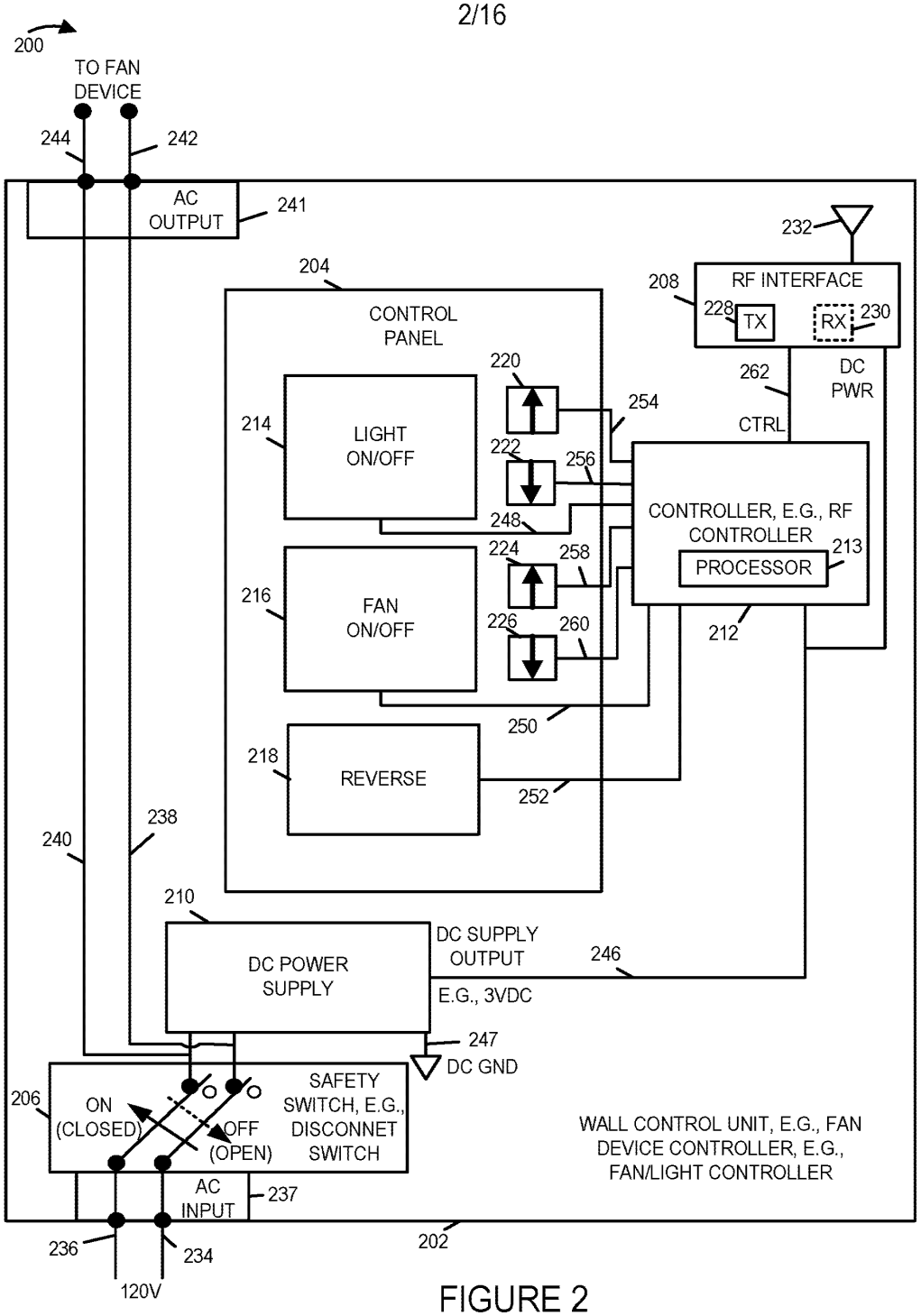

200
TO FAN DEVICE
244
242
AC OUTPUT
241
232
204
208
RF INTERFACE
228
TX
RX
230
CONTROL PANEL
220
262
DC PWR
254
214
LIGHT ON/OFF
222
256
CTRL
CONTROLLER, E.G., RF CONTROLLER
248
224
258
213
PROCESSOR
216
FAN ON/OFF
226
260
212
250
218
REVERSE
252
238
240
210
DC SUPPLY OUTPUT
246
DC POWER SUPPLY
E.G., 3VDC
247
DC GND
206
ON (CLOSED)
OFF (OPEN)
SAFETY SWITCH, E.G., DISCONNET SWITCH
WALL CONTROL UNIT, E.G., FAN DEVICE CONTROLLER, E.G., FAN/LIGHT CONTROLLER
AC INPUT
237
236
234
120V
202

FIGURE 2

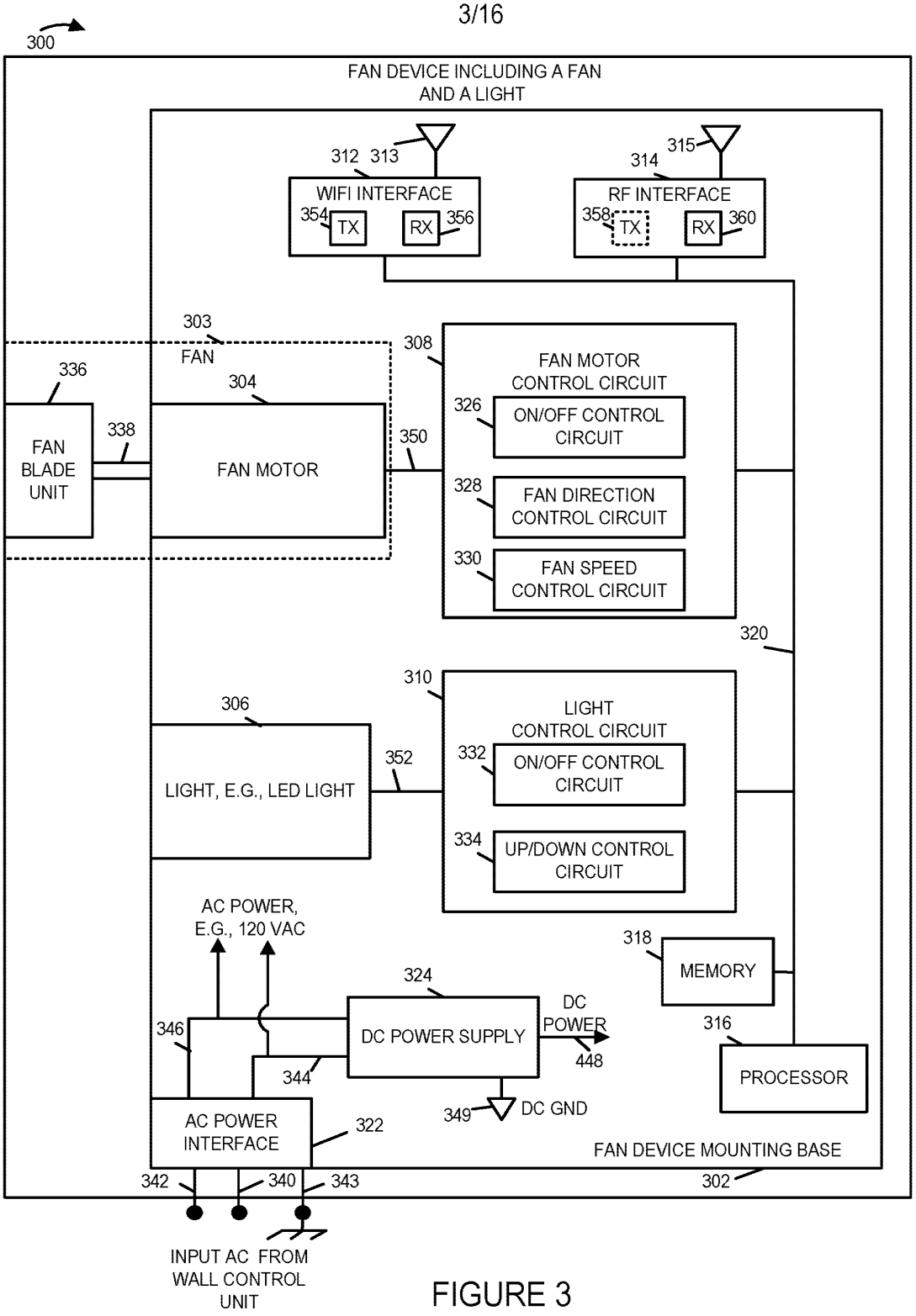

300
FAN DEVICE INCLUDING A FAN AND A LIGHT
312
313
WIFI INTERFACE
354
TX
RX
356
314
315
RF INTERFACE
358
TX
RX
360
303
FAN
336
FAN BLADE UNIT
338
304
FAN MOTOR
308
FAN MOTOR CONTROL CIRCUIT
326
ON/OFF CONTROL CIRCUIT
328
FAN DIRECTION CONTROL CIRCUIT
330
FAN SPEED CONTROL CIRCUIT
350
320
310
LIGHT CONTROL CIRCUIT
306
LIGHT, E.G., LED LIGHT
352
332
ON/OFF CONTROL CIRCUIT
334
UP/DOWN CONTROL CIRCUIT
AC POWER, E.G., 120 VAC
318
MEMORY
324
DC POWER SUPPLY
DC POWER
448
316
PROCESSOR
346
344
349
DC GND
AC POWER INTERFACE
322
FAN DEVICE MOUNTING BASE
342
340
343
302
INPUT AC FROM WALL CONTROL UNIT

FIGURE 3

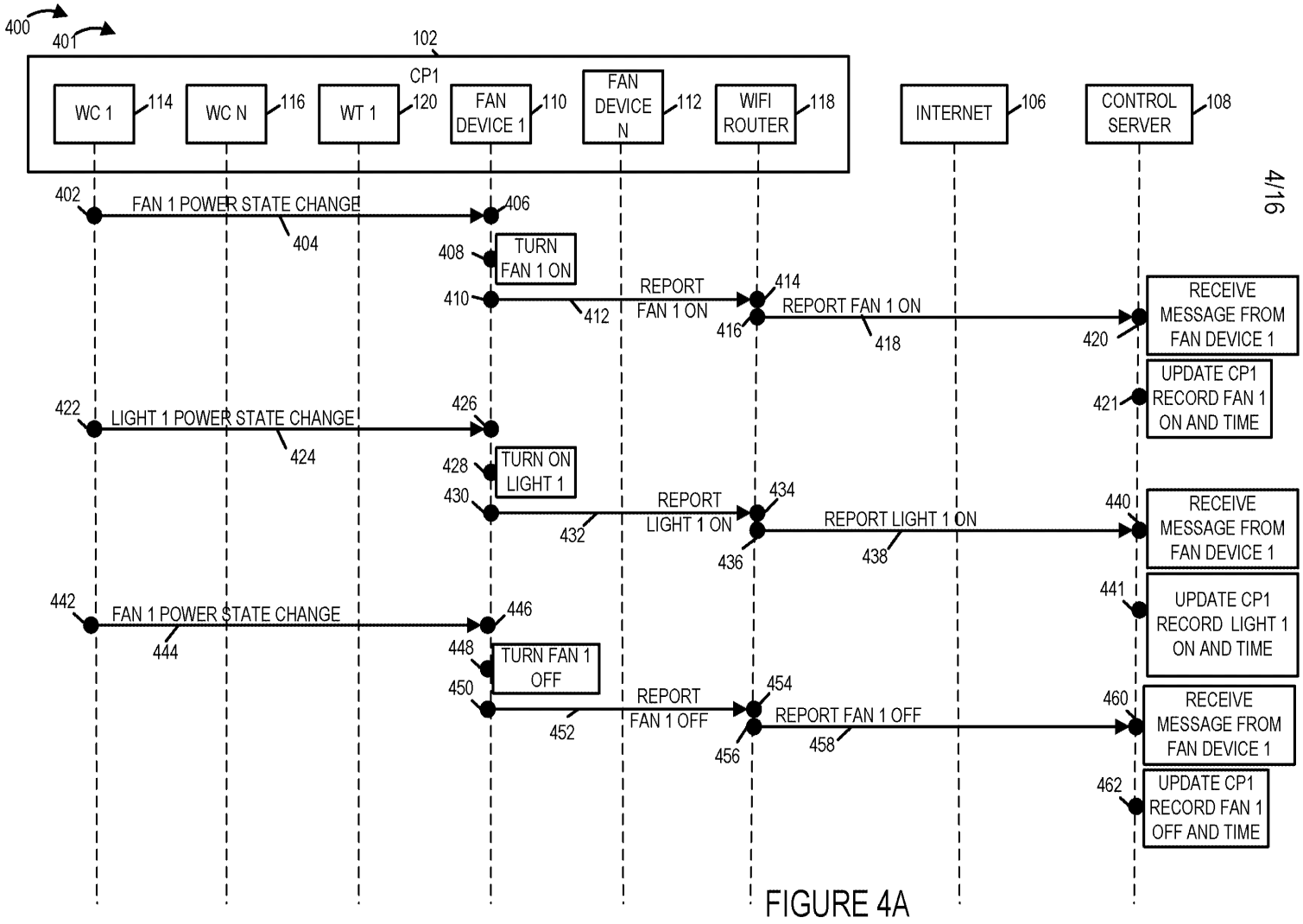

400
401
102
CP1
WC 1
114
WC N
116
WT 1
120
FAN DEVICE 1
110
FAN DEVICE N
112
WIFI ROUTER
118
INTERNET
106
CONTROL SERVER
108
416
402
FAN 1 POWER STATE CHANGE
404
406
408
TURN FAN 1 ON
410
412
REPORT FAN 1 ON
414
416
REPORT FAN 1 ON
418
420
RECEIVE MESSAGE FROM FAN DEVICE 1
421
UPDATE CP1 RECORD FAN 1 ON AND TIME
422
LIGHT 1 POWER STATE CHANGE
424
426
428
TURN ON LIGHT 1
430
432
REPORT LIGHT 1 ON
434
436
REPORT LIGHT 1 ON
438
440
RECEIVE MESSAGE FROM FAN DEVICE 1
441
UPDATE CP1 RECORD LIGHT 1 ON AND TIME
442
FAN 1 POWER STATE CHANGE
444
446
448
TURN FAN 1 OFF
450
452
REPORT FAN 1 OFF
454
456
REPORT FAN 1 OFF
458
460
RECEIVE MESSAGE FROM FAN DEVICE 1
462
UPDATE CP1 RECORD FAN 1 OFF AND TIME

FIGURE 4A

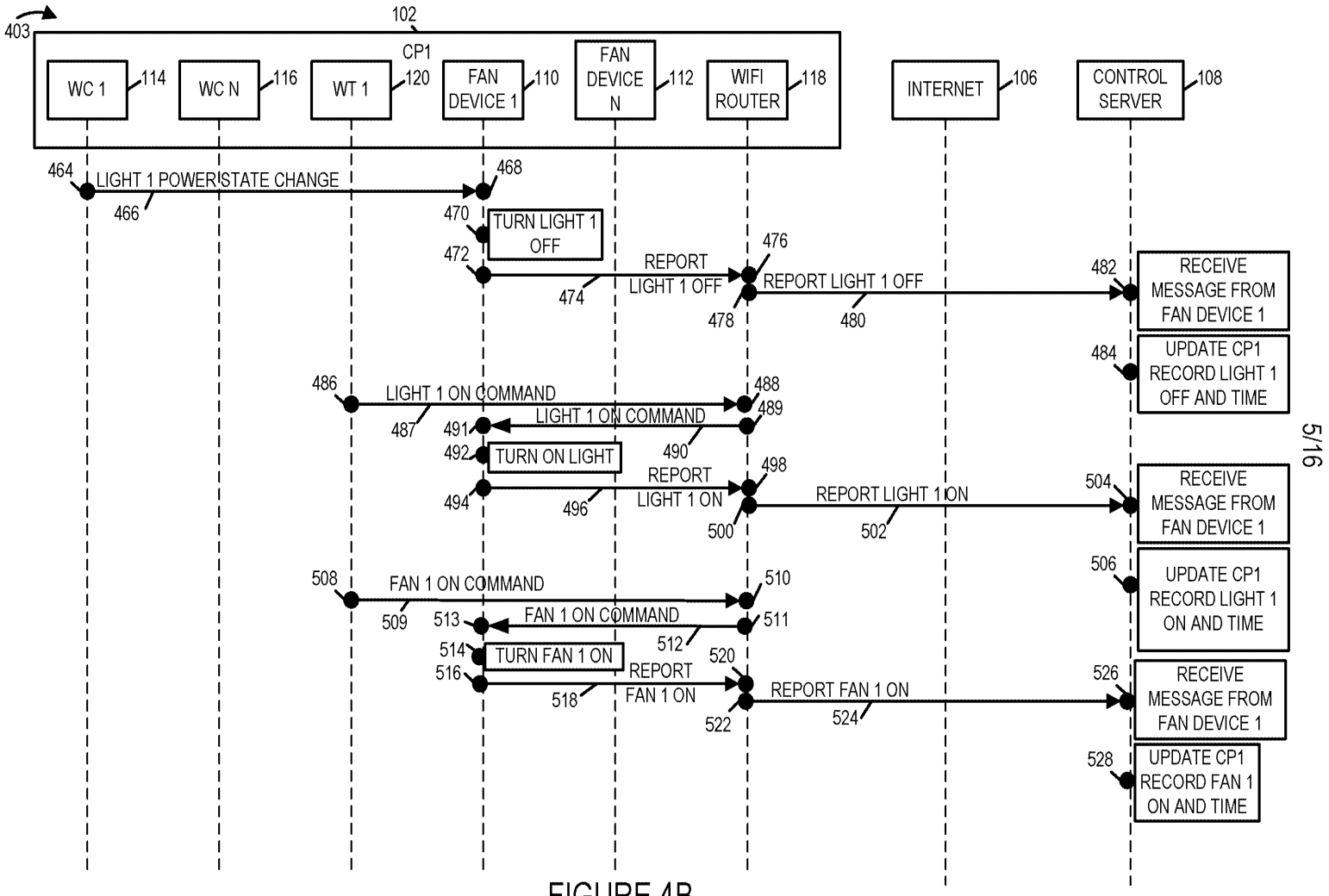


FIGURE 4B

5/16

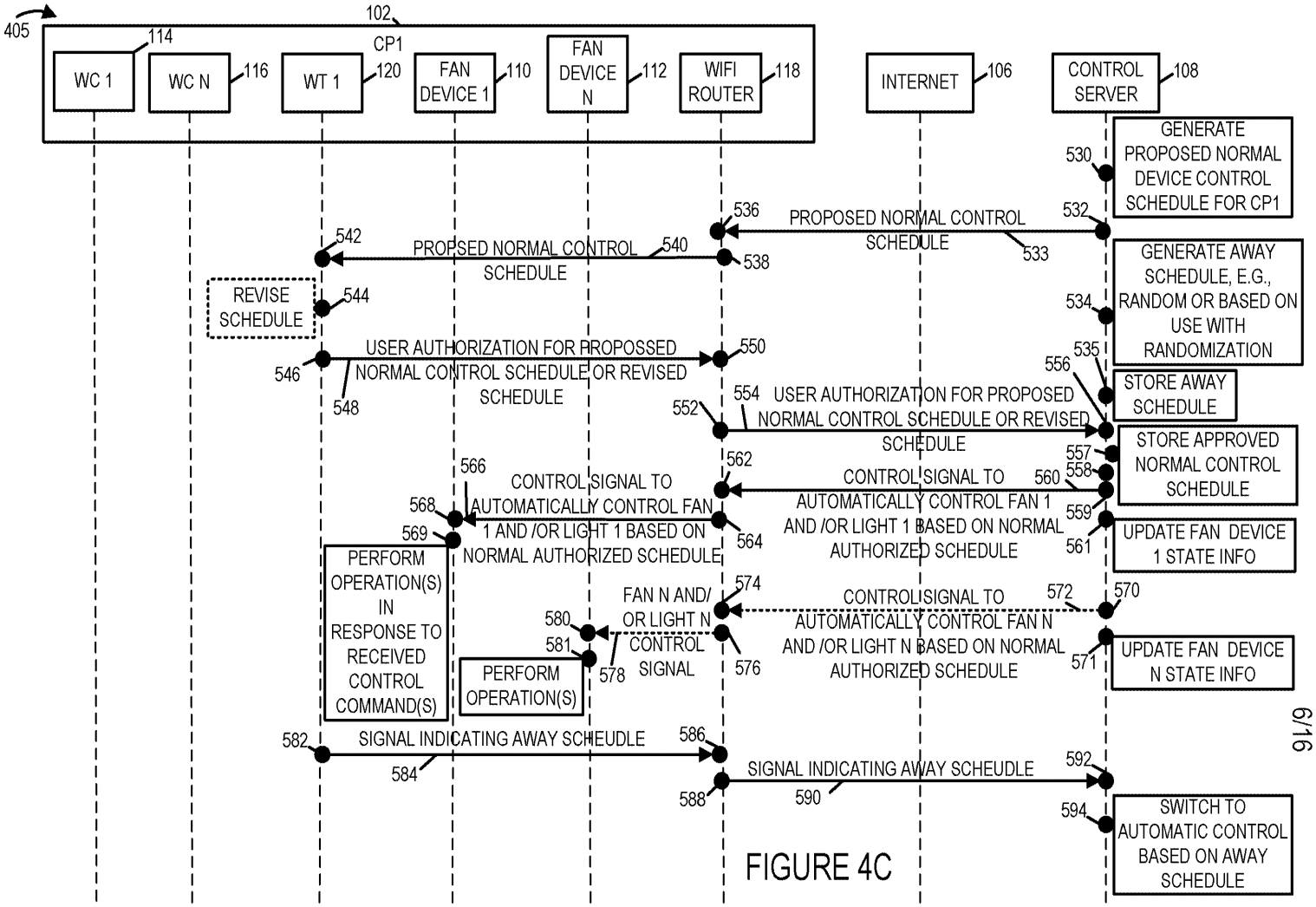


FIGURE 4C

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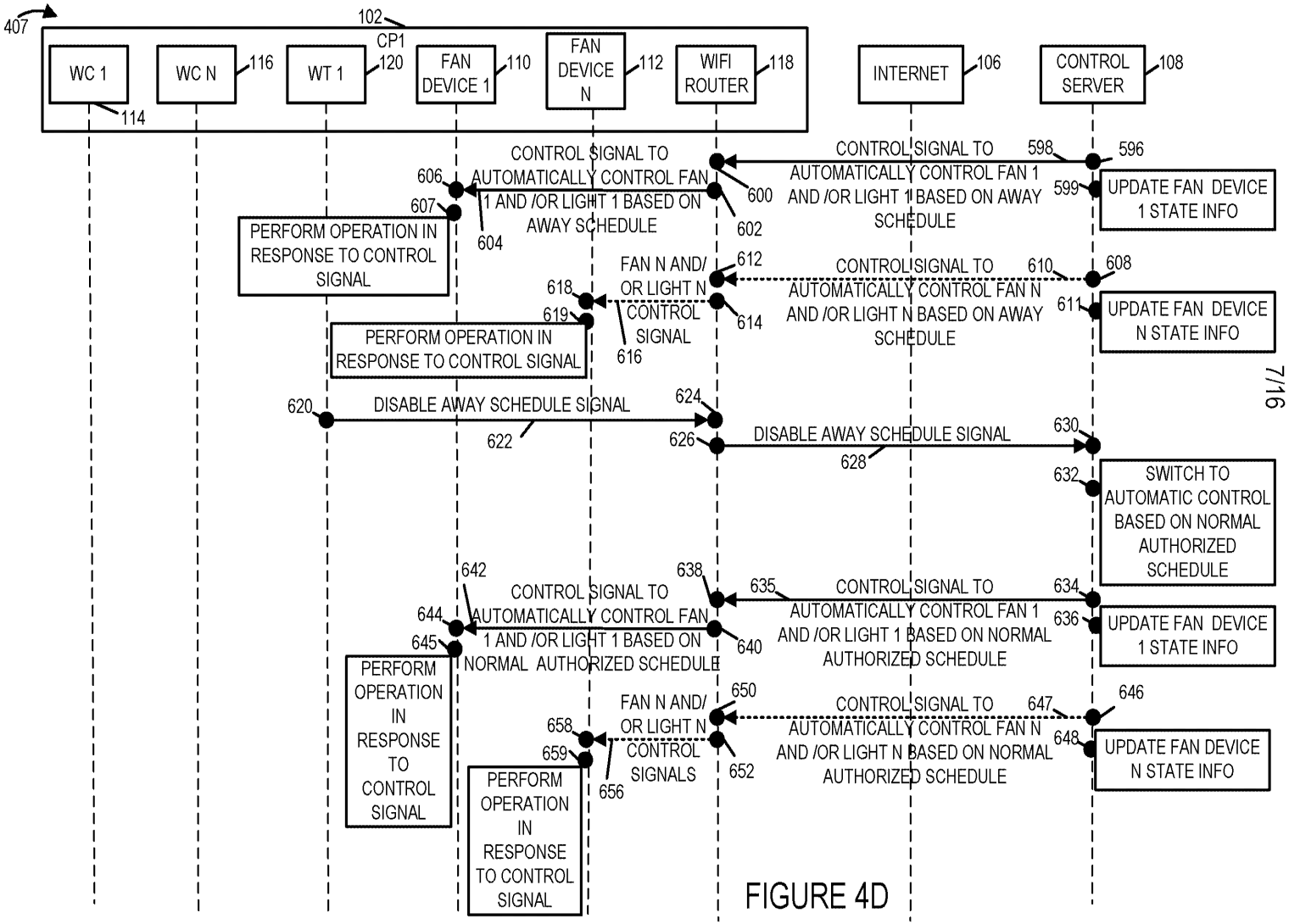

407
102
CP1
WC 1
114
WC N
116
WT 1
120
FAN DEVICE 1
110
FAN DEVICE N
112
WIFI ROUTER
118
INTERNET
106
CONTROL SERVER
108
CONTROL SIGNAL TO AUTOMATICALLY CONTROL FAN 1 AND /OR LIGHT 1 BASED ON AWAY SCHEDULE
598
596
599
UPDATE FAN DEVICE 1 STATE INFO
606
600
602
604
607
PERFORM OPERATION IN RESPONSE TO CONTROL SIGNAL
FAN N AND/ OR LIGHT N CONTROL SIGNAL
612
610
608
611
UPDATE FAN DEVICE N STATE INFO
618
614
616
619
PERFORM OPERATION IN RESPONSE TO CONTROL SIGNAL
620
DISABLE AWAY SCHEDULE SIGNAL
622
624
626
DISABLE AWAY SCHEDULE SIGNAL
628
630
632
SWITCH TO AUTOMATIC CONTROL BASED ON NORMAL AUTHORIZED SCHEDULE
642
638
635
634
636
UPDATE FAN DEVICE 1 STATE INFO
644
640
645
PERFORM OPERATION IN RESPONSE TO CONTROL SIGNAL
650
647
646
658
652
659
656
UPDATE FAN DEVICE N STATE INFO
PERFORM OPERATION IN RESPONSE TO CONTROL SIGNAL
7/16

FIGURE 4D

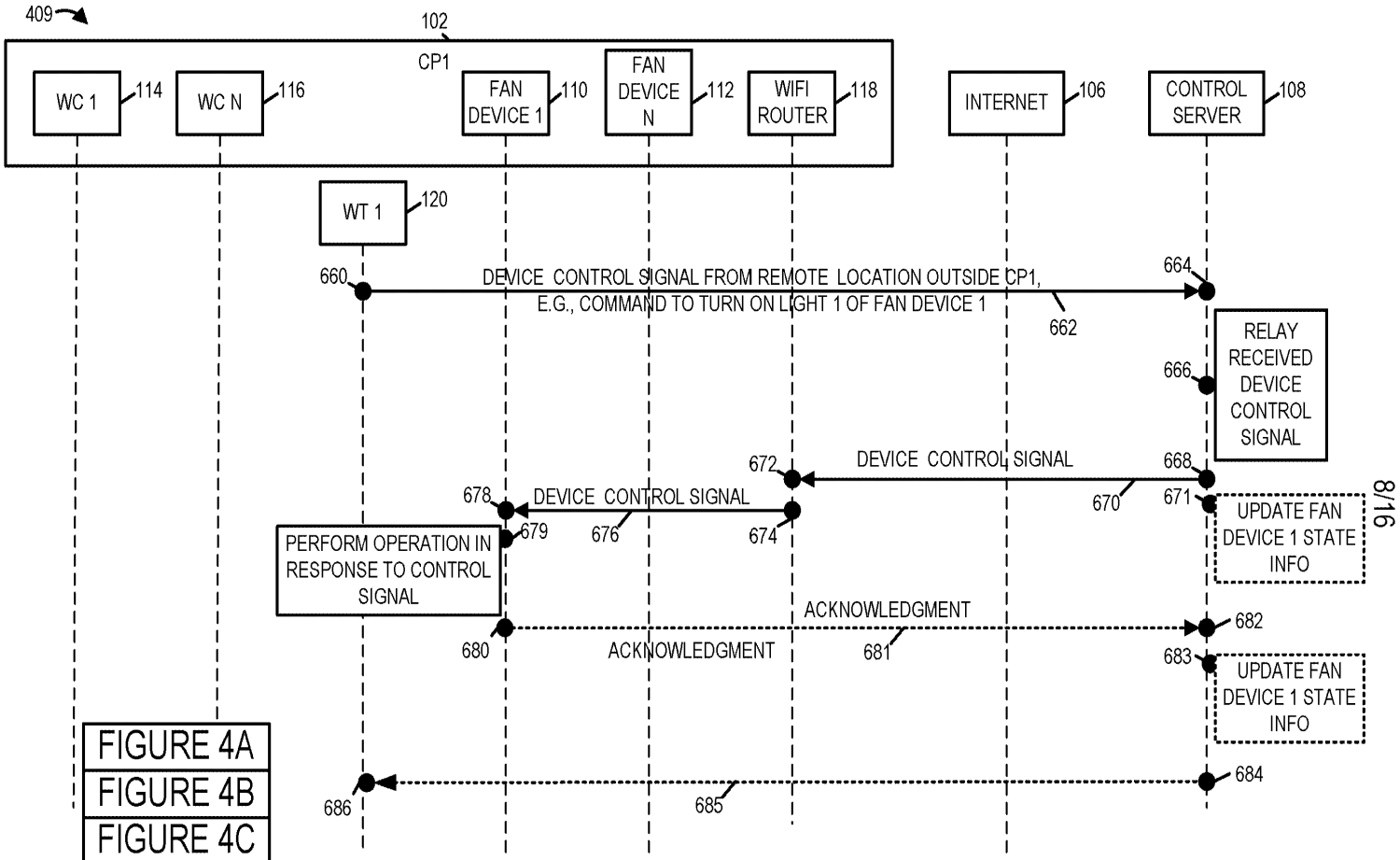


FIGURE 4E

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FIGURE 4A
FIGURE 4B
FIGURE 4C
FIGURE 4D
FIGURE 4E

FIGURE 4

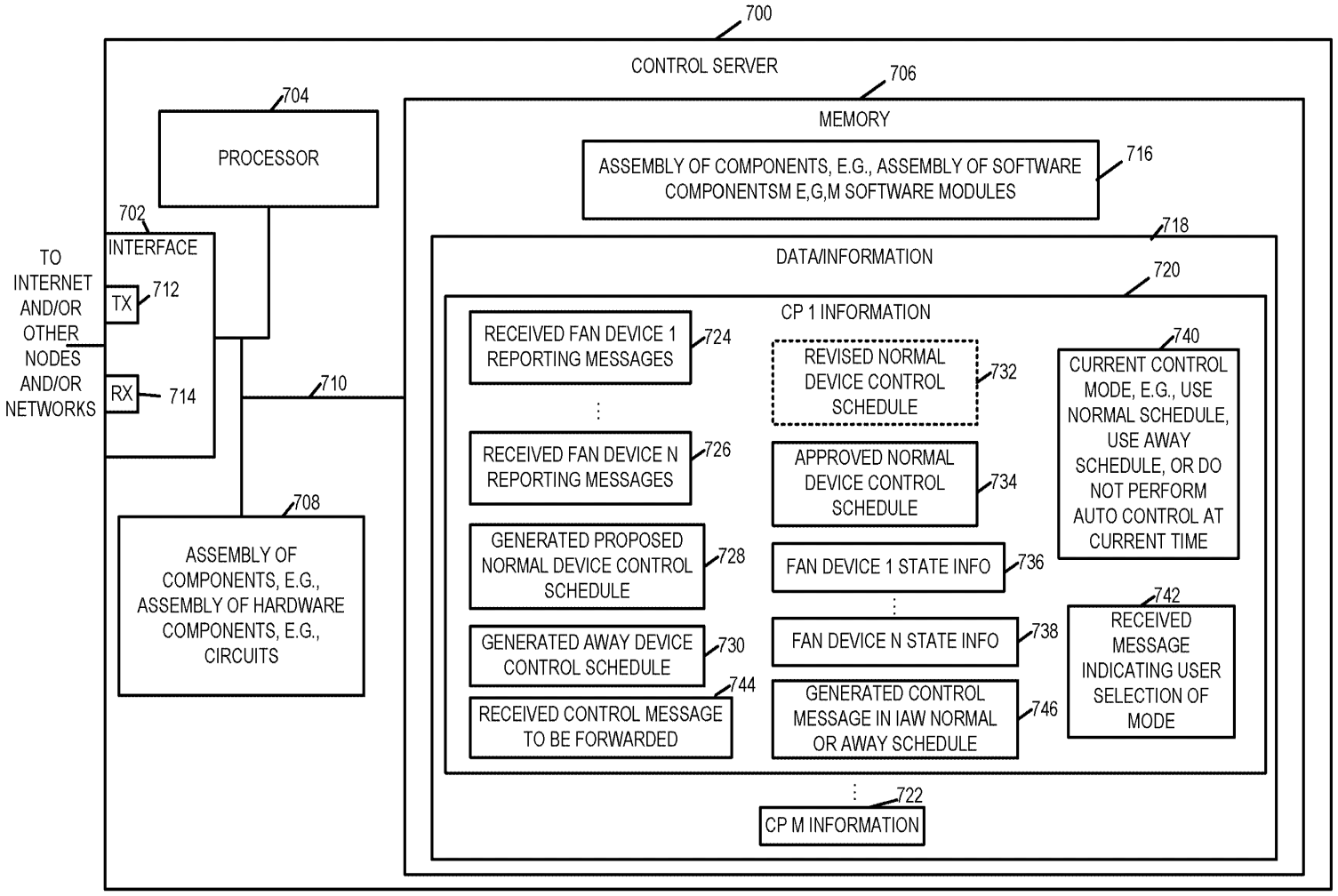

700
CONTROL SERVER
706
MEMORY
704
PROCESSOR
ASSEMBLY OF COMPONENTS, E.G., ASSEMBLY OF SOFTWARE COMPONENTSM E,G,M SOFTWARE MODULES
716
702
INTERFACE
718
DATA/INFORMATION
TO INTERNET AND/OR OTHER NODES AND/OR NETWORKS
TX
712
720
CP 1 INFORMATION
RECEIVED FAN DEVICE 1 REPORTING MESSAGES
724
REVISED NORMAL DEVICE CONTROL SCHEDULE
732
740
CURRENT CONTROL MODE, E.G., USE NORMAL SCHEDULE, USE AWAY SCHEDULE, OR DO NOT PERFORM AUTO CONTROL AT CURRENT TIME
RX
714
710
RECEIVED FAN DEVICE N REPORTING MESSAGES
726
APPROVED NORMAL DEVICE CONTROL SCHEDULE
734
708
ASSEMBLY OF COMPONENTS, E.G., ASSEMBLY OF HARDWARE COMPONENTS, E.G., CIRCUITS
GENERATED PROPOSED NORMAL DEVICE CONTROL SCHEDULE
728
FAN DEVICE 1 STATE INFO
736
742
RECEIVED MESSAGE INDICATING USER SELECTION OF MODE
GENERATED AWAY DEVICE CONTROL SCHEDULE
730
FAN DEVICE N STATE INFO
738
744
RECEIVED CONTROL MESSAGE TO BE FORWARDED
GENERATED CONTROL MESSAGE IN IAW NORMAL OR AWAY SCHEDULE
746
722
CP M INFORMATION

FIGURE 5

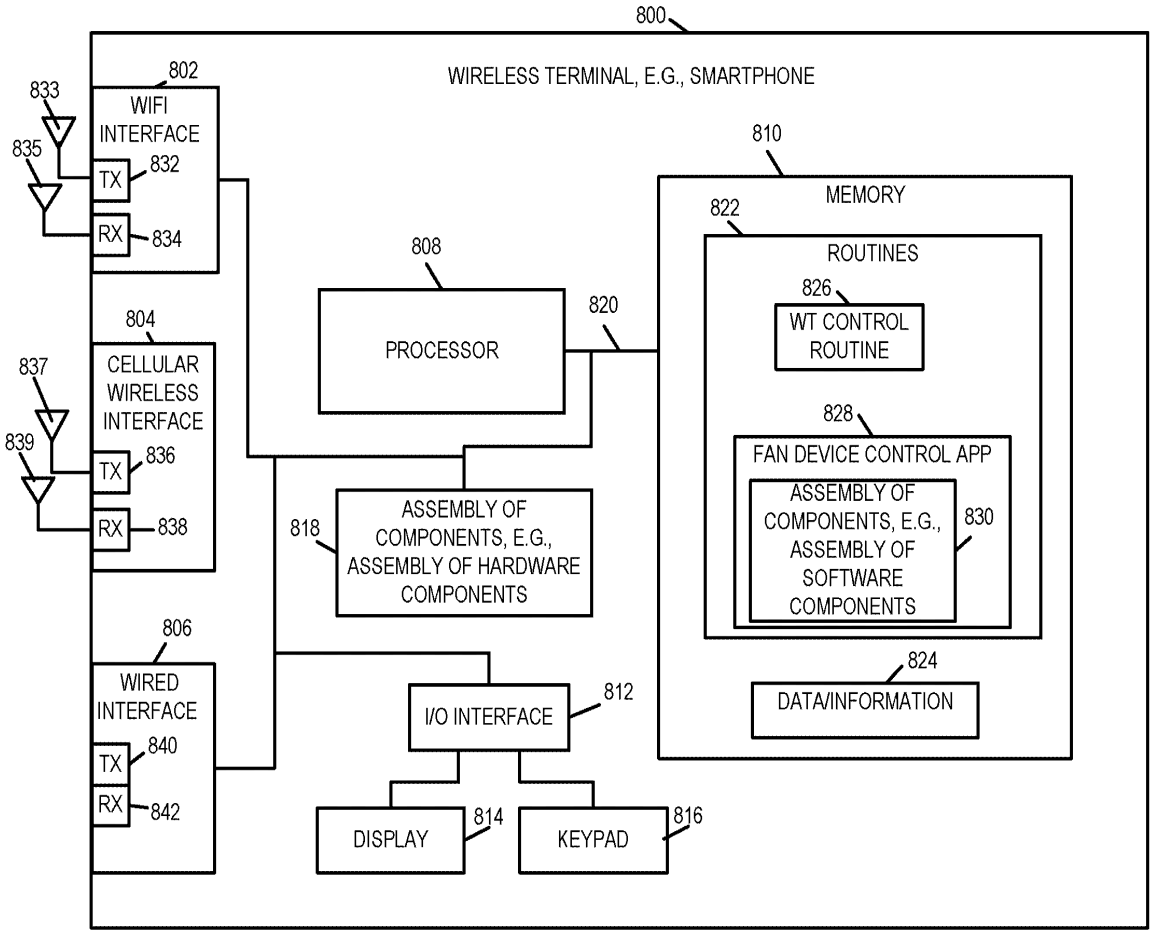

800
WIRELESS TERMINAL, E.G., SMARTPHONE
802
WIFI INTERFACE
833
835
TX
832
RX
834
804
CELLULAR WIRELESS INTERFACE
837
839
TX
836
RX
838
806
WIRED INTERFACE
TX
840
RX
842
808
PROCESSOR
820
818
ASSEMBLY OF COMPONENTS, E.G., ASSEMBLY OF HARDWARE COMPONENTS
I/O INTERFACE
812
DISPLAY
814
KEYPAD
816
810
MEMORY
822
ROUTINES
826
WT CONTROL ROUTINE
828
FAN DEVICE CONTROL APP
ASSEMBLY OF COMPONENTS, E.G., ASSEMBLY OF SOFTWARE COMPONENTS
830
824
DATA/INFORMATION

FIGURE 6

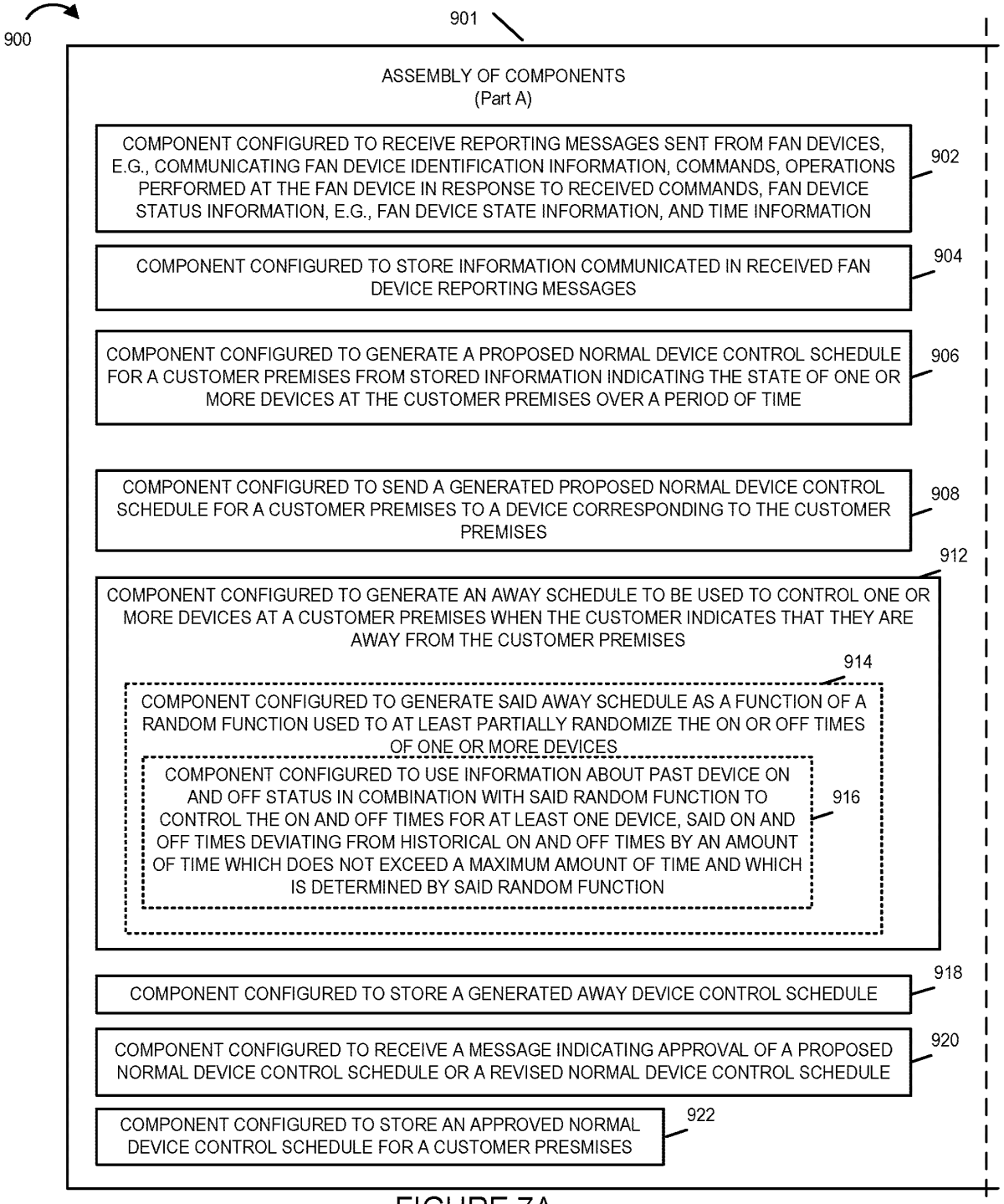

900
901
ASSEMBLY OF COMPONENTS
(Part A)
COMPONENT CONFIGURED TO RECEIVE REPORTING MESSAGES SENT FROM FAN DEVICES, E.G., COMMUNICATING FAN DEVICE IDENTIFICATION INFORMATION, COMMANDS, OPERATIONS PERFORMED AT THE FAN DEVICE IN RESPONSE TO RECEIVED COMMANDS, FAN DEVICE STATUS INFORMATION, E.G., FAN DEVICE STATE INFORMATION, AND TIME INFORMATION
902
COMPONENT CONFIGURED TO STORE INFORMATION COMMUNICATED IN RECEIVED FAN DEVICE REPORTING MESSAGES
904
COMPONENT CONFIGURED TO GENERATE A PROPOSED NORMAL DEVICE CONTROL SCHEDULE FOR A CUSTOMER PREMISES FROM STORED INFORMATION INDICATING THE STATE OF ONE OR MORE DEVICES AT THE CUSTOMER PREMISES OVER A PERIOD OF TIME
906
COMPONENT CONFIGURED TO SEND A GENERATED PROPOSED NORMAL DEVICE CONTROL SCHEDULE FOR A CUSTOMER PREMISES TO A DEVICE CORRESPONDING TO THE CUSTOMER PREMISES
908
912
COMPONENT CONFIGURED TO GENERATE AN AWAY SCHEDULE TO BE USED TO CONTROL ONE OR MORE DEVICES AT A CUSTOMER PREMISES WHEN THE CUSTOMER INDICATES THAT THEY ARE AWAY FROM THE CUSTOMER PREMISES
914
COMPONENT CONFIGURED TO GENERATE SAID AWAY SCHEDULE AS A FUNCTION OF A RANDOM FUNCTION USED TO AT LEAST PARTIALLY RANDOMIZE THE ON OR OFF TIMES OF ONE OR MORE DEVICES
COMPONENT CONFIGURED TO USE INFORMATION ABOUT PAST DEVICE ON AND OFF STATUS IN COMBINATION WITH SAID RANDOM FUNCTION TO CONTROL THE ON AND OFF TIMES FOR AT LEAST ONE DEVICE, SAID ON AND OFF TIMES DEVIATING FROM HISTORICAL ON AND OFF TIMES BY AN AMOUNT OF TIME WHICH DOES NOT EXCEED A MAXIMUM AMOUNT OF TIME AND WHICH IS DETERMINED BY SAID RANDOM FUNCTION
916
918
COMPONENT CONFIGURED TO STORE A GENERATED AWAY DEVICE CONTROL SCHEDULE
920
COMPONENT CONFIGURED TO RECEIVE A MESSAGE INDICATING APPROVAL OF A PROPOSED NORMAL DEVICE CONTROL SCHEDULE OR A REVISED NORMAL DEVICE CONTROL SCHEDULE
922
COMPONENT CONFIGURED TO STORE AN APPROVED NORMAL DEVICE CONTROL SCHEDULE FOR A CUSTOMER PRESMISES

FIGURE 7A

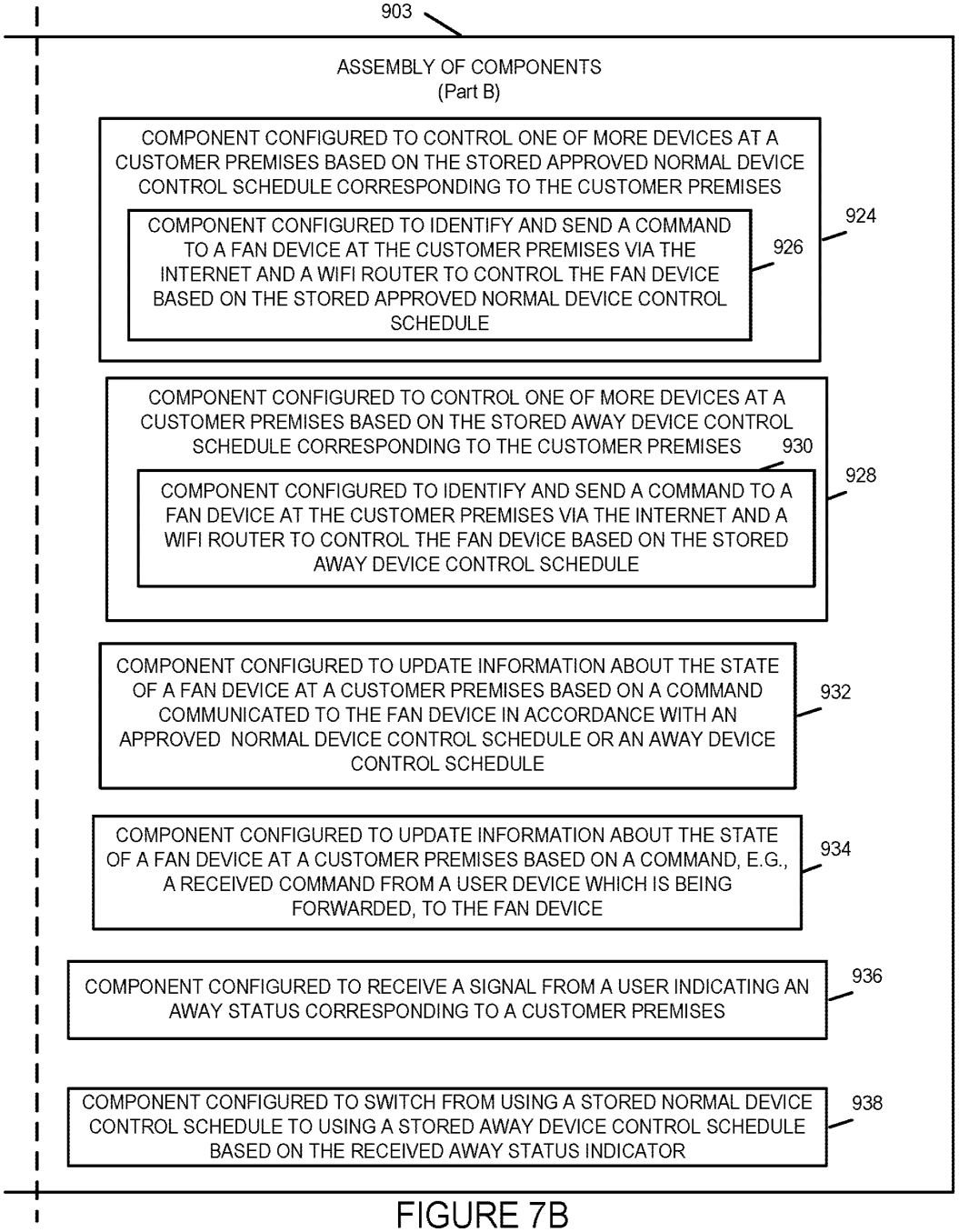


FIGURE 7B

FIGURE 7A | FIGURE 7B

FIGURE 7

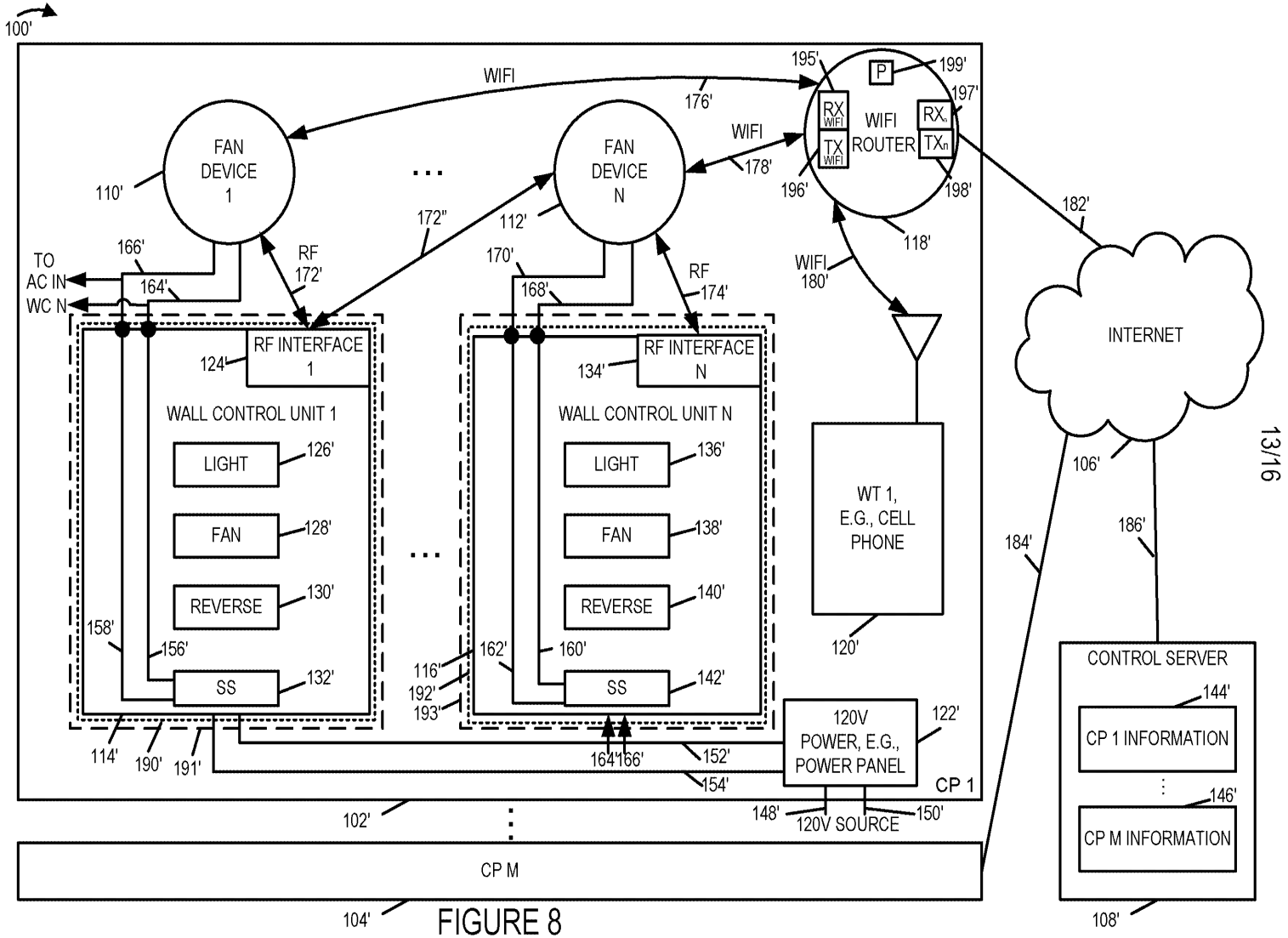

100'
WIFI
176'
195'
199'
197'
WIFI ROUTER
196'
198'
118'
182'
FAN DEVICE 1
110'
FAN DEVICE N
112'
WIFI
178'
172"
TO AC IN
WC N
166'
164'
RF
172'
170'
168'
RF
174'
WIFI
180'
INTERNET
106'
RF INTERFACE 1
124'
RF INTERFACE N
134'
WALL CONTROL UNIT 1
WALL CONTROL UNIT N
LIGHT
126'
136'
FAN
128'
138'
REVERSE
130'
140'
158'
156'
SS
132'
142'
116'
192'
193'
162'
160'
WT 1, E.G., CELL PHONE
120'
184'
186'
CONTROL SERVER
144'
CP 1 INFORMATION
146'
CP M INFORMATION
114'
190'
191'
164'
166'
152'
154'
120V POWER, E.G., POWER PANEL
122'
CP 1
102'
148'
120V SOURCE
150'
CP M
104'
108'
13/16

FIGURE 8

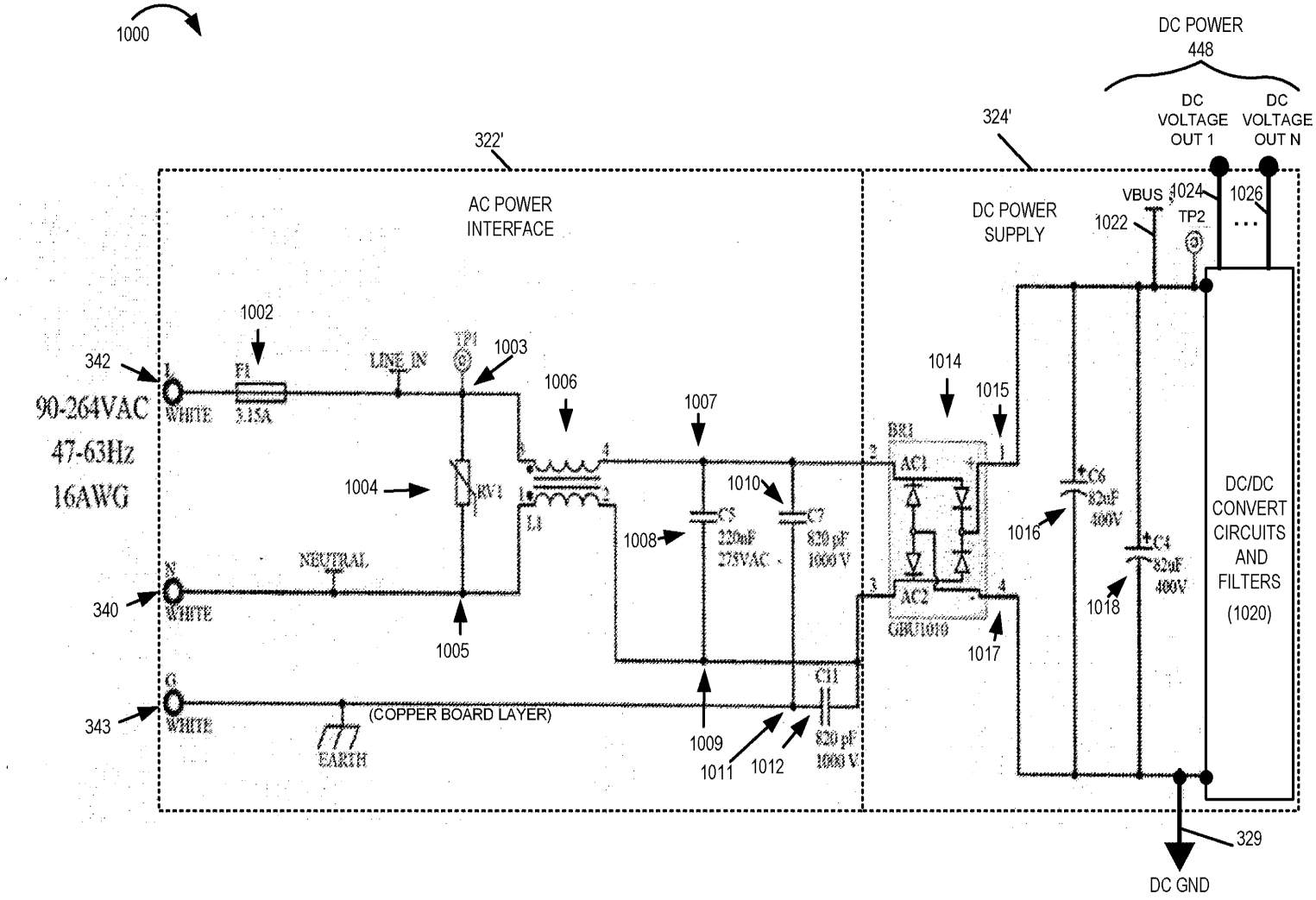

1000
DC POWER
448
DC VOLTAGE OUT 1
DC VOLTAGE OUT N
324'
322'
AC POWER INTERFACE
DC POWER SUPPLY
VBUS
1024
1026
1022
TP2
1002
342
90-264VAC
47-63Hz
16AWG
WHITE
F1
3.15A
LINE IN
TP1
1003
1006
1007
1014
1015
BR1
AC1
AC2
GBU1010
1004
RV1
L1
1010
C5
220nF
275VAC
C7
820 pF
1000 V
1008
1016
C6
82nF
400V
C4
82nF
400V
1018
1017
DC/DC CONVERT CIRCUITS AND FILTERS
(1020)
NEUTRAL
340
1005
C11
820 pF
1000 V
343
(COPPER BOARD LAYER)
EARTH
1009
1011
1012
329
DC GND

FIGURE 9

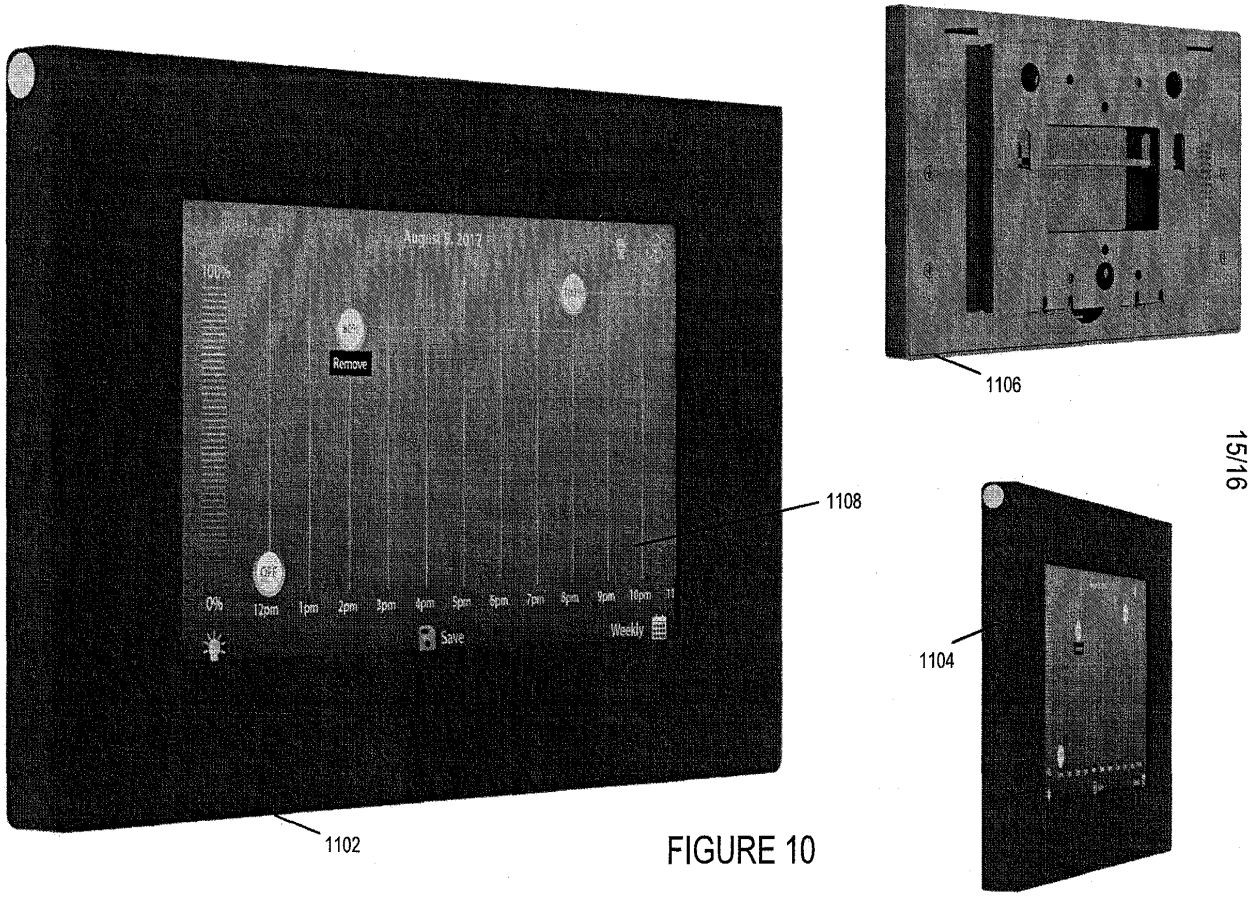

Remove
100%
0%
12pm
1pm
2pm
3pm
4pm
5pm
6pm
7pm
8pm
9pm
10pm
Save
Weekly
1102
1104
1106
1108

FIGURE 10

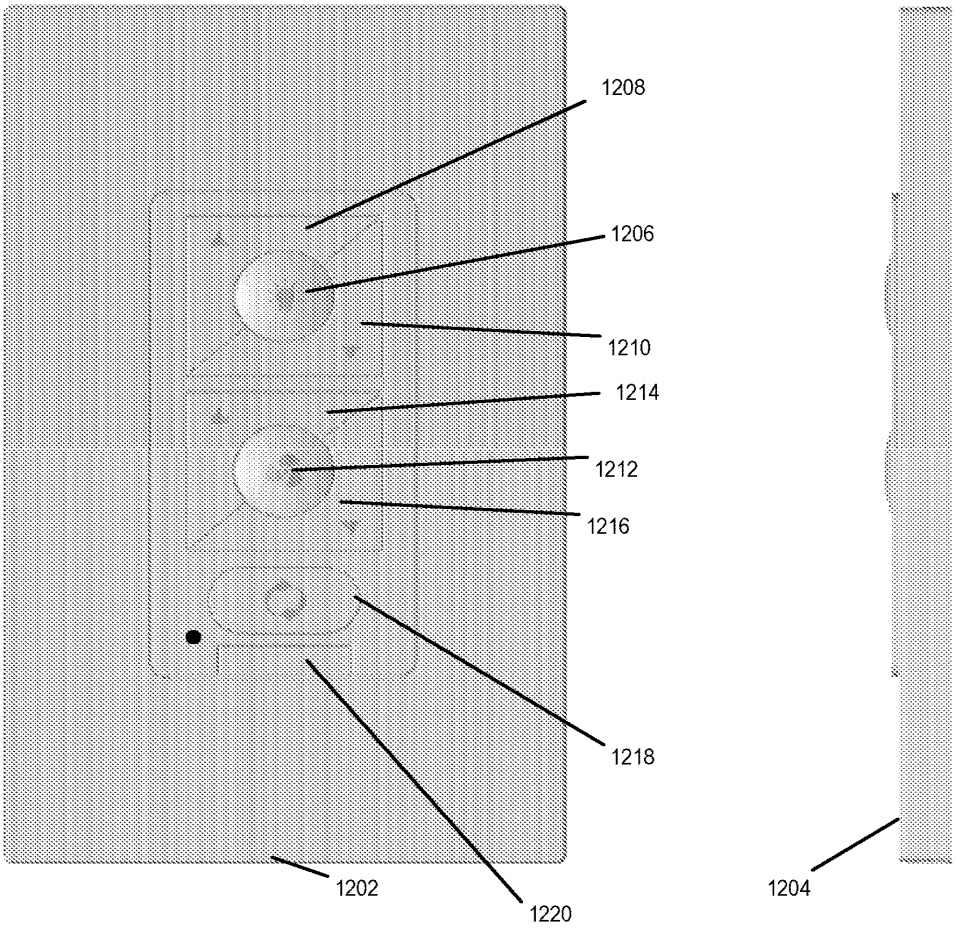


FIGURE 11

[WAC-10APP1]

METHODS AND APPARATUS FOR CONTROLLING FAN DEVICES

RELATED APPLICATIONS

[0001] The present application claims the benefit of the filing date of U.S. Provisional Applications S.N. 62/617,152 filed on January 12, 2018 and S.N. 62/617,274 filed on January 14, 2018 each of which is hereby expressly incorporated by reference in its entirety.

FIELD

[0002] The present invention relates to fan devices, and more particularly, to methods and apparatus for controlling devices using different interfaces, e.g., an RF interface and a WiFi interface.

BACKGROUND

[0003] Ceiling fans are often mounted in rooms to improve air circulation and/or provide cooling. In some cases lights are mounted on the fan. While the ability to separately control a fan motor and light are desirable, such control if implemented using standard wired switches requires separate switches for the light and the fan motor.

[0004] In many cases, fans are mounted where a ceiling light was previously located and thus while power, e.g., 120V, may be available at the location where the fan is being mounted connections to multiple switches may not be available. In such cases, the combined ceiling fan and light fixture may receive power via a single wall switch with the power being provided to both the light and fan motor at the same time. In order to allow separate control of the light and fan motor switches pull cords may be included in the fan assembly with one switch being used to control the light fixture and another being used to control the fan motor.

[0005] While the use of pull cord controls of a fan and light are common, they are not only unsightly but can pose potential safety issues. Dangling cords can accidently get caught on objects, people and/or even get entangled in the moving fan blades. With advancements in LED lighting it is often desirable to support variable lighting levels rather than a simple on/off light control. Similarly the ability to control the speed of a ceiling fan motor rather than simply turn the motor on and off can be desirable.

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[0006] In the interest of energy efficiency it can be desirable to support fan and/or light control according to a schedule which takes into consideration calendared events, work schedules and/or other conditions so that a fan and/or light is not run needlessly when no one is around. To the extent that a schedule could be supported, it would be desirable if the schedule could be entered and implemented without the need for a wired wall controller to provide control signals via a wire to the fan and/or light unit since wires can be difficult and/or costly to run.

[0007] In view of the above it should be appreciated that there is a need for improved methods of controlling a fan and/or ceiling light. It would be desirable if at least some of the improved methods and/or apparatus could avoid the need for multiple wall switches wired separately to a fan and a light. While not necessary for all embodiments it would be desirable if fan and/or light control could support a wide range of functions such as fan speed, fan direction, and/or light intensity in addition to simple light and/or fan on/off operations.

SUMMARY

[0008] Various embodiments are directed to use of an RF and WiFi control in the fan device to control fan status and speed and/or fan light on/off status and intensity. The fan device includes both an RF interface and a WiFi interface. The customer premises includes a WiFi router through which WiFi communications can be sent from a WiFi capable device, e.g., a cell phone, to control the fan device and its various functions. While WiFi control is via a WiFi router in the home, the control signals normally do not traverse the Internet or another external network. Accordingly, WiFi control is possible without the need for a connection to an external network or server. In addition to WiFi control, control of the fan device can be via an RF control device, e.g., a wall mounted controller. In some embodiments 120V power is supplied to the fan device via the wall mounted controller. While 120V power may be supplied via the wall controller, control signals from the wall mounted controller are transmitted using RF signals to the RF interface of the fan device. The RF interface uses a different frequency band than the frequency band used for WiFi signals sent to/from the WiFi router. In some embodiments the RF interface uses an unlicensed frequency spectrum which is different than that used for WiFi signals.

[0009] Since the RF and WiFi control signals need not pass over an external communications network as in the case of systems where commands must first

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be sent to a network server outside a customer premises and then sent from the network server to the device to be controlled, the fan device can be controlled either by the wall controller or a WiFi device even if a connection to the Internet or another external network is not available.

[0010] In some, but not necessarily all embodiments, the fan device reports its state and/or changes in state due to received commands to a server, e.g., located outside the customer premises. The communication with the external server may be, and sometimes is, via a WiFi router and Internet connection. The server logs the state information of one or more devices at each customer premises it is associated with. The server generates, e.g., automatically, a recommended normal schedule based on historical device state information including device on/off times, fan speed information and/or light intensity information. Machine learning and historical device state information may be, and sometimes is, used for generating the recommended schedule for a customer premises. The recommended normal control schedule is communicated to an individual, e.g., a customer at the customer premises to which the schedule relates. The communication of the proposed schedule may be, and sometimes is, from the server via the Internet and WiFi router at the customer premises to which the schedule relates. The customer can approve the recommended schedule and/or provide a revised normal schedule to be used by the server to control devices at the customer premises.

[0011] In addition to generating a normal control schedule for a customer premises, an away schedule to be used when a customer indicates that the customer premises is in an away state is generated. An away state corresponds to when the normal occupants of the customer premises are away from the customer premises. The away schedule is generated based on a random function so that devices will be turned on at somewhat randomized times making it difficult for a potential burglar to determine whether the devices are being controlled by an automated system or by a human present at the premises. In some embodiments historical device use information is taken into consideration when the server automatically generates the away schedule with the on/off times being somewhat random but remaining within a reasonable time, e.g., 30 minutes or an hour, of when the devices are turned on and off when a human is present.

[0012] While a user can control the devices while in the home via the RF controller or a WiFi controller without having to send commands outside the home,

remote control of devices is also supported. A user can login to the control server and once authenticated is allowed to send control commands to devices at the home via the control server and the WiFi router. In this way a user can control devices while away from the home. In the case of commands sent via the server, the server can, and sometimes does, update device state information based on the commands sent from the server to the device to be controlled thereby eliminating the need for the device to report a state change to the server. While in some embodiments devices do not report state changes to the server which are in response to commands communicated by the server to the device being controlled, in other embodiments the devices being controlled, e.g., fan devices, routinely report a state change to the control server regardless of whether the command was from the server, wall controller or WiFi device in the home.

[0013] The customer to which a home corresponds can enable/disable use of a control schedule by the server. For example the user can send a signal to the control server to indicate that the normal control schedule should be used or the away schedule should be used or that no control schedule should be used. The signal may indicate automated control is to be set to off for the home, automated control should be on and, when the automated control is on whether an away state is indicated indicating that the away schedule should be used or that the premises is in a normal state and thus the normal schedule should be used.

[0014] An exemplary control method, in accordance with some embodiments, comprises: receiving, at a fan device including a radio frequency signal receiver and a WiFi interface, a first radio frequency (RF) control signal from a control unit, said fan device and said control unit being located at a customer premises; implementing, at the fan device, an operation in response to a first command communicated by the first RF control signal; and operating the fan device to communicate to a server located outside the customer premises, via the WiFi interface, information indicating the operation implemented in response to the first command.

[0015] In various embodiments a controller with an RF interface is used to control a fan device which includes a fan motor and may also include a lighting device. The controller in some embodiments is in the form of a wall control module which may be, and sometimes is, mounted in a standard electrical wall box in a room in which the fan device to be controlled is located. To simplify installation and avoid the need for more than the normal 120V power line used to power an outlet, from a 120V AC prospective the controller acts as a simple pass through device through which AC

power is supplied to the fan device unit. As a safety, the controller includes an AC disconnect which can be used to cut all power to the fan unit. The disconnect switch may be in the form of a push or pull switch or a pull tab which can interrupt the power to the fan device.

[0016] Control of the fan device is via an RF interface included in the wall controller. In some embodiments activation of the safety disconnect switch will cut power to the RF interface of the wall controller in addition to power to the fan device. In this way, in some but not necessarily all embodiments, the safety cut off serves as a physical kill switch integrated into the wall controller for both the wall controller and the fan device.

[0017] The wall controller includes inputs for controlling fan on/off operations, light on/off operation, fan speed, e.g., up/down, and/or light intensity, e.g., fan device light output up/down. In some embodiments light output and fan speed can be smoothly controlled, e.g., with light intensity being controlled in a smooth fashion over a wide range of intensity values as opposed to simply a few discrete output levels. The wall controller transmits RF control signals to implement or communicate commands that are generated based on the pressing or altering of the control inputs on the wall controller. The control signals are transmitted to the fan device using a RF frequency band which is different from that used for WiFi signals at the customer premise where the controller is located.

[0018] An exemplary fan device controller, in accordance with some embodiments, includes: an AC voltage input; an AC output for supplying power to a fan device; an RF signal interface including an RF signal transmitter for transmitting commands to a device to be controlled; an RF controller for controlling the RF signal interface to send control signals including one or more commands to said fan device; and a disconnect switch for disconnecting said AC output from said AC input when said disconnect switch is switched to a disconnect state from a connect state.

BRIEF DESCRIPTION OF THE FIGURES

[0019] Figure 1 is a drawing of an exemplary system including controllable fan devices, wall control units, a wireless terminal, a WiFi router and a control server in accordance with an exemplary embodiment.

[0020] Figure 2 is a drawing illustrating an exemplary wall control unit, e.g., a fan device controller, including an RF interface in accordance with an exemplary embodiment.

[0021] Figure 3 is a drawing of an exemplary controllable fan device including a controllable fan, a controllable light, an RF interface and a WiFi interface in accordance with an exemplary embodiment.

[0022] Figure 4A is a first part of a drawing illustrating an exemplary fan device system, exemplary signaling, and exemplary operations in accordance with an exemplary control method.

[0023] Figure 4B is a second part of a drawing illustrating an exemplary fan device system, exemplary signaling, and exemplary operations in accordance with an exemplary control method.

[0024] Figure 4C is a third part of a drawing illustrating an exemplary fan device system, exemplary signaling, and exemplary operations in accordance with an exemplary control method.

[0025] Figure 4D is a fourth part of a drawing illustrating an exemplary fan device system, exemplary signaling, and exemplary operations in accordance with an exemplary control method.

[0026] Figure 4E is a fifth part of a drawing illustrating an exemplary fan device system, exemplary signaling, and exemplary operations in accordance with an exemplary control method.

[0027] Figure 4, comprises the combination of Figure 4A, Figure 4B, Figure 4D, and Figure 4E.

[0028] Figure 5 is a drawing of an exemplary control server in accordance with an exemplary embodiment.

[0029] Figure 6 is a drawing of an exemplary wireless terminal, e.g., a smartphone, in accordance with an exemplary embodiment.

[0030] Figure 7A is a first part of an exemplary assembly of components which may be included in an exemplary control server in accordance with an exemplary embodiment.

[0031] Figure 7B is a second part of an exemplary assembly of components, which may be included in an exemplary control server in accordance with an exemplary embodiment.

[0032] Figure 7 comprises the combination of Figure 7A and Figure 7B.

[0033] Figure 8 is a drawing of an exemplary system including controllable fan devices, wall control units, a wireless terminal, a WiFi router and a control server in accordance with another exemplary embodiment.

[0034] Figure 9 is a drawing of an exemplary AC power interface coupled to an exemplary DC power supply which may be used in the fan device of Figure 3 in accordance with an exemplary embodiment.

[0035] Figure 10 illustrates an exemplary wall mounted wireless terminal with RF and Wi-Fi interfaces in accordance with an exemplary embodiment of the present invention.

[0036] Figure 11 illustrates an exemplary wall control unit including a safety switch in accordance with an exemplary embodiment of the present invention.

DETAILED DESCRIPTION

[0037] Figure 1 is a drawing of an exemplary fan device system 100 in accordance with an exemplary embodiment. Exemplary system 100 includes a plurality of customer premises sites (customer premises 1 (CP 1) 102, …, customer premises M (CP M) 104), Internet 106, and a control server 108 coupled together as shown in Figure 1. CP 1 102 includes a plurality of fan devices, (fan device 1 110, …, fan device N 112), a plurality of wall control units, e.g., fan device controllers, (wall control unit 1 114, …, wall control unit N 116), a WiFi router 118, a wireless terminal (WT 1) 120, e.g., a cell phone, an a 120 V power source 122, e.g., a power panel. In one embodiment 120V power panel 122 includes a 20A circuit breaker. Each wall control unit (114, 116) is configured to fit in an electrical box in a wall of a customer premises.

[0038] Wall control unit 1 114 includes RF interface 1 124, light on/off switch 126, fan on/off switch 128, fan reverse switch 130, and safety switch (SS) 132. Wall control unit 1 114 is installed in electrical box 190 of wall 191. In some embodiments, fan device 1 110 and wall control unit 114 are both located in a first room in customer premises 1 102.Wall control unit N 116 includes RF interface 2 134, light on/off switch 136, fan on/off switch 138, fan reverse switch 140, and safety switch (SS) 142. Wall control unit N 116 is installed in electrical box 192 of wall 193. In some embodiments, fan device N 112 and wall control unit N 116 are both located in a second room in customer premises 1 102, the second room being a different room than the first room. Fan device state information includes fan state information for fan motors and light state information for fan lights.

[0039] Control server 108 includes customer premises information corresponding to a plurality of customer premises (CP 1 information 144, …, CP M information 146) being controlled by the control server 108. Exemplary customer premises 1 114 information includes, e.g., historical state information corresponding to fan devices located within customer premises 1 102, an approved normal device control schedule for CP1, and a generated away device control schedule for CP1.

[0040] 120 V input power is received by the power panel 122 via 120V power source input lines 148, 150. The received input power is routed through power panel 122, e.g., passes through a circuit breaker, and is output from the power panel 122, via lines 152, 154, which are input to the safety shutdown switches (132, … 142) of the wall control units (114, …, 116) of CP 1 102.

[0041] The output of safety switch 132, when the switch is in a closed position, powers the internal circuitry on wall control unit 114 and is fed, via lines (156 and 164, 158 and 166) to the input of fan device 1 110. The output of safety switch 142, when the switch is in a closed position, powers the internal circuitry on wall control unit N 116 and is fed, via lines (160 and 168, 162 and 170) to the input of fan device N 112.

[0042] RF interface 1 124 of wall control unit 1 114 communicates with fan device 1 110 via RF signals 172. Fan device 1 110 communicates with WIFI router 118 via WiFi signals 176. RF interface N 134 of wall control unit N 116 communicates with fan device N 112 via RF signals 174. Fan device N 112 communicates with WIFI router 118 via WiFi signals 178.

[0043] WT 1 120 communicates with WiFi router 118 via WiFi signals 180. In some embodiments, e.g., embodiments supporting Wi-Fi direct, WT 1 120 may directly communicate with fan device 1 110 and fan device N 112 using WiFi signals. WT 1 120 may, and sometimes does, communicate with devices, e.g., control server 108, via the Internet and/or via another WiFi router or a base station when outside customer premises 1 102.

[0044] WiFi router 118 includes a WiFi interface, including a WiFi transmitter 196 and a WiFi receiver 195, a network interface includes a receiver 197 and a transmitter 198, a processor 199 and memory coupled together via a bus over which the various elements may interchange data and information. WiFi router 118 communicates with WiFi devices (110, 112, 120) at CP 1 102 via its WiFi interface using WiFi receiver 195 and WiFi transmitter 196. WiFi Router 118 of CP 1 102 communicates with the Internet via the network interface and link 182. A WiFi Router

of CP M 104 communicates with the Internet via link 184. Internet 106 is coupled to control server 108 via communications link 186.

[0045] Figure 2 is a drawing 200 illustrating an exemplary wall control unit 202, e.g., a fan device controller, e.g., a fan/light controller, in accordance with an exemplary embodiment. Exemplary wall control unit 202 is, e.g., wall control unit 1 114 or wall control unit N 116 of CP 1 102 of system 100 of Figure 1. Wall control unit 202 includes a control panel 204, a safety switch 206, an RF interface 208, a DC power supply 210, a controller 212, an AC input 237, and an AC output 241, coupled together as shown in Figure 2. In various embodiments, the wall control unit 202 does not include a WiFi interface.

[0046] Control panel 204 includes a light on/off switch 214, a fan on/off switch 216, a fan reverse switch 218, a light up switch 220, a light down switch 222, a fan speed up switch 224, and a fan speed down switch 226. Light on/off switch 214, e.g., a push button switch, is a light control input for turning a light, e.g., a light in a fan device, on or off. Light on/or switch 214 is coupled to controller 212 via line 248. Fan on/off switch 216, e.g., a push button switch, is a fan control input for turning a fan, e.g., a fan in a fan device, on or off. Fan on/off switch 216 is coupled to controller 212 via line 250. Fan reverse switch 218, e.g., a push button switch, is a fan reverse input for changing the rotation direction of a fan in a fan device. Fan reverse switch 218 is coupled to controller 212 via line 252. Fan speed up switch 224, e.g., a push button switch, is a fan speed up input for increasing the speed of a fan in a fan device. Fan speed down switch 226, e.g., a push button switch, is a fan speed down input for decreasing the speed of a fan in a fan device. Light up switch 220, e.g., a push button switch, is a light up input for increasing the light output from a light in a fan device. Light down switch 222, e.g., a push button switch, is a light down input for decreasing the output of a light in a fan device. Fan speed up switch 224, fan speed down switch 226, light up switch 220, and light down switch 222 are coupled to controller 212 via lines (258, 260, 254, 256), respectively.

[0047] RF interface 208 includes an RF transmitter 228 and, in some embodiments, an RF receiver 230, which are coupled to antenna 232, via which the wall control 202 may transmit and, in some embodiments, receive RF signals, e.g., to or from a fan device. Exemplary transmitted RF signals include, e.g., an RF control signal communicating a command. In some embodiments, the command is one of: a fan power state change command, a fan speed up command, a fan speed down command, a

fan direction change command, a light power state change command, a light increase command, or a light decrease command. An exemplary received RF signal includes, e.g., an acknowledgment of a transmitted command.

[0048] In various embodiments, the RF control signals which are sent by control unit 202 to a fan device use an RF frequency which is not used for WiFi signals. In some embodiments, the RF control signals which are sent by control unit 202 to a fan device use a different frequency band and a different protocol than the WiFi signals which are received by the fan device.

[0049] 120 V Input power lines 234, 236 are coupled, via AC input interface 237, to the input of safety switch 206, e.g., a disconnect switch. The outputs of safety switch 206 are coupled to the input of DC power supply 210 and to lines 238, 240, which are coupled, via AC output interface 241, to a fan device via lines 242, 244. In Figure 2, safety switch 206 is shown in the ON or closed position in which input AC power is supplied to both the DC power supply 210 and to a fan device which is coupled to the wall control unit 202. When the safety switch is placed in the open or OFF position or disconnect position, AC power is cutoff, e.g., not supplied, to both the input of the DC power supply 210 of wall control unit 202 and to the fan device coupled to wall control unit 202. Safety switch 206, e.g., a disconnect switch, is for disconnecting the AC output 241 from the AC input 237 when the switch 206 is switched to a disconnect state from a connect state. In some embodiments, safety switch 206, e.g., a disconnect switch, is in the form of a push or pull switch or a pull tab which can interrupt the power to the fan device to which the wall control unit 202 is coupled.

[0050] DC power supply 210, when receiving input AC power, generates and outputs DC supply output 246, e.g., 3VDC, which is input to and used by RF interface 208 and controller 212. In some embodiments, the DC power supply 210 generates and outputs multiple DC voltages, e.g., 3VDC, 5VDC, 15VDC and -15VDC, which are used by the controller 212 and the RF interface 208. The DC power supply 210 is connected to switch 206 and to the RF controller 212. The DC power supply 206 receives AC power from the disconnect switch 206 when switch 206 is in the closed position, and the DC power supply 210 generates DC power from the received AC power and supplies the DC power to the controller 212. If an operator switches the disconnect switch 206 to a disconnect state, power is cut off to both AC output 241 and to the DC power supply 210 at the same time.

[0051] Controller 212, e.g., an RF controller, controls the RF interface 208 including RF signal transmitter 228 to generate and transmit RF control signals over line 262 in response to detected control panel input button depressions. Lines can be, for example, wires or traces over which electrical signals can be communicated. RF signal transmitter 228 transmits commands to a device, e.g., a fan device, being controlled. Controller 212, e.g., an RF controller, includes a processor 213 configured to generate a command, e.g., (a light power state change command, a fan power state change command, a fan direction change command, a light increase command, a light decrease command, a fan speed up command, a fan speed down command) in response to received input via an input (light control input 214, fan control input 216, fan reverse input 218, light up input 220, light down input 222, fan speed up input 224, or fan speed down input 226), respectively, and control the RF interface 208 to transmit said generated command in a generated RF signal to a fan device.

[0052] Figure 3 is a drawing of an exemplary fan device 300, including a fan 303 and a light 306, in accordance with an exemplary embodiment. Exemplary fan device 300 is, e.g., one of the fan devices (fan device 1 110, …, fan device N 112) of customer premises 1 102 of system 100 of Figure 1. Fan 303 includes a fan motor 304, a fan blade unit 336 including fan blades and a hub, and fan motor shaft 338 which couples the fan motor 304 to the fan blade unit. In various embodiments fan motor 304 is a BrushLess DC (BLDC) motor. Exemplary fan device 300 includes a fan device mounting base 302, fan motor shaft 338 and fan blade unit 336. Fan unit mounting base 302 includes a fan motor 304, a light 306, e.g., an LED light, a fan motor control circuit 308, a light control circuit 310, a WIFI interface 312, an RF interface 314, a processor 316, memory 318, an AC power interface 322 and a DC power supply 324. WIFI interface 312 includes a WIFI transmitter 354 and a WIFI receiver 356, which are coupled to antenna 313, via which the fan device 300 can send and receive WiFi signals. Exemplary received WiFi signals communicate, e.g., a fan device control command, and a proposed normal device control schedule. Exemplary fan device control commands received via WiFi receiver 356 include, e.g., a fan on command, a fan off command, a fan power state change command, a fan speed up command, a fan speed down command, a fan direction change command, a fan speed setting level command, a light on command, a light off command, a light power state change command, a light increase command, a light decrease command, and a light level setting command. In some embodiments, an exemplary received WiFi signal, e.g., conveying a control

message may, and sometimes does, include multiple commands, e.g., a light on command, a fan on command, a fan direction command, a light level setting command, and a fan speed setting command. Exemplary transmitted WiFi signals communicate, e.g., fan device state information reporting messages, e.g., communicating light on/off status, light output level status, fan on/off status, fan speed, fan direction. RF interface 314 includes an RF receiver 360, and in some embodiments, and RF transmitter 358, which are coupled to antenna 315, via which the fan device 300 can send and receive RF signals. Exemplary received RF signals include, e.g., signals communicating fan device control commands, e.g., from a wall control unit 202. Exemplary control commands communicated via RF signals include, e.g., a fan power state change command, a fan speed up command, a fan speed down command, a light power state change command, a fan direction change command, a light power state change command, a light increase command, and a light decrease command. Exemplary transmitted RF signals include, e.g., fan device control acknowledgment signals. In various embodiments, the WiFi interface 312 and the RF interface 314 are configured to use different frequency bands, e.g., different non-overlapping frequency bands, and different communications protocols. In some embodiments, the same antenna is used for both the WiFi interface 312 and the RF interface 314.

[0053] WiFi interface 312, RF interface 314, fan motor control circuit 308, light control circuit 310, processor 316 and memory 318 are coupled together via a bus 320 over which the various elements may interchange data and information. Fan motor control circuit 308 includes an On/Off control circuit 326, a fan direction control circuit 328, and a fan speed control circuit 330. In some embodiments, the fan motor control circuit 308 includes an Insulated Gate Bipolar Transistor (IGBT) module, a processor, and analog feedback circuitry. The fan motor control circuit 308 is coupled to fan motor 308 via cable 350. Fan motor shaft 338 couples the fan motor to the fan blades 336. Light control circuit 310 includes an On/Off control circuit 332 and an Up/Down control circuit 334. The light control circuit 310 is coupled to light 306 via cable 352. Fan on/off control circuit 326 controls whether or not power is applied to fan motor 304, e.g., in response to received fan power state change control commands, fan power on control commands, and fan power off control commands. Fan direction control circuit 328 controls the direction fan motor 304 turns, e.g., in response to received fan direction change commands, and fan direction commands. Fan speed control circuit 330 controls the speed of fan motor 304, e.g., in response to received fan

speed up commands, fan speed down commands, and fan speed setting level commands. In various embodiments, the fan motor control circuit 308 is configured to control the fan to operate at a predetermined speed and direction when initially commanded to power on from an off state, unless specified otherwise, e.g., in a schedule or by a command. Light on/off control circuit 332 controls whether or not power is applied to light 306, e.g., in response to a received light power state change control commands, light power on control commands, and light power off control commands. Light up/down control circuit 334 controls the light output level of light 306, e.g., in response to received light increase commands, light decrease commands, and light level setting commands. In some embodiments, the light level is changed by changing the voltage or current supplied to a light or a set of lights. In some embodiments, the light level is changed by changing the number of lights to which power is applied in a set of lights. In various embodiments, the light control circuit 310 is configured to control the light 306 to operate at a predetermined output level when initially commanded to power on from an off state, unless specified otherwise, e.g., in a schedule or by a command.

[0054] Input AC, e.g., 120VAC, is received from a wall control unit via inputs 340, 342. AC power interface 322 conditions the received AC, e.g., performing filtering, and outputs conditioned AC power on lines 344, 346, which are used as input by other elements within fan device 300, e.g., the fan motor 304 or fan motor control circuit 308, the light 306 or the light control circuit 310, and the DC power supply 324. DC power supply 324 generates and outputs one or more DC voltages, e.g., 170 VDC, 3.3VDC, 16VDC, 3VDC, +5VDC, 15VDC, and/or -15VDC from the input AC power received via lines 344, 346. Output DC power is via DC power bus 448 and the DC voltages are referenced with respect to DC ground 349. In some embodiments, the DC power supply includes one of more current supplies in addition to one or more voltage supplies. DC power from DC power supply 324 is supplied to and used by processor 316, memory 318, WiFi interface 312, RF interface 314, fan motor control circuit 308, light control circuit 310, and in some embodiments, light 306 and/or fan motor 304. While known DC motor fan systems that are available experience problems when controlled over the same the same power run, e.g., when three fans are daisy chained together so that power is connected to a first fan and from the first fan to a second fan and then a third fan, the third fan typically does not operate properly it experiences being off kilter in time and speed on start, use of the circuitry shown in Figure 9 in connection with a DC motor results in proper operation of all three fans daisy chained

together wherein smooth control of fan operation in the three DC motors can be achieved. Furthermore, in some embodiments, in which a DC brushless motor was utilized smooth control of fan motor operation was achieved without use of optical sensors in the motor control unit.

[0055] Processor 316 is configured to control the RF interface 314 including RF receiver 360 to receive RF control signals, recover the control command or commands being communicated and communicate the recovered control command or commands to the fan motor control circuit 308 and/ or light control circuit 310 or send information to the fan motor control circuit 308 and/or light control circuit 310 to be used to implement the recovered control command or commands. Processor 316 is further configured to control the WiFi interface 312 including WiFi receiver 356 to receive WiFi signals including messages communicating control commands, recover the control command or commands being communicated and communicate the recovered control command or commands to the fan motor control circuit 308 and/ or light control circuit 310 or send information to the fan motor control circuit 308 and/or light control circuit to be used to implement the recovered control command or commands. Processor 316 is further configured to generate device status reporting messages and to control the WiFi interface including transmitter 354 to transmit WiF signals including the device status reporting messages communicating device state information. In various embodiments, processor 316 is configured to generate and send a device status reporting message, e.g., in response to a received and implemented RF control signal or a received and implemented WiFi control message. In some embodiments, the processor 316 is configured to limit time intervals between successive device status reporting messages, e.g., to prevent excessive status reporting messages such as where an individual is pushing an input button on a wall control unit 202 multiple times in very short time interval. In one exemplary embodiment, a device status reporting message is sent to a control server at most once per predetermined time interval, e.g., once per two second time interval or once per two minute time interval. In some embodiments, device status reporting messages to the control server communicates a change from a previously communicated device status reporting message. In various embodiments, a device status reporting message can, and sometimes does, include an aggregate of multiple received and implemented commands. In various embodiments, a generated device status reporting message includes time tag information, e.g., a transmission time tag and/or a time tag or time tags corresponding to an implemented

state change or changes implemented at the fan device. In some embodiments, the fan device includes a single circuit board that includes the WIFI interface 312, RF interface 314, fan motor control circuit 308, light control circuit 310, AC power interface 322, DC power supply 324, memory 318 and processor 316.

[0056] Figure 4, comprising the combination of Figure 4A, Figure 4B, Figure 4C, Figure 4D and Figure 4E, is a drawing 400, comprising Part A 401, Part B 403, Part C 405, Part D 407 and Part E 409, illustrating exemplary components of system 100 of Figure 1, exemplary signaling and exemplary operations in accordance with an exemplary embodiment. Drawing 400 includes customer premises CP 1 102, the Internet 106, and control server 108. CP 1 102 includes wall control unit 1 114, wall control unit N 116, fan device 1 110, fan device N 112, and WiFi router 118. Fan device 1 110 includes fan 1 and light 1. Fan device N 112 includes fan N and light N. Wireless terminal 120 is a mobile device, e.g., a cell phone, a laptop, a tablet,, a smartphone, which is sometimes located within CP 1 102 and is sometimes located outside of CP 1 102.

[0057] In one exemplary embodiment, fan device 1 110 and wall control unit 1 116 are located in a first room, and fan device N 116 and wall control unit N 116 are located in a second room, which is a different room from the first room. In some embodiments, the fan devices 110, 112, each include a RF interface and a WiFi interface, while the wall control units 114, 116 each include a RF interface but do not include a WiFi interface. In one exemplary embodiment, wall control unit 1 114, is a wall mounted unit, which supplies power to fan device 1 110; and wall control unit N 116, is a wall mounted unit, which supplies power to fan device N 112.

[0058] In some embodiments, the RF and WiFi interfaces while both being wireless interfaces are different interfaces and use different frequency bands and different communications protocols. In some embodiments, the RF interfaces use a sub-GHz frequency band, e.g., 315MHz or 433Mhz, and the WiFi interfaces use a 2.4 GHz frequency band. In some embodiments, the RF interfaces use ON OFF KEYING (OOK) 2kSymbols/sec, Manchester Encoded protocol. In some embodiments, the WiFi interfaces use a 802.11 b/g/n protocol.

[0059] Drawing 400 is an exemplary signaling diagram illustrating exemplary signaling between the various devices and exemplary operations performed by the devices in accordance with an exemplary method.

[0060] In step 402 WC 1 114 generates and sends radio frequency (RF) control signal 404, e.g., a wireless RF signal, to fan unit 1 110 commanding fan unit 1 110 to change the power state of its fan. In some embodiments, the RF control signal 404 is sent using an RF signal which is not used for WiFi signals. In step 406 fan unit 1 110 receives signal 404 and recovers the communicated command. Consider that the fan in fan device 1 110 is currently off. In response to the received recovered command in RF signal 404, in step 408 fan unit 1 110 turns on its fan, which is fan 1. In step 410, fan device 1 110 generates and sends a reporting message 412 to WiFi router 1 114 reporting that fan 1 is on.

[0061] In one exemplary embodiment, the reporting message 412 includes: an identifier identifying fan device being controlled, which in this example is fan device 1 110, information indicating the time the command was implemented, information indicating the operation performed by the fan device, which in this example is turning on the fan in fan device 1 110, and information identifying the customer premises, which in this example is CP1 102. Other reporting messages described in this signaling flow diagram may also use this exemplary reporting format. The reporting allows the server 108, which is the intended end point recipient of the reporting message information, to create a log of the state of fan device 1 and create a history of the state of the device. Recorded state information corresponding to multiple fan devices at CP1 may be used to facilitate learning of use patterns and thereby allow for automated schedule generation for both normal and away schedules both of which may be, and sometimes are, machine learning based on the information reported to the control server 108 in system 100.

[0062] In step 414 WiFi router 118 receives message 412 and recovers the communicated information. In step 416 WiFi router 118 generates reporting message 418, indicating that fan 1 is on, and sends message 418, via the Internet 106, to control server 108. In step 420 control server 108 receives message 418 and recovers the communicated information, originally sourced from fan device 1, which indicates that the fan 1 in fan device 1 is on. In step 421 control server 108 updates the customer premises 1 (CP1) information to record that fan 1 is on and the time.

[0063] In step 422 WC 1 114 generates and sends RF control signal 424 to fan device 1 110 commanding fan unit 1 110 to change the power state of its light, which is light 1. In step 426 fan unit 1 110 receives RF signal 424 and recovers the information communicated. Consider that light 1 is in an OFF state. In response to the

recovered command of signal 424, in step 428 fan device 1 110 turns on light 1. In step 430, fan device 1 110 generates and sends a reporting message 432 to WiFi router 1 118 reporting that light 1 is on. In step 434 WiFi router 118 receives message 432 and recovers the communicated information. In step 436 WiFi router 118 generates reporting message 438, indicating that light 1 is on, and sends message 438, via the Internet 106, to control server 108. In step 440 control server 108 receives message 438 and recovers the communicated information, originally sourced from fan device 1, which indicates that light 1 is on. In step 441 control server 108 updates the customer premises 1 (CP1) information to record that light 1 is on and the time.

[0064] In step 442 WC 1 114 generates and sends RF signal 444 to fan device 1 110 commanding fan device 1 110 to perform a fan power state change. In step 446 fan device 1 110 receives signal 444 and recovers the information communicated, and in response in step 448 fan device 1 110 turns off fan 1. In step 450, fan device 1 110 generates and sends a reporting message 452 to WiFi router 1 118 reporting that fan 1 is off. In step 454 WiFi router 118 receives message 452 and recovers the communicated information. In step 456 WiFi router 118 generates reporting message 458, indicating that fan 1 is off, and sends message 458, via the Internet 106, to control server 108. In step 460 control server 108 receives message 458 and recovers the communicated information, originally sourced from fan device 1 110, which indicates that fan 1 is off. In step 462 control server 108 updates the customer premises 1 (CP1) information to record that fan 1 is off and the time.

[0065] In step 464 WC 1 114 generates and sends RF signal 466 to fan device 1 110 commanding fan device 1 110 to perform a power state change of its light, which is light 1. In step 468 fan device 1 110 receives signal 466 and recovers the information communicated, and in response in step 470 fan device 1 110 turns off light 1. In step 472, fan device 1 110 generates and sends a reporting message 474 to WiFi router 1 118 reporting that light 1 is off.

[0066] In step 476 WiFi router 118 receives message 474 and recovers the communicated information. In step 478 WiFi router 118 generates reporting message 480, indicating that light 1 is off, and sends message 480, via the Internet 106, to control server 108. In step 482 control server 108 receives message 480 and recovers the communicated information, originally sourced from fan device 1 which indicates that light 1 is off. In step 484 control server 108 updates the customer premises 1 (CP1) information to record that light 1 is off and the time.

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[0067] In step 486 WT 1 120, which is a device supporting WiFi communications, generates and sends WiFi control signal 487 to WiFi router 118 commanding fan device 1 110 to turn on its light, which is light 1. In step 488 WiFi router 118 receives signal 487 and recovers the information communicated. In step 489 WiFi router 118 generates and sends WiFi signal 490 to fan device 1 110 communicating the command to turn on its light. In step 491 fan device 1 110 receives signal 490 and recovers the information communicated, and in response in step 492 fan device 1 110 turns on light 1. Thus the control command of signal 487 is communicated from WT 1 120, which is a WiFi device currently located within CP1 102, to fan device 110, located at CP1 102, via WiFi router 118, also located at CP1 102, without the command traversing a network outside the customer premises CP1 102. Thus in some embodiments, at least some times, the communication of a command, e.g., in a WiFi signal, to a fan device does not depend or involve communication over a network outside the customer premises, and the fan device can be controlled from within the CP, e.g., house, via WiFi even if an Internet or server connection to the server is not present or available.

[0068] In step 494, fan device 1 110 generates and sends a reporting message 496 to WiFi router 1 118 reporting that light 1 is on. In step 498 WiFi router 118 receives message 496 and recovers the communicated information. In step 500 WiFi router 118 generates reporting message 502, indicating that light 1 is on, and sends message 502, via the Internet 106, to control server 108. In step 504 control server 108 receives message 502 and recovers the communicated information, originally sourced from fan device 1 110, which indicates that light 1 is on. In step 506 control server 108 updates the customer premises 1 (CP1) information to record that light 1 is on and the time.

[0069] In step 508 WT 1 120 generates and sends WiFi signal 509 to WiFi router 118 commanding fan device 1 110 to turn on its fan. In step 510 WiFi router 118 receives signal 509 and recovers the communicated information. In step 511, WiFi router 118 generates and sends WiFi signal 512 to fan device 1 110 communicating the fan 1 on command. In step 513 fan unit 1 110 receives signal 512 and recovers the information communicated, and in response in step 514 fan device 1 110 turns on fan 1. In step 516, fan device 1 110 generates and sends a reporting message 518 to WiFi router 1 114 reporting that fan 1 is on. In step 520 WiFi router 118 receives message 518 and recovers the communicated information. In step 522

WiFi router 118 generates reporting message 524, indicating that fan 1 is on, and sends message 524, via the Internet 106, to control server 108. In step 526 control server 108 receives message 524 and recovers the communicated information, originally sourced from fan device 1 110, which indicates that fan 1 is on. In step 528 control server 108 updates the customer premises 1 (CP1) information to record that fan 1 is on and the time. Although the control messages and reporting message, corresponding to fan device 1 110, have been shown for on/off examples, in some embodiments, the control messages which are sent may control other operations, e.g., increase light intensity of light 1, decrease light intensity of light 1, increase fan speed of fan 1, decrease fan speed of fan 1, change fan direction of fan 1, and the reporting messages may report device status or device status change in response to those commands.

[0070] Exemplary on/off device control signaling, state changes, reporting, and recording of device status in control server 108, has been shown over time, for a few examples, for fan device 1 110 including fan 1 and light 1. It should be appreciated that similar signaling and operations are performed with regard to the other fan devices, e.g., fan device N 112, located at customer premises 1 102, and control server 108 also records and builds up a historical record corresponding to status including state information of the other fan devices located at CP1 102, e.g., fan device N 112, over time.

[0071] In step 530, the control server 108 generates a proposed normal device control schedule for customer premises 1 102, e.g., based on historical recorded information. The generated proposed normal control schedule for CP1 is a fan and lighting control schedule for controlling the fan devices at CP1 including, e.g., on/off fan control schedule, on/off light control schedule, fan speed schedule, fan direction schedule, and light intensity schedule. In some embodiments, the proposed normal device control schedule is generated based on stored information including the state of one or more fan devices (fan device 1 110, …, fan device N 112) at CP1 102 over a period of time, e.g., two or more weeks, e.g., based on collected stored reporting messages from the fan devices (110, …, 112) over the time period. In step 532, the control server generates a message 533 communicating the generated proposed normal device control schedule and sends the generated message to WiFi router 118, via Internet 106.

[0072] In step 534 the control server 108 generates an away device control schedule for CP1 102, e.g., random based or based on historical use with

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randomization. In various embodiments, server 108 generates the away schedule to be used to control one or more fan devices (110, …, 112) at CP1 102 when the customer indicates that they are away from the customer premises 102. In some embodiments, operating the control server 108 to generate an away schedule includes generating said away schedule as a function of a random function used to at least partially randomize the on or off times of one or more devices. In some embodiments, operating the server 108 to generate the away schedule includes using information about past device on and off status in combination with said random function to control the on and off times as a function of at least one device, said on and off times deviating from historical on and off times by an amount of time which does not exceed a set maximum amount of time, e.g., 30 minutes, and which is determined by said random function. For example, once the historical on/off times of a light on the fan device are known the random function is used to change the on/off time in a random function but keep it within 30 minutes or so of the normal on/off time so that the on/off pattern is not identical from day to day but within an expected normal range that might occur to a human getting home or moving around the home which would not be identical each day but might not deviate greatly, e.g., by more than an hour, from day to day. In step 535 control server 108 stores the generated away device control schedule for CP1 102.

[0073] In step 536, WiFi router 118 receives message 533 and recovers the information in message 533 including the proposed normal device control schedule. In step 538, WiFi router 118, generates a message 540 including the proposed normal device control schedule and sends the message 540 to WT 1 120. Thus the generated proposed normal device control schedule has been communicated from control server 108, via the Internet 106 and WiFi router 118, located at CP1, to device WT 1 120 corresponding to the first customer premises. WT 1 120 is, e.g., the cell phone, e.g., a smartphone, of a user who is located at the first customer premises 102.

[0074] In step 542, WT 1 120 receives message 540 recovers the proposed normal control schedule and presents the proposed normal device control schedule to the user of WT 1 120. In some embodiments, the user of device 1 120 may decide to revise the proposed normal device control schedule. In step 544, WT 1 120 receives user input revisions and generates a revised normal device control schedule. In step 546, WT 1 120 generates a message 548 communicating user authorization for the proposed normal device control schedule or a revised normal device control schedule and sends message 548 to WiFi router 118. In step 550, WiFi router 118 receives

message 550 and recovers the communicated information. In step 552 WiFi router 118 generates message 554 communicating the user authorization for the proposed normal device control schedule or the user revised normal device control schedule and sends message 554 via Internet 106 to control server 108.

[0075] In step 556, the control server receives message 554 and recovers the communicated user authorization for the proposed normal device control schedule or the communicated revised normal device control schedule. If user authorization is received for the suggested normal control schedule, the control server 108 designates the generated suggested control schedule as a normal approved device control schedule. If a revised normal device control schedule is received, the control server 108 designates the received revised schedule as the normal approved device control schedule. In step 557 the control server stores the approved normal control schedule.

[0076] In step 558, the control server 108 starts operating in accordance with the approved normal device control schedule, e.g., to automatically control operations at fan device 1 110 and fan device N 112 of CP1 102. In various embodiments, operating the control server 108 in accordance with the stored approved normal control schedule includes operating the server 108 to control one or more of the fan devices (110, …, 112) at CP1 102 based on the normal approved device control schedule including transmitting a control signal from control server 108 to fan device 1 110 via the Internet 106 and WiFi router 118 to control fan device 1 to take an action at a time indicated in the normal approved device control schedule, e.g., to control the fan of fan device 1 110 to turn on at a time indicated by the normal approved device control schedule.

[0077] In some embodiments, the control server 108 will switch to automatic operations in accordance with the approved normal device control schedule based on the reception of message 554, e.g., once the proposed schedule is approved the control server starts using the approved normal device control schedule.

[0078] In some embodiments, the control server 108 will not switch to automatic operations in accordance with the approved normal device control schedule until receiving an additional message, e.g., a normal device control schedule activation message from a user, e.g., the user which approved the proposed normal schedule or sent the revised normal schedule. In some embodiments, the user may send server 108, e.g., from device WT 1 120, a message communicating one or more time intervals in which the control server 108 is to operate in accordance with the approved normal

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device control schedule and/or one or more time intervals in which the control server 108 is to operate in accordance with the away schedule and/or one or more time intervals in which the control server 108 is not to use either the normal schedule or the away schedule but is to allow just wall control units and user devices such as WT 1 to control the fan devices at CP1.

[0079] In step 559, the control server 108, operating in accordance with the normal approved control schedule, generates and sends control signal 560 including one or more control commands, via Internet 106, to WiFi router 118 to automatically control fan 1 and/or light 1 of fan device 1 110 based on the normal authorized device control schedule. In step 561 the control server 108 updates fan device 1 state information based on the control commands sent in message 560. In step 562, the WiFi router 118 receives control signal 560 and recovers the communicated information, e.g., control command or commands directed to fan device 1 110. In step 564, the control server generates and sends control signal 566 to automatically control fan 1 and/or light 1 of fan device 1 110. In step 568, fan device 1 110 receives control signal 566 and recovers the control information communicated. In step 569 fan device 1 110 performs an action or actions in response to one or more recovered control commands in the received WiFi signal 566, e.g., turns off fan 1, turns off light 1, reverses the direction of fan 1, increases fan 1 speed, decreases fan 1 speed, sets fan 1 speed to a particular value, increases light 1 intensity, decreases light 1 intensity, sets light 1 intensity to a particular level, etc.

[0080] In step 570, the control server 108, operating in accordance with the normal approved control schedule, generates and sends control signal 572 including one or more control commands, via Internet 106, to WiFi router 118 to automatically control fan N and/or light N of fan device N 112 based on the normal approved device control schedule. In step 571 the control server 108 updates fan device N state information based on the control commands sent in message 572. In step 574, the WiFi router 118 receives control signal 572 and recovers the communicated information. In step 576, the WiFi router 118 generates and sends control signals 578 to automatically control fan N and/or light N to fan unit N 112. In step 580, fan unit N 112 receives control signals 578, recovers the control information, e.g., control command or commands communicated in signal 578. In step 581 fan device N 112 performs an action or actions in response to the one or more received and recovered control commands in WiFi control signal 578, e.g., turns on fan N, turns off fan N, turns on

light N, turns off light N, reverses the direction of fan N, increases fan N speed, decreases fan N speed, increase light N intensity, decreases light N intensity, sets the speed of fan N to a particular level, sets the light output level of light N to a particular level, etc.

[0081] Although only one arrow is shown for control signal 560, and corresponding forwarded control signal 566, to illustrate one example, it should be appreciated that many different control signals, e.g., individual control signals may be, and in some embodiments, are sent at different times to achieve different desired states of operation of fan unit 1, in accordance with the normal authorized device control schedule. Although only one arrow is shown for control signals 572, and corresponding forwarded control signals 578, it should be appreciated that many different control signals, e.g., individual control signals may be, and in some embodiments, are sent at different times to achieve different desired states of operation of fan unit N, in accordance with the normal authorized schedule.

[0082] In step 582, based on received user input, WT 1 120 generates a signal 584 indicating that the away device control schedule should be used to control the fan units at customer premises 1, and WT 1 120 sends the signal 584 to WiFi router 118. In some embodiments, signal 584 conveys an away status indicator from the user of user device WT 1 120. In step 586, WiFi router 118 receives signal 584, recovers the communicated information. In step 588 WiFi router 118 generates and sends signal 590 including information indicating that the control server should use the away schedule for customer premises 1, via Internet 106, to control server 108. In step 592 control server 108 receives signal 590 and recovers the communicated information, e.g., the away status indicator, indicating that the away schedule should now be used for CP1. In step 594, in response to received message 590, the control server 108 switches to automatic control of the fan units at customer premises 1 based on the away device control schedule. Thus the control server 108 switches from using the stored approved normal schedule to using the stored away schedule to control the one of more fan devices (110, …, 112) at the first customer premises.

[0083] In step 596, the control server 108, operating in accordance with the away device control schedule, generates and sends control signal 598 including one or more control commands, via Internet 106, to WiFi router 118 to automatically control fan 1 and/or light 1 of fan device 1 110 based on the away device control schedule. In step 599 the control server 108 updates fan device 1 state information based on the

control commands sent in message 598. In step 600, the WiFi router 118 receives control signal 598 and recovers the communicated information, e.g., control command or commands directed to fan device 1 110. In step 602, the control server 108 generates and sends control signal 604 to automatically control fan 1 and/or light 1 of fan device 1 110. In step 606, fan device 1 110 receives control signal 604, recovers the control information communicated. In step 607 fan device 1 110 performs an action or actions in response to one or more recovered control commands in the received WiFi control signal 606, e.g., turns off fan 1, turns off light 1, reverses the direction of fan 1, increases fan 1 speed, decreases fan 1 speed, sets fan 1 speed to a particular value, increases light 1 intensity, decreases light 1 intensity, sets light 1 intensity to a particular level, etc, said recovered control commands having been originally sent from control server 108.

[0084] In step 608, the control server 108, operating in accordance with the away device control schedule, generates and sends control signal 610 including one or more control commands, via Internet 106, to WiFi router 118 to automatically control fan N and/or light N of fan device N 112 based on the away device control schedule. In step 611 the control server 108 updates fan device N state information based on the control commands sent in message 610. In step 612, the WiFi router 118 receives control signal 610 and recovers the communicated information. In step 614, the control server generates and sends control signals 616 to automatically control fan N and/or light N to fan unit N 112. In step 618, fan unit N 112 receives control signals 616, recovers the control information, e.g., control command or commands communicated in signal 616. In step 619 fan device N 112 performs an action or actions in response to the one or more received and recovered control commands in WiFi control signal 578, e.g., turns on fan N, turns off fan N, turns on light N, turns off light N, reverses the direction of fan N, increases fan N speed, decreases fan N speed, increases light N intensity, decreases light N intensity, sest the speed of fan N to a particular level, sets the light output level of light N to a particular level, etc, said recovered control commands having been originally sent from control server 108.

[0085] Although only one arrow is shown for control signal 598, and corresponding forwarded control signal 604, to illustrate one example, it should be appreciated that many different control signals, e.g., individual control signals may be, and in some embodiments are, sent at different times to achieve different desired states of operation of fan unit 1, in accordance with the away device control schedule.

Although only one arrow is shown for control signal 610, and corresponding forwarded control signal 616, it should be appreciated that many different control signals, e.g., individual control signals may be, and in some embodiments are, sent at different times to achieve different desired states of operation of fan unit N, in accordance with the away schedule.

[0086] In step 620, based on received user input, WT 1 120 generates a signal 622 indicating that the away device control schedule, used to control the fan units at customer premises 1, and WT 1 120, should be disabled and that the approved normal device control schedule should be used again, sends the generated signal 622 to WiFi router 114. In step 624, WiFi router 118 receives signal 622, recovers the communicated information. In step 626 WiFi router 118 generates and sends signal 628 including information indicating that the control server should disable use of the away schedule for customer premises 1 and resume using the approved normal device control schedule, via Internet 106, to control server 108. In step 630 control server 108 receives signal 628 and recovers the communicated information indicating that the away schedule should no longer be used for CP1 102 and that the normal schedule should now be used. In step 632, in response to received message 628, the control server 108 switches to automatic control of the fan devices 110, 112 at customer premises 1 102 based on the normal authorized approved device control schedule.

[0087] In step 634, the control server 108, operating in accordance with the normal approved control schedule, generates and sends control signal 635 including one or more control commands, via Internet 106, to WiFi router 118 to automatically control fan 1 and/or light 1 of fan device 1 110 based on the normal authorized device control schedule. In step 636 the control server 108 updates fan device 1 state information based on the control commands sent in message 635. In step 638, the WiFi router 118 receives control signal 635 and recovers the communicated information, e.g., control command or commands directed to fan device 1 110. In step 640, the WiFi router 118 generates and sends control signal 642 to automatically control fan 1 and/or light 1 of fan device 1 110. In step 644, fan device 1 110 receives control signal 642, recovers the control information communicated. In step 645 fan device 1 110 performs an action or actions in response to one or more recovered control commands in the received WiFi signal 642, e.g., turns off fan 1, turns off light 1, reverses the direction of fan 1, increases fan 1 speed, decreases fan 1 speed, sets fan 1 speed to a particular value,

increases light 1 intensity, decreases light 1 intensity, sets light 1 intensity to a particular level, etc.

[0088] In step 646, the control server 108, operating in accordance with the normal approved control schedule, generates and sends control signal 647 including one or more control commands, via Internet 106, to WiFi router 118 to automatically control fan N and/or light N of fan device N 112 based on the normal approved device control schedule. In step 648 the control server 108 updates fan device N state information based on the control commands sent in message 647. In step 650, the WiFi router 118 receives control signal 647 and recovers the communicated information. In step 652, the control server generates and sends control signals 656 to automatically control fan N and/or light N to fan unit N 112. In step 658, fan unit N 112 receives control signals 656, recovers the control information, e.g., control command or commands communicated in signal 656. In step 659 fan device N 112 performs an action or actions in response to the one or more received and recovered control commands in WiFi control signal 656, e.g., turns on fan N, turns off fan N, turns on light N, turns off light N, reverses the direction of fan N, increases fan N speed, decreases fan N speed, increases light N intensity, decreases light N intensity, sets the speed of fan N to a particular level, sets the light output level of light N to a particular level, etc.

[0089] In Figure 4E, it may be observed that mobile WT 1 120 has moved to a location outside CP1 102. In various embodiments, an authorized user can, and sometimes does, control fan devices from outside the customer premises at which the fan devices are located. Consider that the operator of WT 1 120 is authorized to control fan devices 110, 112 from locations outside customer premises 1 102. WT 1 120 may, and sometimes does, request and receive fan device status information for CP1 102, while outside CP1. In step 660 WT 1 120 generates and sends a device control signal 662 for controlling fan device 1 110 to control server 1 108, e.g., via the Internet 106. In step 664, control server 108 receives signal 662 and recovers the communicated information, e.g., a command to turn on light 1 of fan device 1 110 and/or another command or commands. In step 666, control server 108 determines, e.g., based on received authorization information, that it will serve as a relay to relay the received device control signal command to fan unit 1 110. In step 668, the control server 108 generates and sends device control signal 670, conveying the control command or commands received in signal 662, to WiFi router 118, with the destination

of the information being fan device 1 110. Some embodiments include step 671, in which the control server 108 updates fan device 1 state information based on the command or commands in transmitted signal 670, in response to transmitting signal 670. Thus in this example, state information is updated without receiving a report of the command being implemented at fan device 1 110.

[0090] In step 672, WiFi router 118 receives device control signal 670. In step 674 WiFi router 118 generates and sends device control signal 676, which includes the received command or commands being relayed, to fan device 1 110, thus communicating the control command or command in signal 662, to fan device 1 110. In step 678 fan device 1 110 receives signal 676, recovers the communicated command or commands. In step 679 fan device 1 110 implements the received recovered command or commands, e.g., turns on light 1 of fan device 1 110. In some embodiments, fan device 1 110 in step 680 generates and sends acknowledgment signal 681 to server 108, which is received in step 682. Some embodiments include step 683, in which the control server 108 updates fan device 1 state information based on the commands in transmitted signal 670 and the reception of acknowledgment signal 681, in response to receiving the acknowledgment signal 681 in step 682. In step 684, server 108 generates and sends acknowledgment signal 685, which is a forwarded version of acknowledgment signal 681, to WT 1 120. In step 686 WT 1 120 receives acknowledgment signal 685 and has confirmation that the command of signal 662 has been received and/or acted upon.

[0091] Figure 4E illustrates control of fan device 1 110 via a remotely located device, WT 1 120, which may be a cellphone, e.g., a smartphone, which is currently located outside the customer premises 1 102, which sends a control signal through the control server 108 for delivery to fan device 1 110. For example, WT 1 120 is a smartphone that connects to the Internet 106 via a cellular signal and sends the command over the cellular channel to the control server 108 via the Internet 106. In the case where the control signal passes through the control server 108, the fan device 110 being controlled may not send back a message reporting implementation of the communicated command and the server 108 can update the state information based on the knowledge that the fan device 1 110 was instructed to perform the operation and/or optionally, an acknowledgment from the fan device 1 110 indicating that the control message was received and/or acted up.

[0092] Figure 5 is a drawing of an exemplary control server 700 in accordance with an exemplary embodiment. Control server 700 is, e.g., control server

108 of Figure 1 and Figure 4. Control server 700 includes an interface 702, a processor 704, e.g., a CPU, memory 706, an assembly of components 708, e.g., assembly of hardware components, e.g., assembly of circuits, coupled together via a bus 710 over which the various elements may interchange data and information. Interface 702 includes a receiver 714 and a transmitter 712. Interface 702 couples the control server to the internet and/or other networks and/or devices.

[0093] Memory 706 includes an assembly of components 716, e.g., an assembly of software components, e.g., software modules. Data/information 718 includes information corresponding to a plurality of customer premises (customer premises 1 information 720, …., customer premises M information 722). Customer premises 1 information 720 includes received fan device 1 reporting messages 724, …, received fan device N reporting messages 726, a generated proposed normal device control schedule for CP1 728, and a generated away device control schedule for CP1 730. In some embodiments, CP1 data/information 720 includes a revised normal device control schedule 732, e.g., based on user revisions to the proposed schedule. CP1 information 720 further includes fan device 1 state information 736, fan device N state information 738, a current control mode of operation with regard to controlling the fan devices at CP1 740, e.g., use the approved normal device control schedule, use the away device control schedule, or do not perform automatic control at the current time, a received message 742 indicating user selection of mode, or a user command to switch modes, or user communicated indicator indicating whether or not the user is away which is utilized to determine mode selection. CP 1 information further includes a received control message 744, e.g., from a WT of an authorized user, to be forwarded to a fan device indicated in the received message to control the fan device, and a generated control message 746 in accordance with (IAW) the normal or away schedule, said generated message to be sent to a fan device at an appropriate time in accordance with the normal or away schedule.

[0094] Figure 6 is a drawing of an exemplary wireless terminal (WT) 800, e.g., a smartphone, in accordance with an exemplary embodiment. Exemplary WT 800 is, e.g., WT 1 120 of Figure 1 and Figure 4.

[0095] Exemplary WT 800 includes a WiFi interface 802, a cellular wireless interface 804, a wired interface 806, a processor 808, memory 810, an I/O interface 812 coupled to display 814, e.g., a touchscreen display, keypad 816, and an assembly of components 818, e.g., an assembly of hardware components 818, e.g., an

assembly of circuits. The various elements 802, 804, 806, 808, 810, 812, 818 are coupled together via a bus 820 over which the various elements may interchange data and information.

[0096] WiFi interface 802 includes a WiFi transmitter 832 and a WiFi receiver 834 coupled to antennas (833, 835), respectively, via which the WT 800 may transmit and receive WiFi signals. Cellular wireless interface 804 includes a wireless transmitter 836 and a wireless receiver 838 coupled to antennas (837, 839), respectively, via which the WT 800 may transmit and receive wireless cellular signals. In some embodiments, the same antenna is used for one or more transmitters and/or receivers. Wired interface 806 includes network transmitter 840 and a network receiver 842 via which the WT 800 may transmit and receive signals, e.g., via a wired connection to the Internet and/or to other nodes.

[0097] Memory 810 includes routines 822 and data/information 824. Routines 822 includes a wireless terminal control routine 826, and a fan device control application 828. Fan device control application 828 includes an assembly of components 830, e.g., an assembly of software components, for performing different functions related to fan device control, fan device status monitoring, setup and initialization, user authorization, communications with a fan device, communications with a control server, user interfaces, etc. Fan device control application 828 controls WT 800 to present one or more custom interfaces to the user of WT 800, e.g., via smartphone display 814, which allows the user to control fan devices. In some embodiments, one exemplary control display simulates the input of control panel 204 of wall control unit 202, e.g., accepting inputs for: an on/off fan power transition command, a fan reverse command, a fan speed increase command, a fan speed decrease command, an on/off light power transition command, a light output increase command, and a light output decrease command. In some embodiments, one exemplary control display is configured to accept inputs for the following commands: a fan on command, a fan off command, a light on command, a light off command, a fan reverse command, a fan direction selection input command, a fan speed level setting command, a light intensity level setting command, a fan speed increase command, a fan speed decrease command, a light intensity increase command, a light intensity decrease command, a light intensity change rate command, e.g., allowing a smooth gradual light intensity specified change over a specified time period, and a fan speed change rate command, e.g., allowing a smooth gradual fan speed level change over a specified time period. In

various embodiments, the fan device control application 828 receives user command inputs, generates control messages and sends the control messages to either the fan device, e.g., via WiFi signaling, or to a control server for forwarding to the fan device to be controlled, e.g., depending on the location of the WT 800. Fan device control app 828 is further configured to operate WT 800 to: receive a proposed normal device control schedule from a control server, present the received proposed schedule to a user, receive user approval of the schedule, receive user revisions, generate a revised schedule incorporating the revisions, and generate and send an approval message or a revised schedule to the control server. Fan device control app 828 is further configured to operate the WT 800 to: receive user input indicating that a user desires that one or more fan devices be controlled in accordance with the normal approved device control schedule, the away schedule, or manually via WT 800 input and/or a wall control panel, e.g., for a specified period of time, and communicate the user input to the control server, e.g., to control switching between normal schedule automatic device control, away schedule automatic device control, and no automatic control. In some embodiments, the application 828 generates and sends indicators, e.g., an away indicator or a home indicator, e.g., based on user input, to control switching between normal and away device control schedules. Fan device control app 828 is further configured to control WT 800 to send a request for fan device status, e.g. fan device state information such as on/off status of a fan, on/off status of a light, light intensity output level, fan direction, and fan speed, to a fan device and/or to the control server, to receive fan device status information, and to present the received fan device status information to a user of WT 800, e.g., on display 814. In some embodiments, current fan device status information is presented concurrently with an input control interface on the display, e.g., on the smartphone screen display.

[0098] Figure 7, comprising the combination of Figure 7A and Figure 7B, is a drawing of an assembly of components 900, comprising Part A 901 and Part B 903, which may be included in an exemplary control server, e.g., control server 108 of Figure 1 and Figure 4 or control server 700 of Figure 5 in accordance with an exemplary embodiment.

[0099] Assembly of components 900 may be included in an exemplary server, e.g., control server 700. The components in the assembly of components 900 can, and in some embodiments are, implemented fully in hardware within a processor, e.g., processor 704, e.g., as individual circuits. The components in the assembly of

components 900 can, and in some embodiments are, implemented fully in hardware within the assembly of hardware components 708, e.g., as individual circuits corresponding to the different components. In other embodiments some of the components are implemented, e.g., as circuits, within processor 704 with other components being implemented, e.g., as circuits within assembly of components 708, external to and coupled to the processor 704. As should be appreciated the level of integration of components on the processor and/or with some components being external to the processor may be one of design choice. Alternatively, rather than being implemented as circuits, all or some of the components may be implemented in software and stored in the memory 706 of the server 700, with the components controlling operation of server 700 to implement the functions corresponding to the components when the components are executed by a processor e.g., processor 704. In some such embodiments, the assembly of components 900 is included in the memory 706 as assembly of software components 716. In still other embodiments, various components in assembly of components 900 are implemented as a combination of hardware and software, e.g., with another circuit external to the processor providing input to the processor which then under software control operates to perform a portion of a component's function.

[00100] When implemented in software the components include code, which when executed by a processor, e.g., processor 704, configure the processor to implement the function corresponding to the component. In embodiments where the assembly of components 900 is stored in the memory 706, the memory 706 is a computer program product comprising a computer readable medium comprising code, e.g., individual code for each component, for causing at least one computer, e.g., processor 704, to implement the functions to which the components correspond.

[00101] Completely hardware based or completely software based components may be used. However, it should be appreciated that any combination of software and hardware, e.g., circuit implemented components may be used to implement the functions. As should be appreciated, the components illustrated in Figure 9 control and/or configure the server 700 or elements therein such as the processor 704, to perform the functions of various steps in an exemplary method illustrated and/or described with respect to the signaling diagram 400 of Figure 4 and/or described with respect to any of the Figures or text including the lists of exemplary embodiments. Thus the assembly of components 900 includes various components that perform

functions of corresponding one or more described and/or illustrated steps of an exemplary method, e.g., one or more steps of the method of Figure 4.

[00102] Assembly of components 900 includes a component 902 configured to receive reporting messages sent from fan devices, e.g., communicating fan device identification information, customer premises identification information, commands received at the fan device, operations performed at the fan device in response to received commands, fan device status information, e.g., fan device state information, e.g., fan on or fan off, fan speed, fan direction, light on or off, light intensity level, etc., and time information, e.g., time a command was received at the fan device, time an operation was performed in response to a received command, time information corresponding to state information included in the reporting message, and/or transmission time corresponding to reporting message. In some embodiments, a reporting message may, and sometimes does include aggregated information corresponding to multiple commands. Assembly of components further includes a component 904 configured to store information communicated in received reporting messages from the fan devices. In some embodiments, as part of receiving a reporting message the message reception time is also recorded and stored.

[00103] Assembly of components 900 further includes a component 906 configured to generate a proposed normal device control schedule from stored information indicating the state of one or more devices at a customer premises over a period of time, e.g., over two or more weeks, a component 908 configured to send a generated proposed normal device control schedule for a customer premises to device corresponding to the customer premises, and a component 912 configured to generate an away schedule to be used to control one or more devices at a customer premises when the customer indicates that they are away from the customer premises. In some embodiments, component 912 includes a component 914 configured to generate said away schedule as a function of a random function used to at least partially randomize the on or off times of one or more devices. In some embodiments, component 914 includes a component 916 configured to use the information about past device on and off status in combination with said random function to control the on and off times for at least one device, said on and off times deviating from historical on and off times by an amount of time which does not exceed a maximum amount of time, e.g., 30 minutes, and which is determined by the random function. Assembly of components 900 further includes a component 918 configured to store a generated away device control schedule

corresponding to a customer premises, a component 920 configured to receive a message indicating approval of a proposed normal device control schedule or a revised normal device control schedule, and a component 922 configured to store an approved normal device control schedule for a customer premises, said approved schedule being either the proposed normal device control schedule or the received revised normal device control schedule.

[00104] Assembly of components 900 further includes a component 924 configured to control one or more devices at a customer premises based on the stored approved normal device control schedule corresponding to the customer premises. Component 924 includes a component 926 configured to identify and send a command to a fan device at the customer premises via the internet and a WiFi router to control the fan device based on the normal approved device control schedule. Assembly of components 900 further includes a component 928 configured to control one or more devices at a customer premises based on the stored away device control schedule corresponding to the customer premises. Component 928 includes a component 930 configured to identify and send a command to a fan device at the customer premises via the internet and a WiFi router to control the fan device based on the away device control schedule.

[00105] Assembly of components 900 further includes a component 932 configured to update information about the state of a fan device at a customer premises based on a command communicated to the fan device in accordance with an approved normal device control schedule or an away device control schedule, a component 934 configured to update information about the state of a fan device at a customer premises based on a command, e.g., a received command from a user device of an authorized user who is currently located outside the customer premises, said command being forwarded to the fan device by the control server acting as a relay device. Assembly of components 900 further includes a component 936 configured to receive a signal from a user indicating an away status corresponding to a customer premises and a component 938 configured to switch from using a stored normal device control schedule to using a stored away device control schedule based on a received away status indicator.

[00106] Figure 8 is a drawing of an exemplary system 100' including controllable fan devices (110', …, 112'), wall control units (114', …, 116'), a wireless terminal 120', a WiFi router 118' and a control server 108' in accordance with another exemplary embodiment. System 100' of Figure 8 is similar to system 100 of Figure 1

and similar components and similar signaling have been indicated using an apostrophe, e.g., fan device 1 110' of Figure 8 is similar to fan device 1 110 of Figure 1. There are several differences between the system 100 of Figure 1 and system 100' of system 8.

[00107] Wall control unit 1 114' of system 100' of Figure 8 controls multiple fan devices (fan device 1 110' and fan device N 112'), provided power is available to those fan devices. This may be observed by RF control signaling 172' going from RF interface 1 124' to fan device 1 110' and RF control signaling 172" going from RF interface 1 124' to fan device N 112'. Wall control unit N 116' can only control fan device N 112', as shown by RF signal 174' going from RF interface N 134' to fan device N. In comparison, in system 100 of Figure 1, wall control unit 1 114controls fan device 1 110, and wall control unit N 116 controls fan device N 112.

[00108] In system 100 of Figure 1, input power to each wall control unit (114, 116) is sourced from the same source (lines 152, 154). Safety switch 132 can be used to cut off power to fan device 1 110. Safety switch 142 can be used to cutoff power to fan device N 112.

[00109] In contrast, in system 100' of Figure 8, input AC power to wall control unit N 116' is sourced from the AC output of wall control unit 1 (lines 164', 166'). Thus in the system 100' of Figure 8, the safety switch 132' of wall control unit 1 114' can be used to cut power to fan device 1 110' and fan device N 112', and then turn input power on and reinitialize the system. This approach is useful to allow wall control unit 1 114' to reinitialize both fan devices and synchronize their operation so that control commands sent via RF signals from RF interface 124' of wall control unit 1 114' will affect both fan device 1 110' and fan device N 112' in the same manner.

[00110] In addition, in system 100' of Figure 8, safety switch (SS) 142' can be used to cut off power to just fan device N 112'.

[00111] In one exemplary embodiment N=6, and wall control unit 1 114' can, and sometimes does, control 6 fan devices (fan device 1 110', fan device 2, fan device 3, fan device 4, fan device 5, fan device 6 112') to turn on their fans, at the same time, via a command, e.g., a command communicated in an RF control signal sent from wall control unit 1 114'. In some such embodiments, all 6 fans are being powered from the same AC line, e.g., the same 20A AC input power line. In some such embodiments, the 6 fans, e.g., Brushless DC motor fans, do not include an optical encoder, magnetic encoder, e.g., resolver or synchro, or Hall effect sensor. In various embodiments, (fan device 1 110', fan device 2, fan device 3, fan device 4, fan device 5, fan device 6 112'),

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which can be, and sometimes are, turned on concurrently while on the same input power line, each include an exemplary AC power interface including: a varistor, a common mode choke, an X capacitor, and two Y capacitors. In some embodiments, the AC power interface of each fan device includes a multi-layer board, e.g., a 4 layer circuit board, in which one copper layer is connected to earth ground. In some embodiments, the 6 fan devices may, and sometimes do, include one or more 10 ft ceiling fans. In some embodiments, each of the 6 fan devices includes a 10 ft ceiling fan.

[00112] In another embodiment, N =10, and wall control unit 1 114' can, and sometimes does, control 10 fan devices (fan device 1 110', …, fan device 10 112') to turn on their fans, at the same time, via a command, e.g., a command communicated in an RF control signal sent from wall control unit 1 114'. In some such embodiments, all 10 fans are being powered from the same AC line, e.g., the same 20A AC input power line. In some such embodiments, the 10 fans, e.g., Brushless DC motor fans, do not include an optical encoder, magnetic encoder, e.g., resolver or synchro, or Hall effect sensor. In some embodiments, the 10 fan devices may, and sometimes do, include one or more 10 ft ceiling fans. In some embodiments, each of the 10 fan devices includes a 10 ft ceiling fan.

[00113] Figure 9 is a drawing 1000 of an exemplary AC power interface 322' coupled to an exemplary DC power supply 324' which may be used in the fan device 300 of Figure 3 in accordance with an exemplary embodiment. In some embodiments, AC power interface 322' is AC power interface 322 of fan device 300 of Figure 3, and DC power supply 324' is DC power supply 324 of fan device 300 of Figure 3.

[00114] AC power, e.g., 90-264 VAC 47-63 Hz input via 16AWG wires, is input via L terminal 342, and N (Neutral) terminal 340, and G terminal 343 is connected to earth ground. The line connected to L terminal is referred to a Line IN and Line IN is fused, with fuse F1 1002, e.g., a 3.15 A fuse. After the fuse F1 1002, there are several components, varistor RV1 1004, common mode choke L1 1006, and capacitors C5 1008, C7 1010 and C11 1012, which contribute to the AC filtering, and produce a filtered AC.

[00115] Varistor RV1 1004 is, e.g., a 510V 2.5KA DISC 10MM varistor, suppresses voltage spikes. Common mode choke L1 1006, e.g., a 15MH 1A 2LN TH common mode choke, plays an important role in the system in that it that actually helps

with line noise entering and exiting the fan device 300, which includes receivers. Line noise is coupled within the choke 1006 to remove the noise from the AC line.

[00116] Capacitors C5 1008, C7 1010, and C11 1012 suppress high frequency noise. Capacitor C5 1008, which is a X capacitor, shunts the high frequency noise across the input AC lines (L 1007, N 1009). Capacitor C7 1010, which is a Y capacitor, shunts the high frequency noise on the AC L line 1007 to earth ground 1011. Capacitor C11 1012, which is a Y capacitor, shunts the high frequency noise on the AC N line 1009 to earth ground 1011. In one exemplary embodiment, C5 1008, C7 1010, and C11 1012 are 0.22 UF 20% 760 RAD capacitors. In another embodiment, C5 is a 220 micro Farad 275VAC capacitor; C7 is a 820 pF 1000V capacitor and C11 is a 820pF 1000V capacitor.

[00117] DC power supply 324' includes full bridge rectifier BR1 1014, capacitors C6 1016, C4 1018, and DC/DC converter circuits and filters 1020, which are coupled together as shown in Figure 9. In one embodiment, capacitor C6 1016 and capacitor C4 1018, which are across the outputs (1015, 1017) of BR1 1014, are each 82 micro Farad 400V electrolytic capacitors. BR1 1014, is a Full bridge rectifier BR1 1014, e.g., a GPP 10A 1000V GBU rectifier bridge, takes the filtered AC from lines (1007, 1009) and makes a DC BUS, V BUS 1022, with respect to DC ground 329, across its outputs 1015, 1017. In one exemplary embodiment, the DC Bus 1022 voltage is approximately 170VDC with respect to DC ground 329, in the case of a filtered 120 VAC input to BR1 1014. For example, DC Bus voltage = RMS (AC)* sqrt(2). In some embodiments, the DC Bus 1022 voltage, e.g., 170VDC, is used directly to provide power to the fan motor. From the DC VBUS voltage, e.g., of approximately 170VDC, other DC rail voltages are created. DC VBUS voltage 1022 is used as input to DC/DC converter circuits and filters 1022, which generates a plurality of DC output voltages (DC output voltage 1 1024, …, DC output voltage N 1026), which are utilized by the fan device 300. In various embodiments, the generated plurality of DC output voltages includes a 16VDC supply and a 3.3 VDC supply. In various embodiments, basic filtering is implemented, e.g., including decoupling and bypass capacitors, before and after each supply.

[00118] In various embodiments, the exemplary AC power interface 322' coupled to an exemplary DC power supply 324' of Figure 9 does not include a Negative Temperature Coefficient (NTC) InRush Protection device.

[00119] In some embodiments, fan device 300 including the AC power interface 322' and DC power interface 324', uses a four layer board and the AC power interface section 322' has an internal layer, e.g., a copper internal layer, referenced to earth ground. Having an adjacent copper layer like this, which is reference to earth ground, also helps to couple noise out of the system.

[00120] Various aspects and/or features of some, but not necessarily all, embodiments, are further discussed below.

[00121] Various embodiments are directed to use of an RF and WiFi control in a fan device, e.g., fan device 300, to control fan 303 status and speed and/or fan light 306 on/off status and intensity. The fan device 300 includes both an RF interface 314 and a WiFi interface 312. The customer premises, e.g., customer premises 1 102, includes a WiFi router 118 through which WiFi communications can be sent from a WiFi capable device, e.g., a cell phone 120, to control the fan device 300 and its various functions. While WiFi control is via a WiFi router 118 in the home, the control signals normally do not traverse the Internet 106 or another external network. Accordingly, WiFi control is possible without the need for a connection to an external network or server 108. In addition to WiFi control, control of the fan device 300 can be via an RF control device 200, e.g., a wall mounted controller. In some embodiments 120V power is supplied to the fan device 300 via the wall mounted controller 202. While 120V power may be supplied via the wall controller 202, control signals from the wall mounted controller 202 are transmitted using RF signals to the RF interface 314 of the fan device 300. The RF interface 314 uses a different frequency band than the frequency band used for WiFi signals sent to/from the WiFi router 118. In some embodiments the RF interface 314 uses an unlicensed frequency spectrum which is different than that used for WiFi signals.

[00122] Since the RF and WiFi control signals need not pass over an external communications network as in the case of systems where commands must first be sent to a network server outside a customer premises, e.g., CP1 102, and then sent from the network server to the device to be controlled, the fan device 300 can be controlled either by the wall controller 202 or a WiFi device even if a connection to the Internet or another external network is not available.

[00123] In some, but not necessarily all embodiments, the fan device 300 reports its state and/or changes in state due to received commands to a server, e.g., control server 108, e.g., located outside the customer premises 102. The communication

with the external server 108 may be, and sometimes is, via a WiFi router 118 and Internet 106 connection. The server 108 logs the state information of one or more devices, e.g., fan device 1 110 and fan device N 112, at each customer premises it is associated with. The server 108 generates, e.g., automatically, a recommended normal schedule based on historical device state information including device on/off times, fan speed information and/or light intensity information. Machine learning and historical device state information may be, and sometimes is, used for generating the recommended schedule for a customer premises. The recommend normal control schedule is communicated to an individual, e.g., a customer at the customer premises to which the schedule relates. The communication of the proposed schedule may be, and sometimes is, from the server 108 via the Internet 106 and WiFi router 118 at the customer premises, e.g., CP 1 102, to which the schedule relates. The customer can approve the recommended schedule and/or provide a revised normal schedule to be used by the server 108 to control devices at the customer premises.

[00124] In addition to generating a normal control schedule for a customer premises, an away schedule to be used when a customer indicates that the customer premises is in an away state is generated. An away state corresponds to when the normal occupants of the customer premises are away from the customer premises. The away schedule is generated based on a random function so that devices, e.g. fan device 1 110, …, fan device N 112, will be turned on at somewhat randomized times making it difficult for a potential burglar to determine whether the devices are being controlled by an automated system or by a human present at the premises, e.g., CP 1 102. In some embodiments historical device use information is taken into consideration when the server, e.g., control server 108, automatically generates the away schedule with the on/off times being somewhat random but remaining within a reasonable time, e.g., 30 minutes or an hour, of when the devices are turned on and off when a human is present.

[00125] While a user can control the devices, e.g., a fan device 300, while in the home via the RF controller 202 or a WiFi controller, e.g., including in WT 1 120, without having to send commands outside the home, remote control of devices, e.g., fan devices, is also supported. A user can login to the control server 108 and once authenticated is allowed to send control commands to devices, e.g., fan devices 110, 112 at the home via the control server 108 and the WiFi router 118. In this way a user can control devices, e.g., fan devices 110, 112, while away from the home. In the case of

commands sent via the server 108, the server 108 can, and sometimes does, update device state information based on the commands sent from the server 108 to the device, e .g., device 110, to be controlled thereby eliminating the need for the device, e.g., device 110 to report a state change to the server 108. While in some embodiments devices, e.g., fan devices 110, 112, do not report state changes to the server 108 which are in response to commands communicated by the server 108 to the device, e.g., fan device 110, being controlled, in other embodiments the devices being controlled, e.g., fan devices 110, 112, routinely report a state change to the control server 108 regardless of whether the command was from the server 108, wall controller 202 or WiFi device, e.g., WT 120, in the home.

[00126] The customer to which a home corresponds can enable/disable use of a control schedule by the server 108. For example the user can send a signal, e.g., via WT 1 120, to the control server 108 to indicate that the normal device control schedule should be used or the away device control schedule should be used or that no control schedule should be used. The signal may indicate automated control is to be set to off for the home, automated control should be set to on for the home, and, when the automated control is on whether an away state is indicated indicating that the away schedule should be used or that the premises is in a normal state and thus the normal schedule should be used.

[00127] In various embodiments a controller, e.g., wall control unit 202, with an RF interface 208 is used to control a fan device, e.g., fan device 300, which includes a fan motor 304 and may also include a lighting device, e.g., light 306. The controller 202 in some embodiments is in the form of a wall control module which may be, and sometime is, mounted in a standard electrical wall box, e.g., box 190, in a room in which the fan device, e.g., fan device 300, to be controlled is located. To simplify installation and avoid the need for more than the normal 120v power line used to power an outlet of light, from a 120V AC prospective the controller 202 acts as a simple pass through device through which AC power is supplied to the fan device unit 300. As a safety, the controller 202 includes an AC disconnect 206 which can be used to cut all power to the fan device unit 300. The disconnect switch 206 may be in the form of a push or pull switch or a pull tab which can interrupt the power to the fan device 300.

[00128] Control of the fan device 300 is via an RF interface 208 included in the wall controller 202 . In some embodiments activation of the safety disconnect switch 206 will cut power to the RF interface 208 of the wall controller 202 in addition

to power to the fan device 300. In this way, in some but not necessarily all embodiments, the safety cut off 206 serves as a physical kill switch integrated into the wall controller 202 for both the wall controller 202 and the fan device 300.

[00129] The controller 202 includes inputs (216, 214, 224, 226, 220, 222, 218) for controlling fan on/off operations, light on/off operations, fan speed, e.g., up/down, and/or light intensity, e.g., fan device light output up/down, and fan direction. In some embodiments light output and fan speed can be smoothly controlled, e.g., with light intensity being controlled in a smooth fashion over a wide range of intensity value as opposed to simply a few discrete output levels. The wall controller 202 transmits RF control signals to implement or communicate commands that are generated based on the pressing or altering of the control inputs (214, 216, 218, 220, 222, 224, 226) on the wall controller 202. The control signals are transmitted to the fan device 300 using a RF frequency band which is different from that used for WiFi signals at the customer premises where the controller 202 is located.

[00130] In some embodiments, the wireless terminal 120 is not a mobile device but is instead a wall mounted device which is mounted in the customer premises in which one or more fan devices, e.g., fan devices 1 110, . . ., fan device N 112 are located. The wall mounted wireless terminal, may, and in some embodiments does, include a touch screen display upon which menus are presented to a user through which the user can select options to control the operation of one or more functions of the fan devices located at the customer premises, such as the light intensity, fan speed, fan direction, light on/off, fan on/off for one or more of the fans located at the customer premises.

[00131] Figure 10 illustrates several different perspective views of an exemplary wall mounted wireless terminal in accordance with an embodiment of the present invention. Illustrated in Figure 10 is a first perspective view 1102 of a wall mounted wireless terminal showing its touchscreen 1108 and an exemplary user menu. The second perspective view 1104 of the wall mounted wireless terminal shows an angled side view of the wall mounted wireless terminal. The third perspective 1106 shows a view of the back of the wireless wall mounted terminal.

[00132] Figure 11 illustrates an exemplary wall control unit with a safety switch in accordance with an exemplary embodiment of the present invention. Figure 11 illustrates a front perspective view of an exemplary wall control unit 1202 with a safety switch in accordance with an exemplary embodiment of the present invention and

a side view 1204 of the same exemplary wall control unit. The wall control unit 1202 includes a light control on/off button 1206, a light up (increase light intensity) button 1208 and a light down (decrease light intensity) button 1210, a fan on/off button 1212, a fan increase speed button 1214, a fan decrease speed button 1216, a fan reverse direction button 1218 and a mechanical emergency/safety cut off switch 1220.

[00133] In some embodiments, a full calendar year (e.g., 365 day) scheduler application in the control server allows a user to store settings, instructions and commands for the operation of one or more of a set of fans devices included on a customer premises with the fan devices then being automatically controlled by the control server in accordance with the user inputted settings, e.g., timing as to when to turn on and off the fan, turn on and off the light, set direction of the rotation of the fan blades, setting of the light intensity, setting of the fan speed, etc.

[00134] In some embodiments as previously discussed, the control server includes software instructions which when executed by a processor of the control server operate the control server to generate a recommended customer fan device schedule for an upcoming time period, e.g., one or more days, one or more weeks, or one or months, for controlling the operation of one or more functions or events, e.g., light on/off, light intensity, fan on/off, fan speed, fan direction, for one or more fan devices located at a customer premises based on historical fan device state information gathered over a time frame, e.g., a plurality of days, weeks, or months. The generated recommended customer fan device schedule, e.g., a weekly schedule of fan device events, is then transmitted by the control server to the fan device via the Internet. The fan device receives and stores the generated customer fan device schedule on its memory. A copy of the fan device recommended schedule also being retained in the memory of the control server. A user may then access the local copy of the recommended fan device schedule, e.g., the weekly fan device event schedule, residing in the fan device from a wireless terminal via WiFi and determine whether to accept or modify the recommended schedule. To the extent that the user modifies the recommended schedule the modifications to the schedule are transmitted from the fan device to the control server to update the weekly schedule for the fan device in the control server. The processor of the fan device will then automatically operate the fan device to perform the functions/events on the weekly schedule which have been approved by the user, that is if the user opt in to the recommended schedule. The fan device functions/events perform include for example, turning the fan on on a specific day at a specific time,

turning off the fan on a specific day at a specific time, turning on the lights on specific days at specific times, setting the light intensity to a specific level when the light is turned on, setting the fan speed and direction when the fan is turned on, or turning off the light on a specific day at a specific time. A user may also decide to not opt in to the recommended schedule or to modify the schedule but to instead leave the fan device in a manual mode of operation for certain days of the week or the whole week. Storing a weekly schedule of fan device events on the device that may be automatically executed by the fan device if chosen by a user to operate in an automatic mode of operation provides the benefit that if the WIFI router or internet connection to the control server becomes disabled the processor of the fan device can still operate the fan device in accordance with the automated weekly schedule as selected or programmed by the user whereas if the control server is the only device to maintain the weekly schedule then when the connection between the control server and the fan device is interrupted or fails the processor of the fan device will not properly operate the fan device in accordance with the user approved weekly schedule.

[00135] A few exemplary embodiments of how the control server identifies patterns of events and uses machine learning to generate recommended schedules will now be discussed.

[00136] For example, the control server will be operated to identify patterns of events, e.g., light on, light off, light intensity setting, fan on, fan off, fan speed, fan direction, occurring a specified number of times N within a time frame, where N is an integer number, e.g., 3. The time frame may be, and in some embodiments is, a plurality of consecutive weeks such as for example 3 weeks. Identification of patterns of daily events may be, and in some embodiments are, based on the same event occurring at the same time or approximately the same time (e.g., within a time window such as +/- 15 minutes) on a number M of consecutive days to not become intrusive, where M is integer number, e.g., M =3. Weekly events will be identified over the course of the time frame, e.g., three week period. For example, if the fan device is controlled to perform a particular function or event, e.g., the fan of the fan device is turned on at 8 p.m. Tuesday of week one of the time frame, the fan of the fan device is turned on at 8:06 p.m. Tuesday of week two of the time frame, and the fan of the fan device is turned on at 7:54 p.m. on week three of the time frame then the control server after analyzing the historical fan device state data for the 3 week period time frame identifies the function or event as being a pattern, e.g., turning on the fan of the

fan device at approximately 8:00 p.m. on Tuesday as the fan device's fan is turned on within a 15 minute window of 8 p.m. each Tuesday, 8 p.m. being the average of the fan turn on time of the three repetitive events identified by the control server. The control server generates a recommendation that the fan for the fan device whose state data was analyzed to determine the event pattern is to be turned on at Tuesday at 8 p.m. The recommendation of time fan turn on of 8 p.m. being the average of the time of the fan turn on event occurrence for the three events identified in the pattern.

[00137] In another example, a fan of a fan device is turned on Monday at 8 p.m., Tuesday at 9:00 p.m. and Wednesday at 7 p.m. of the same week, that is on three consecutive days. The control server after analyzing the historical state data for the fan device will identify the turn on of the fan of the fan device on the three consecutive days as a pattern of event fan turn on of the fan device. In the case of identifying a pattern of events for consecutive days, the time window for the same event to occur on consecutive days may be, and in some embodiments is, different than the window for an event occurring on the same day for consecutive weeks as discussed in the previous example. In this example instead of a 15 minute window, an exemplary 60 minute window is used. The control server on determining that a pattern of turning on the fan of the fan device on three consecutive days within a 60 minute window has occurred generates a recommendation that the fan of the fan device be turned on at 8 p.m. as an option for a daily schedule. The 8:00 p.m. time of the fan turn on recommendation being generated based on the time of occurrence of the events forming the identified pattern which occurred on the three consecutive days. In this example, the 8:00 p.m. time recommended for fan turn on of the fan device being the average of the 8:00 p.m., 9:00 p.m. and 7:00 p.m. fan turn on event times of the three events in the identified pattern.

[00138] In yet another example, the fan of a fan device is turned on every Monday, Wednesday and Friday at 8:00 p.m. The same happens on week two and three of the three week time frame. The control server identifies the fan turn on events as a pattern and generates a recommended schedule based on the pattern of turning on the fan on the days and at the times the fan was turned on. For example, the control server recommends in a weekly schedule to turn on the fan of the fan device on Monday, Wednesday and Friday at 8:00 p.m. in a succeeding week.

[00139] In some, but not all, embodiments, the control server waits till the end of the time frame, e.g., 3 weeks, to analyze the fan device historical status

information, identify patterns of events and generate a recommended schedule, e.g., a weekly recommended schedule of events for the fan device, based on the identified pattern of events. In some other embodiments, the control server identifies patterns of events on an on-going basis over the time frame, e.g., 3 weeks, as events are occurring using current and historical event status data for the fan device to identify fan device event patterns. The control server can then either generate a recommended schedule on an on-going basis or wait till end of the time frame to generate a recommended schedule. In some embodiments, after the first time frame, e.g., 3 weeks, expires, the control server uses a sliding time frame window to identify new event patterns and generate a new recommended schedule. For example, with the expiration of the first 3 week time frame, the control server identifies fan device event patterns and generates a recommended schedule. With a sliding time frame window of one week, the second time frame will consist of the last two weeks of the first time frame and the first week after the expiration of the first time frame. In this way, the control server will identify event patterns and generate a second recommended schedule at the end of a fourth consecutive week based on the historical event status data for the fan device of the three most recent weeks. In this way, recommended schedules are generated on a weekly basis using the three most recent weeks fan device even status data.

[00140] As previously discussed, in most, but not all embodiments, the recommended weekly schedule for each of the fan devices in a customer premises after being generated is transmitted from the control server to the fan device to which the weekly schedule pertains for customer review and/or modification and/or approval. This assumes that the customer has opted into using a weekly schedule to control the operation of the fan device and has selected to review a recommended schedule of fan device events. The automated weekly schedule and the recommended schedule can be cancelled at any time by the user through the input of a cancellation request via a control menu presented on the remote wireless WiFi control device. While the generation of recommended schedules and the operation of an automated schedule of events for a single fan device has been discussed, the control server also generates recommended schedules of events for groups of fan devices. The automated schedules for a time period, e.g., a weekly schedule is also available to automatically control the operation of groups of fans. For example, in a manufacturing facility a group of fans of a set of fan devices may be automatically turned on before the beginning of the work day. E.g., starting up fans of each device of a group of fan devices concurrently at 6:30

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p.m. at a particular speed, then turning on the lights at 6:45 p.m. before the workers arrive at 7:00 a.m. and turning off the fans and lights at 8:00 p.m. after the manufacturing facility is closed for the day. Similarly, the automated weekly schedule set the fan schedules to off on Saturday, Sunday and identified holidays.

[00141] In addition to automated operation of the fan device based on a pre-programmed schedule of fan device events, e.g., a weekly 7-day schedule or 365 day (366 on leap year) schedule of fan device events, in some embodiments, the fan device can also be programmed to take actions in response to the fan device receiving one or more inputs, e.g., signals from one or more sensors or devices that provide data on the current environmental conditions of the customer premises such as for example the temperature of the customer premises and/or the room in which the fan device is located, whether the air conditioning system is on or off, or whether the heating system is on or off. For example, the fan device may be, and in some embodiments does, offer two modes of automatic operation of the fan device in connection with the HVAC system on the customer premises. In the first mode of operation, the fan device turns on the fan automatically a specified time, e.g., five minutes, after the fan device receives a message or signal indicating that the heating or air conditioning system is turned off, e.g., HVAC turns off five minutes after the fan device turns the fan on to a preset speed and direction set by the user. In a second mode of operation, the fan of the fan device is turned on to a preset speed and direction automatically when the fan device receives a message or signal indicating that the heating or air conditioning system has turned on and the fan of the fan device turns the fan off automatically after a preset amount of time, e.g., five minutes, after receiving a message or a signal that the heating or air conditioning system has turned off. The use of the fan device assists the distribution of either the cold or hot air provided by the HVAC system.

[00142] In some embodiments, the fan device is set to turn on or off automatically based on the temperature in the customer premises. For example after receiving a signal or message indicating a temperature in or on the customer premises, the processor of the fan device or the control server compares the temperature to a temperature threshold value, e.g., 80 degrees Fahrenheit, and if temperature exceeds the temperature threshold value the fan device is operated to turn on the fan if it is not already on. In some additional embodiments, the speed and direction of the fan of the fan device is also automatically set when temperatures corresponding to fan speed threshold are exceeded. For example when 80 degrees Fahrenheit is exceed the fan

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speed is set to low, when 85 degrees Fahrenheit is exceeded the fan speed is increased, when 90 degrees Fahrenheit is exceeded the fan speed is increased again.

[00143] In some embodiments, the control server receives messages indicating the environmental conditions at the customer premises and/or the activation or deactivation of the heating or air conditioning system, compares the environmental conditions and/or state of the heating or air conditioning system, and sends one or more commands/messages to the fan device to turn on or off the fan of the fan device and set the speed and direction of the fan thereby automatically controlling the fan device in accordance with settings of the fan device inputted by a user without the fan device requiring separate sensor inputs.

[00144] In some embodiments, the fan device is configured to be updateable via over the air (OTA) updates allowing for future features and enhancements to be downloaded into the fan device from the control server or another device. Similarly the applications being executed on the wireless WiFi terminals may be updated over the air.

[00145] As previously discussed in some embodiments, multiple fan devices are grouped together allowing for the control of all of the fan devices in the group at one time. For example, a first set of fan devices at a customer premises may be placed in a first group, e.g., fan devices on the first floor of a house may be placed in a first group such as fan devices in a living room, kitchen, hall way and dining room. These fan devices may all be mated or paired to a first wall control unit so that any RF messages sent from the first wall control unit (e.g., light on/off, fan on/off, etc.) will be received an acted upon by all of the fan devices in the first group in unison. Additionally, the control server will identify all of these fan devices as being in the first group and will allow the user to control the multiple fan devices in the first group at the same time. For example, a user may input via the wireless terminal device a group instruction to turn on all of the fans of the group in which case, all of the fans of the group will be turned on at the same time or concurrently. A customer premise may include one or more groups of fan devices. For example, while a first group of fan devices allow for the control of the fan devices in the first group such as those fan devices on the first floor or a house, a second fan group can be used to control the fan devices on the second floor of the house which are included in a second fan device group. In addition to the fan devices in a group being controlled as a group, the fan devices of the group can also still be controlled as individual fan devices. For example,

at a first time the fan device group lights on event command may be given and all of the lights on the fan devices in the group will have their lights turned on. At a second later time a fan device light off command may be given to turn off a particular light on one of the fan devices in the group. While the light on that particular fan will turn off the lights on the remaining fan devices of the group will remain on. If a fan device group command to turn the lights off in the group is give the light for the individual fan device that is off will remain off while the lights on the remaining fan devices in the group will turn off. In this way, fan devices can be controlled both as a group and individually.

[00146] In some embodiments, control of one or more fan devices at a customer premise may be shared with one or more users. For example, control of fan devices at a customer premise can be shared by parents and children, employees, and guests. In an exemplary embodiment a guest is given permission to control one or more fan devices in a customer premises. The owner or operator selects which fan devices the guest can control and inputs this information into the control server and/or the fan device. The owner or operator of the customer premises at which the fan devices are located then sends an invite message to a guest's mobile device. In response to the invite the guest via his or her mobile device would, after authentication such as entry of a password provided by the owner or operator of the customer premises to the guest, be allowed to login to an application running on the control server or the fan device from which the guest could operate the fan device using the guest's mobile device. As previously discussed, the guest's access may be restricted to certain fan devices at the customer premises such as for example allowing the guest to control the fan device(s) in the guest bedroom and/or living room while being restricted from controlling the fan devices in other areas of the customer premises. The owner or operator of the customer premises also concurrently having the ability to control the same devices as the guest. In this way, multiple users may control the same fan devices. When the owner or operator of the customer premises decides to end the guest's access to the system and control of the fans device(s) the owner or operator of the customer premises inputs a request or command to the control server and/or fan device(s) indicating that the guest is no longer allowed to access the system and/or control the fan devices upon which the control server and/or fan device prevents the guest from accessing the system, e.g., by no longer accepting the login credentials, e.g., user id or password, of the guest.

[00147] In some embodiments, the fan devices include a sleep mode in which the user can set independent timers for when the fan of the fan device and when

light of the fan device can be turned off e.g., after 45 minutes after activation of sleep mode, so that when the sleep timer for the fan expires the fan of the fan device turns off and when the sleep timer for the light of the fan device expires, the light of the fan device will automatically turn off. Additionally, a synch command activated from a menu presented to the user on the WiFi mobile device allows the independent sleep mode timer for the fan and light of the fan device to be synchronized so that if they are set to different time values they will synchronized and will both turn off at the same time. The independent sleep timers being synchronized to the shorter time period of either the fan sleep timer value or the light sleep timer value of the sleep timer values being synchronized.

List of Exemplary Numbered Method Embodiments:

[00148] Method Embodiment 1. A control method comprising: receiving, at a fan device including a radio frequency signal receiver and a WiFi interface, a first radio frequency (RF) control signal from a control unit, said fan device and said control unit being located at a customer premises; implementing, at the fan device, an operation in response to a first command communicated by the first RF control signal; and operating the fan device to communicate to a server located outside the customer premises, via the WiFi interface, information indicating the operation implemented in response to the first command.

[00149] Method Embodiment 2. The method of Method Embodiment 1, wherein said fan device and said control unit are located in the same room.

[00150] Method Embodiment 3. The method of Method Embodiment 1, wherein said control unit is a wall mounted unit through which power is supplied to the fan device, said first RF control signal being a wireless signal transmitted from an RF transmitter in the control unit to an RF receiver in the fan device.

[00151] Method Embodiment 4. The method of Method Embodiment 3, wherein the control unit does not include a WiFi interface.

[00152] Method Embodiment 5. The method of Method Embodiment 1, wherein said first command is one of: a fan on command, a fan off command, a fan power state change command, a fan speed up command, a fan speed down command, a fan direction change command, a light on command, a light off command, a light power state change command, a light increase command, a light decrease command.

[00153] Method Embodiment 6. The method of Method Embodiment 1, wherein said RF control signal is sent using an RF frequency which is not used for WiFi signals.

[00154] Method Embodiment 7. The method of Method Embodiment 6, further comprising: operating a WiFi router located at the customer premises to receive a first WiFi control signal from a wireless terminal located at the customer premises, said first WiFi control signal communicating a second command used to control the fan device; operating the WiFi router to communicate, via a WiFi signal, the second command to the fan device; and operating the fan device to implement the second command.

[00155] Method Embodiment 8. The method of Method Embodiment 7, further comprising: operating the fan to communicate to the server located outside the customer premises, via the WiFi interface, information indicating the operation implemented in response to the second command.

[00156] Method Embodiment 9. The method of Method Embodiment 8, wherein the second command is communicated from the wireless terminal to the fan device via the WiFi router located in the customer premises without said second command traversing a network outside the customer premises.

[00157] Method Embodiment 10. The method of Method Embodiment 9, further comprising: operating the server to receive a third command directed to the first fan device; and operating the server to communicate the third command via the Internet and said WiFi router to the fan device.

[00158] Method Embodiment 11. The method of Method Embodiment 10, further comprising: operating the server to update information about the state of one or more devices at the first customer premises based on the third command communicated to the fan device.

[00159] Method Embodiment 12. The method of Method Embodiment 11, wherein said updating of the information about the state of one or more devices at the first customer premises is performed in response to transmitting the third command from the server.

[00160] Method Embodiment 13. The method of Method Embodiment 9, further comprising: operating the server to generate a proposed normal device control schedule for the first customer premises from stored information indicating the state of one or more devices at the first customer premises over a period of; communicate from

the server the proposed device control schedule to a device corresponding to the first customer premise; receive at the server a message indicating approval of the proposed normal device control schedule for the first customer premises or a revised schedule for the first customer premises; and storing as an approved normal control schedule for the first customer premises the approved proposed normal device control schedule or the revised schedule.

[00161] Method Embodiment 14. The method of Method Embodiment 13, further comprising: operating the server to control one or more devices at the first customer premises based on the stored approved normal device control schedule, said one or more devices including the first fan device.

[00162] Method Embodiment 15. The method of Method Embodiment 14, wherein operating the server to control one or more devices at the first customer premises based on the stored approved normal device control schedule includes transmitting a control signal from the server to the first fan device via the Internet and WIFi router to control the fan device to turn on at a time indicated by said approved normal control schedule.

[00163] Method Embodiment 16. The method of Method Embodiment 13, further comprising: operating the server to generate an away schedule to be used to control one or more device at the first customer premises when the customer indicates they are away from the customer premises.

[00164] Method Embodiment 17. The method of Method Embodiment 16, wherein operating the server to generate an away schedule includes generating said away schedule as a function of a random function used to at least partially randomize the on or off times of one or more devices.

[00165] Method Embodiment 18. The method of Method Embodiment 17, wherein operating the server to generate the away schedule includes using information about past device on and off status in combination with said random function to control the on and off times of at least one device, said on and off times deviating from historical on and off times by an amount of time which does not exceed a set maximum amount of time and which is determined by said random function.

[00166] Method Embodiment 19. The method of Method Embodiment 16, further comprising; receiving, at the server, a signal from a user indicating an away status; and switching, at the server, from using the stored approved normal schedule to

using the stored away schedule to control the one or more devices at the first customer premises.

List of Exemplary Numbered System Embodiments:

[00167] System Embodiment 1. A system comprising: a fan device comprising: a fan motor; a radio frequency (RF) signal receiver configured to receive radio frequency (RF) control signals from a control unit, said fan device and said control unit being located at a customer premises; a WiFi interface; a fan motor control circuit configured to control the fan motor in response to a received first radio frequency control signal, said first radio frequency control signal communicating a first command; and a first processor configured to communicate to a server, located outside the customer premises, via the WiFi interface, information indicating an operation implemented in response to the first command.

[00168] System Embodiment 2. The system of System Embodiment 1, wherein said fan device further comprises: a light; and a light control circuit configured to control the light in response to a received second radio frequency control signal, said second radio frequency control signal communicating a second command; and wherein said first processor is further configured to communicate to said server, via the WiFi interface, information indicating an operation implemented in response to said second command.

[00169] System Embodiment 3. The system of System Embodiment 2, wherein said fan device and said control unit are located in the same room.

[00170] System Embodiment 4. The system of System Embodiment 2, further comprising said control unit; wherein said control unit includes an RF transmitter; and wherein said control unit is a wall mounted unit through which power is supplied to the fan device, said first RF control signal and said second RF control signal being wireless signals transmitted from said RF transmitter in the control unit to said RF signal receiver in the fan device.

[00171] System Embodiment 5. The system of System Embodiment 4, wherein the control unit does not include a WiFi interface.

[00172] System Embodiment 6. The system of System Embodiment 2, wherein said first RF control signal communicates one of: a fan on command, a fan off command, a fan power state change command, a fan speed up command, a fan speed down command, a fan direction change command; and wherein said second RF control

signal communicates one of: a light on command, a light off command, a light power state change command, a light increase command, a light decrease command.

[00173] System Embodiment 7. The system of System Embodiment 2, wherein said first RF control signal and said second RF control signal are sent using RF frequencies which are not used for WiFi signals.

[00174] System Embodiment 8. The system of System Embodiment 7, further comprising: a WiFi router located at the customer premises, said WiFi router comprising: a receiver configured to receive a first WiFi control signal from a wireless terminal located at the customer premises, said first WiFi control signal communicating a third command used to control the fan device; a transmitter configured to communicate, via a WiFi signal, the third command to the fan device; and wherein said first processor is configured to control at least one of the fan motor control circuit or the light control circuit to implement the third command.

[00175] System Embodiment 9. The system of System Embodiment 8, further comprising: wherein said first processor is configured to control the WiFi interface in said fan device to send information indicating the operation implemented in response to the third command.

[00176] System Embodiment 10. The system of System Embodiment 9, further comprising: said wireless terminal, wherein said wireless terminal includes: a WiFi interface; anda fan device control application configured to generate said third command in response to user input; and wherein the third command is communicated from the wireless terminal to the fan device via the WiFi router located in the customer premises without said third command traversing a network outside the customer premises.

[00177] System Embodiment 11. The system of System Embodiment 10, further comprising: said server, wherein said server includes a second processor configured to: operating the server to receive a fourth command directed to the first fan device; and operating the server to communicate the fourth command via the Internet and said WiFi router to the fan device.

[00178] System Embodiment 12. The system of System Embodiment 11, wherein said second processor is further configured to: operating the server to update information about the state of one or more devices at the first customer premises based on the fourth command communicated to the fan device.

[00179] System Embodiment 13. The system of System Embodiment 12, wherein said updating of the information about the state of one or more devices at the first customer premises is performed in response to transmitting the fourth command from the server.

[00180] System Embodiment 14. The system of System Embodiment 10, wherein said second processor is further configured to: operating the server to generate a proposed normal device control schedule for the first customer premises from stored information indicating the state of one or more devices at the first customer premises over a period of time; operate the server to send the proposed device control schedule to a device corresponding to the first customer premise; operate the server to receive a message indicating approval of the proposed normal device control schedule for the first customer premises or a revised schedule for the first customer premises; and operate the server to store as an approved normal control schedule for the first customer premises the approved proposed normal device control schedule or the revised schedule.

[00181] System Embodiment 15. The system of System Embodiment 14, wherein said second processor is further configured to: operating the server to control one or more devices at the first customer premises based on the stored approved normal device control schedule, said one or more devices including the first fan device.

[00182] System Embodiment 16. The system of System Embodiment 15, wherein said second processor is configured to: operate the server to send a control signal from the server to the first fan device via the Internet and WIFi router to control the fan device to turn on at a time indicated by said approved normal control schedule, as part of being configured to operate the server to control one or more devices at the first customer premises based on the stored approved normal device control schedule.

[00183] System Embodiment 17. The system of System Embodiment 14, wherein said second processor is further configured to: operate the server to generate an away schedule to be used to control one or more device at the first customer premises when the customer indicates they are away from the customer premises.

[00184] System Embodiment 18. The system of System Embodiment 17, wherein said second processor is configured to: generate said away schedule as a function of a random function used to at least partially randomize the on or off times of one or more devices, as part of being configured to operate the server to generate an away schedule.

[00185] System Embodiment 19. The system of System Embodiment 18, wherein said second processor is configured to use information about past device on and off status in combination with said random function to control the on and off times of at least one device, said on and off times deviating from historical on and off times by an amount of time which does not exceed a set maximum amount of time and which is determined by said random function, as part of being configured to operate the server to generate the away schedule.

[00186] System Embodiment 20. The system of System Embodiment 17, wherein said server further comprises: a receiver configured to receive a signal from a user indicating an away status; and wherein said second processor is further configured to control the server to switch from using the stored approved normal schedule to using the stored away schedule to control the one or more devices at the first customer premises.

List of Exemplary Numbered Apparatus Embodiments:

[00187] Apparatus Embodiment 1. A fan device controller including: an AC voltage input; an AC output for supplying power to a fan device; an RF signal interface including an RF signal transmitter for transmitting commands to a device to be controlled; an RF controller for controlling the RF signal interface to send control signals including one or more commands to said fan device; and a disconnect switch for disconnecting said AC output from said AC input when said disconnect switch is switched to a disconnect state from a connect state.

[00188] Apparatus Embodiment 2. The fan device controller of Apparatus Embodiment 1, further comprising: a fan control input for turning a fan on or off; and a light control input for turning a light on or off.

[00189] Apparatus Embodiment 3. The fan device controller of Apparatus Embodiment 2, further comprising: a light up input coupled to said RF controller; and a light down input coupled to said RF controller.

[00190] Apparatus Embodiment 4. The fan device controller of Apparatus Embodiment 3, further comprising: a fan speed up input coupled to said RF controller; and a fan speed down input coupled to said RF controller.

[00191] Apparatus Embodiment 5. The fan device controller of Apparatus Embodiment 4, further comprising: a fan reverse input coupled to said RF controller.

[00192] Apparatus Embodiment 6. The fan device controller of Apparatus Embodiment 5, further comprising: a DC power supply connected to said disconnect switch and to said RF controller, said DC power supply receiving AC power from said disconnect switch and supplying DC power generated from said AC power to the RF controller.

[00193] Apparatus Embodiment 7. The fan device controller of Apparatus Embodiment 6, wherein switching the disconnect switch to a disconnect state cuts power to both the AC output and to said DC power supply thereby cutting power to a fan device coupled to said fan device controller and to the RF controller at the same time.

[00194] Apparatus Embodiment 8. The fan device controller of Apparatus Embodiment 7, wherein said RF controller includes a processor; and wherein said processor is configured to: generate commands in response to input received via one of the inputs included in said fan device controller; and control said RF interface to transmit said commands in RF signals to the fan device.

[00195] Apparatus Embodiment 9. The fan device controller of Apparatus Embodiment 8, wherein said fan device controller is configured to fit in an electrical box in a wall of a customer premises.

[00196] The techniques of various embodiments may be implemented using software, hardware and/or a combination of software and hardware. Various embodiments are directed to apparatus, e.g., fan devices, control server, WiFi router, control units, mobile devices. Various embodiments are also directed to methods, e.g., method of controlling and/or operating devices, e.g., control server device, mobile device, control units. Various embodiments are also directed to machine, e.g., computer, readable medium, e.g., ROM, RAM, CDs, hard discs, etc., which include machine readable instructions for controlling a machine to implement one or more steps of a method. The computer readable medium is, e.g., non-transitory computer readable medium.

[00197] It is understood that the specific order or hierarchy of steps in the processes and methods disclosed is an example of exemplary approaches. Based upon design preferences, it is understood that the specific order or hierarchy of steps in the processes and methods may be rearranged while remaining within the scope of the present disclosure. The accompanying method claims present elements of the various steps in a sample order, and are not meant to be limited to the specific order or hierarchy

presented. In some embodiments, one or more processors are used to carry out one or more steps or elements of the described methods.

[00198] In various embodiments each of the steps or elements of a method are implemented using one or more processors. In some embodiments, each of the steps or elements are implemented using hardware circuitry.

[00199] In various embodiments elements described herein are implemented using one or more components to perform the steps corresponding to one or more methods, for example, generating, sending, comparing, determining and/or transmission steps. Thus, in some embodiments various features are implemented using components or in some embodiments logic such as for example logic circuits. Such components may be implemented using software, hardware or a combination of software and hardware. Many of the above described methods or method steps can be implemented using machine executable instructions, such as software, included in a machine readable medium such as a memory device, e.g., RAM, floppy disk, etc. to control a machine, e.g., general purpose computer with or without additional hardware, to implement all or portions of the above described methods, e.g., in one or more elements. Accordingly, among other things, various embodiments are directed to a machine-readable medium, e.g., a non-transitory computer readable medium, including machine executable instructions for causing a machine, e.g., processor and associated hardware, to perform one or more of the steps of the above-described method(s). Some embodiments are directed to a device, e.g., fan device, mobile device, WiFi device, wall unit controller, including a processor configured to implement one, multiple or all of the steps of one or more methods of the invention.

[00200] In some embodiments, the processor or processors of one or more devices, e.g., control server, fan device, mobile device, wall control unit are configured to perform the steps of the methods described as being performed by the devices. The configuration of the processor may be achieved by using one or more components, e.g., software components, to control processor configuration and/or by including hardware in the processor, e.g., hardware components, to perform the recited steps and/or control processor configuration. Accordingly, some but not all embodiments are directed to a device, e.g., fan device, control unit device, mobile server, control server, WiFi router, with a processor which includes a component corresponding to each of the steps of the various described methods performed by the device in which the processor is included. In some but not all embodiments a device, e.g., fan device, control unit device, mobile

server, control server, WiFi router, includes a component corresponding to each of the steps of the various described methods performed by the device in which the processor is included. The components may be implemented using software and/or hardware.

[00201] Some embodiments are directed to a computer program product comprising a computer-readable medium, e.g., a non-transitory computer-readable medium, comprising code for causing a computer, or multiple computers, to implement various functions, steps, acts and/or operations, e.g. one or more steps described above. Depending on the embodiment, the computer program product can, and sometimes does, include different code for each step to be performed. Thus, the computer program product may, and sometimes does, include code for each individual step of a method, e.g., a method of controlling a fan device, control unit device, mobile server, control server, WiFi router . The code may be in the form of machine, e.g., computer, executable instructions stored on a computer-readable medium, e.g., a non-transitory computer-readable medium, such as a RAM (Random Access Memory), ROM (Read Only Memory) or other type of storage device. In addition to being directed to a computer program product, some embodiments are directed to a processor configured to implement one or more of the various functions, steps, acts and/or operations of one or more methods described above. Accordingly, some embodiments are directed to a processor configured to implement some or all of the steps of the methods described herein. The processor may be for use in, e.g., a fan device, a communications device such as a WiFi mobile device, a control unit, control server or other device described in the present application.

[00202] Numerous additional variations on the systems, methods and apparatus of the various embodiments described above will be apparent to those skilled in the art in view of the above description and the claims which follow. Such variations are to be considered within the scope of the invention.

[WAC-10APP1]

WHAT IS CLAIMED IS:

1. A control method comprising:

receiving, at a fan device including a radio frequency signal receiver and a WiFi interface, a first radio frequency (RF) control signal from a control unit, said fan device and said control unit being located at a customer premises;

implementing, at the fan device, an operation in response to a first command communicated by the first RF control signal; and

operating the fan device to communicate to a server located outside the customer premises, via the WiFi interface, information indicating the operation implemented in response to the first command.

2. The method of claim 1, wherein said first command is one of: a fan on command, a fan off command, a fan power state change command, a fan speed up command, a fan speed down command, a fan direction change command, a light on command, a light off command, a light power state change command, a light increase command, a light decrease command.

3. The method of claim 1, wherein said RF control signal is sent using an RF frequency which is not used for WiFi signals.

4. The method of claim 3, further comprising:

operating a WiFi router located at the customer premises to receive a first WiFi control signal from a wireless terminal located at the customer premises , said first WiFi control signal communicating a second command used to control the fan device;

operating the WiFi router to communicate, via a WiFi signal, the second command to the fan device; and

operating the fan device to implement the second command.

5. The method of claim 4, further comprising:

operating the fan device to communicate to the server located outside the customer premises, via the WiFi interface, information indicating the operation implemented in response to the second command.

6. The method of claim 5 wherein the second command is communicated from the wireless terminal to the fan device via the WiFi router located in the customer premises without said second command traversing a network outside the customer premises.

7. The method of claim 6, further comprising:

operating the server to receive a third command directed to the first fan device; and

operating the server to communicate the third command via the Internet and said WiFi router to the fan device.

8. The method of claim 7, further comprising:

operating the server to update information about the state of one or more devices at the first customer premises based on the third command communicated to the fan device.

9. The method of claim 8, wherein said updating of the information about the state of one or more devices at the first customer premises is performed in response to transmitting the third command from the server.

10. A system comprising:

a fan device comprising:

a fan motor;

a radio frequency (RF) signal receiver configured to receive radio frequency (RF) control signals from a control unit, said fan device and said control unit being located at a customer premises;

a WiFi interface;

a fan motor control circuit configured to control the fan motor in response to a received first radio frequency control signal, said first radio frequency control signal communicating a first command; and

a first processor configured to communicate to a server, located outside the customer premises, via the WiFi interface, information indicating an operation implemented in response to the first command.

11. The system of claim 1, wherein said fan device further comprises:

a light; and

a light control circuit configured to control the light in response to a received second radio frequency control signal, said second radio frequency control signal communicating a second command; and

wherein said first processor is further configured to communicate to said server, via the WiFi interface, information indicating an operation implemented in response to said first command.

12. The system of claim 11,

wherein said first RF control signal communicates one of: a fan on command, a fan off command, a fan power state change command, a fan speed up command, a fan speed down command, a fan direction change command; and

wherein said second RF control signal communicates one of: a light on command, a light off command, a light power state change command, a light increase command, a light decrease command.

13. The system of claim 11, wherein said first RF control signal and said second RF control signal are sent using RF frequencies which are not used for WiFi signals.

14. The system of claim 13, further comprising:

a WiFi router located at the customer premises, said WiFi router comprising:

a receiver configured to receive a first WiFi control signal from a wireless terminal located at the customer premises, said first WiFi control signal communicating a third command used to control the fan device;

a transmitter configured to communicate, via a WiFi signal, the third command to the fan device; and

wherein said first processor is configured to control at least one of the fan motor control circuit or the light control circuit to implement the third command.

15. The system of claim 14, further comprising:

wherein said first processor is configured to control the WiFi interface in said fan device to send information indicating the operation implemented in response to the third command.

16. The system of claim 15, further comprising:

said wireless terminal, wherein said wireless terminal includes:

a WiFi interface; and

a fan device control application configured to generate said third command in response to user input; and

wherein the third command is communicated from the wireless terminal to the fan device via the WiFi router located in the customer premises without said third command traversing a network outside the customer premises.

17. The system of claim 16, further comprising:

said server, wherein said server includes a second processor configured to:

operating the server to receive a fourth command directed to the first fan device; and

operating the server to communicate the fourth command via the Internet and said WiFi router to the fan device.

18. The system of claim 17, wherein said second processor is further configured to:

operating the server to update information about the state of one or more devices at the first customer premises based on the fourth command communicated to the fan device.

19. The system of claim 18, wherein said updating of the information about the state of one or more devices at the first customer premises is performed in response to transmitting the fourth command from the server.

20. The system of claim 16, wherein said second processor is further configured to:

operating the server to generate a proposed normal device control schedule for the first customer premises from stored information indicating the state of one or more devices at the first customer premises over a period of time;

operate the server to send the proposed device control schedule to a device corresponding to the first customer premise;

operate the server to receive a message indicating approval of the proposed normal device control schedule for the first customer premises or a revised schedule for the first customer premises; and

operate the server to store as an approved normal control schedule for the first customer premises the approved proposed normal device control schedule or the revised schedule.

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[WAC-10APP1]

ABSTRACT

Various embodiments are directed to use of RF and WiFi control in a fan device to control fan status and speed and/or fan light on/off status and intensity. A customer premises includes a WiFi router through which WiFi communications can be sent from a WiFi capable device, e.g., a cell phone, to control the fan device and its various functions. While WiFi control is via a WiFi router in the home, the control signals normally do not traverse the Internet or another external network. In addition to WiFi control, control of the fan device can be via an RF control device, e.g., a wall mounted controller. In some embodiments, the fan device reports its state and/or changes in state due to received commands to a server, and the server generates a recommended normal control schedule and an away control schedule and then uses the schedules to control fan device.

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Petitioner Minka – EX1002
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Electronic Patent Application Fee Transmittal					
Application Number:					
Filing Date:					
Title of Invention:	METHODS AND APPARATUS FOR CONTROLLING FAN DEVICES				
First Named Inventor/Applicant Name:	Eric Stefankiewicz				
Filer:	Michael P. Straub/Stephen Straub				
Attorney Docket Number:	WAC-10APP1				
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:					
LATE FILING FEE FOR OATH OR DECLARATION		2051	1	70	70
Petition:					

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				
Extension-of-Time:				
Miscellaneous:				
		Total in USD ($)		**800**

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EFS ID:	31497978
Application Number:	15871044
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Confirmation Number:	9631
Title of Invention:	METHODS AND APPARATUS FOR CONTROLLING FAN DEVICES
First Named Inventor/Applicant Name:	Eric Stefankiewicz
Customer Number:	149297
Filer:	Michael P. Straub/Stephen Straub
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Receipt Date:	14-JAN-2018
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Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Application Data Sheet	WAC-10APP1_ADS.pdf	1823036 2fa0aeb8867846183 4d76fad7a67d705a34df289	no	8

Warnings:

Information:					
2	Drawings-only black and white line drawings	WAC-10APP1_to_2_and_2PROV_Master_FIGS_final.pdf	893985 21cd2ccf0b0e3616ad2db599e104a2bbdb9d8ea9	no	16
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3		WAC-10APP1.pdf	338150 16fa959930d07fcbf8f0566bb579712b7e454996	yes	63

	Multipart Description/PDF files in .zip description		
	Document Description	**Start**	**End**
	Specification	1	57
	Claims	58	62
	Abstract	63	63

Warnings:					
Information:					
4	Fee Worksheet (SB06)	fee-info.pdf	37024 8d85659aa47e4cbe242976e38319e6528fcfc3cc	no	2
Warnings:					
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Application Number	15/871,044
Filing Date	January 14, 2018
First Named Inventor	Eric Stefankiewicz
Title	METHODS AND APPARATUS FOR CONTROLLING FAN DEVICES
Art Unit	2414
Examiner Name	N/A
Attorney Docket Number	WAC-10APP1

SIGNATURE of Applicant or Patent Practitioner

Signature	/Stephen T. Straub, Reg. No. 43,938/	Date (Optional)	
Name	Stephen T. Straub	Registration Number	43,938
Title (if Applicant is a juristic entity)			
Applicant Name (if Applicant is a juristic entity)	Wangs Alliance Corporation		

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I hereby revoke all previous powers of attorney given in the application identified in either the attached transmittal letter or the boxes below.

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☑ I hereby appoint the Patent 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 identified above: 149297

OR

☐ I hereby appoint Practitioner(s) named in the attached list (form PTO/AIA/82C) 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 patent application referenced in the attached transmittal letter (form PTO/AIA/82A) or identified above. (Note: Complete form PTO/AIA/82C.)

Please recognize or change the correspondence address for the application identified in the attached transmittal letter or the boxes above to:

☑ The address associated with the above-mentioned Customer Number

OR

☐ The address associated with Customer Number:

OR

Firm or Individual Name					
Address					
City		State		Zip	
Country					
Telephone		Email			

I am the Applicant (if the Applicant is a juristic entity, list the Applicant name in the box):

Wangs Alliance Corporation

☐ Inventor or Joint Inventor (title not required below)

☐ Legal Representative of a Deceased or Legally Incapacitated Inventor (title not required below)

☑ Assignee or Person to Whom the Inventor is Under an Obligation to Assign (provide signer's title if applicant is a juristic entity)

☐ 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) (provide signer's title if applicant is a juristic entity)

SIGNATURE of Applicant for Patent

The undersigned (whose title is supplied below) is authorized to act on behalf of the applicant (e.g., where the applicant is a juristic entity).

Signature		Date (Optional)	10/9/17
Name	Shelley Wald		
Title	President of Wangs Alliance Corporation		

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. If more than one applicant, use multiple forms.

☐ Total of forms are submitted.

This collection of information is required by 37 CFR 1.131, 1.32, and 1.33. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 3 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

PTO/AIA/82C (07-13)
Approved for use through 11/30/2014. OMB 0651-0051
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number

POWER OF ATTORNEY BY APPLICANT

No more than ten (10) patent practitioners total may be appointed as set forth below by name and registration number. This page need not be submitted if appointing the Patent Practitioner(s) associated with a Customer Number (see form PTO/AIA/82B):

Name	Registration 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 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 Acknowledgement Receipt	
EFS ID:	31513154
Application Number:	15871044
International Application Number:	
Confirmation Number:	9631
Title of Invention:	METHODS AND APPARATUS FOR CONTROLLING FAN DEVICES
First Named Inventor/Applicant Name:	Eric Stefankiewicz
Customer Number:	149297
Filer:	Michael P. Straub/Stephen Straub
Filer Authorized By:	Michael P. Straub
Attorney Docket Number:	WAC-10APP1
Receipt Date:	16-JAN-2018
Filing Date:	
Time Stamp:	15:50:26
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	WAC-10APP1_POA.pdf	410340 0380a42df9ab7300ffd9452a843448e8b2a00ee6	no	4

Warnings:

Information:	
Total Files Size (in bytes):	410340

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

New Applications Under 35 U.S.C. 111

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

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

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

New International Application Filed with the USPTO as a Receiving Office

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

CD Submission Review Results

Internal Worksheet Only - Do Not Scan

Application Number	15871044	Receipt Date	Jan 14, 2018

X	New Application		Response To Notice	Date Of Response

[ ] Jumbo – Large tables are included on the CD

[X] **There are no problems with the CDs in the submission.**

Items checked below are to be selected in the PALM Pre-Exam CD problem list.

Omitted Items

	Files on compact disc are unreadable:
	Disc(s) of either set not readable:
	Disc(s) do not contain file names listed:
	Amended CD missing unamended files
	Missing compact discs

Missing Parts

	Disc(s) do not contain file names listed
	Discs contains files that are non-ASCII files:
	Only one copy of the CD, no duplicate:
	Wrong media type, e.g., CD-RW:
	The transmittal letter and specification do not list information:
	Both disc(s) contain unreadable files:
	One disc(s) contain unreadable files:
	Compact disc(s) contain viruses, but are still readable:
	EFS/Paper Submission:
	Table does not maintain data in proper alignment:
	Not proper subject matter for CD's:

Informality

	No statement in transmittal letter that CD's are the same:
	No incorporation by reference statement for the CD's:
	CD's not labeled "Copy 1" and "Copy 2":
	Deficient CD packaging:
	Deficient Labeling on CD's:
	The transmittal letter does not list information:
	The specification does not list information:
	Table less than 51 pages submitted on CD:

File Directory Attachment

	Copy of file directory listing is attached and should be mailed to applicant
	Copy of file directory listing is not attached
	Copy of file directory listing is not attached because it is over one page long

Additional Comments

Internal Worksheet Only - Do Not Scan

DocCode – SCORE

SCORE Placeholder Sheet for IFW Content

Application Number: 15871044 Document Date: 01/14/2018

The presence of this form in the IFW record indicates that the following document type was received in electronic format on the date identified above. This content is stored in the SCORE database.

Since this was an electronic submission, there is no physical artifact folder, no artifact folder is recorded in PALM, and no paper documents or physical media exist. The TIFF images in the IFW record were created from the original documents that are stored in SCORE.

- Drawing

At the time of document entry (noted above):

- USPTO employees may access SCORE content via eDAN using the Supplemental Content tab, or via the SCORE web page.
- External customers may access SCORE content via PAIR using the Supplemental Content tab.

Form Revision Date: August 26, 2013

PATENT APPLICATION FEE DETERMINATION RECORD Substitute for Form PTO-875	Application or Docket Number 15/871,044

APPLICATION AS FILED - PART I

	(Column 1)	(Column 2)	SMALL ENTITY		OR	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	75		N/A	
SEARCH FEE (37 CFR 1.16(k), (i), or (m))	N/A	N/A	N/A	330		N/A	
EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A	N/A	380		N/A	
TOTAL CLAIMS (37 CFR 1.16(i))	20 minus 20 =	*	x 50 =	0.00	OR		
INDEPENDENT CLAIMS (37 CFR 1.16(h))	2 minus 3 =	*	x 230 =	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			
* If the difference in column 1 is less than zero, enter "0" in column 2.			TOTAL	785		TOTAL	

APPLICATION AS AMENDED - PART II

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

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

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

UNITED STATES PATENT AND TRADEMARK OFFICE

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

APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
15/871,044	01/14/2018	Eric Stefankiewicz	WAC-10APP1

CONFIRMATION NO. 9631

149297
Straub & Straub - WAC correspondence
1st Fl, Building 1, Door B
788 Shrewsbury Ave
Tinton Falls, NJ 07724

FORMALITIES LETTER

OC000000097624271

Date Mailed: 02/23/2018

NOTICE TO FILE MISSING PARTS OF NONPROVISIONAL APPLICATION

FILED UNDER 37 CFR 1.53(b)

Filing Date Granted

Items Required To Avoid Abandonment:

An application number and filing date have been accorded to this application. The item(s) indicated below, however, are missing. Applicant is given **TWO MONTHS** from the date of this Notice within which to file all required items below to avoid abandonment. Extensions of time may be obtained by filing a petition accompanied by the extension fee under the provisions of 37 CFR 1.136(a).

- The statutory basic filing fee is missing.
- The application search fee must be submitted.
- The application examination fee must be submitted.
- Surcharge as set forth in 37 CFR 1.16(f) must be submitted.
  The surcharge is due for any one of:
  - late submission of the basic filing fee, search fee, or examination fee,
  - late submission of inventor's oath or declaration,
  - filing an application that does not contain at least one claim on filing, or
  - submission of an application filed by reference to a previously filed application.

SUMMARY OF FEES DUE:

The fee(s) required within **TWO MONTHS** from the date of this Notice to avoid abandonment is/are itemized below. Small entity discount is in effect. If applicant is qualified for micro entity status, an acceptable Certification of Micro Entity Status must be submitted to establish micro entity status. (See 37 CFR 1.29 and forms PTO/SB/15A and 15B.)

- $ **75** basic filing fee.
- $ **80** surcharge.
- $ **330** search fee.
- $ **380** examination fee.
- $(**0**) previous unapplied payment amount.
- $ **865** TOTAL FEE BALANCE DUE.

Items Required To Avoid Processing Delays:

Applicant is notified that the above-identified application contains the deficiencies noted below. No period for reply is set forth in this notice for correction of these deficiencies. However, if a deficiency relates to the inventor's

oath or declaration, the applicant must file an oath or declaration in compliance with 37 CFR 1.63, or a substitute statement in compliance with 37 CFR 1.64, executed by or with respect to each actual inventor no later than the expiration of the time period set in the "Notice of Allowability" to avoid abandonment. See 37 CFR 1.53(f).

- A properly executed inventor's oath or declaration has not been received for the following inventor(s):
  Eric Stefankiewicz
  Shelley Wald

Replies must be received in the USPTO within the set time period or must include a proper Certificate of Mailing or Transmission under 37 CFR 1.8 with a mailing or transmission date within the set time period. For more information and a suggested format, see Form PTO/SB/92 and MPEP 512.

Replies should be mailed to:

Mail Stop Missing Parts
Commissioner for Patents
P.O. Box 1450
Alexandria VA 22313-1450

Registered users of EFS-Web may alternatively submit their reply to this notice via EFS-Web, including a copy of this Notice and selecting the document description "Applicant response to Pre-Exam Formalities Notice". https://sportal.uspto.gov/authenticate/AuthenticateUserLocalEPF.html

For more information about EFS-Web please call the USPTO Electronic Business Center at 1-866-217-9197 or visit our website at http://www.uspto.gov/ebc.

If you are not using EFS-Web to submit your reply, you must include a copy of this notice.

Questions about the contents of this notice and the requirements it sets forth should be directed to the Office of Data Management, Application Assistance Unit, at **(571) 272-4000** or **(571) 272-4200** or **1-888-786-0101**.

/erimando/

WAC00000105
Petitioner Minka – EX1002
Page 105 of 420

UNITED STATES PATENT AND TRADEMARK OFFICE

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

APPLICATION NUMBER	FILING or 371(c) DATE	GRP ART UNIT	FIL FEE REC'D	ATTY.DOCKET.NO	TOT CLAIMS	IND CLAIMS
15/871,044	01/14/2018	2414	0.00	WAC-10APP1	20	2

CONFIRMATION NO. 9631

FILING RECEIPT



149297
Straub & Straub - WAC correspondence
1st Fl, Building 1, Door B
788 Shrewsbury Ave
Tinton Falls, NJ 07724

Date Mailed: 02/23/2018

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)

Eric Stefankiewicz, Old Bethpage, NY;
Shelley Wald, Manhasset, NY;

Applicant(s)

Wangs Alliance Corporation, Port Washington, NY

Power of Attorney: The patent practitioners associated with Customer Number 149297

Domestic Priority data as claimed by applicant

This appln claims benefit of 62/617,274 01/14/2018
and claims benefit of 62/617,152 01/12/2018

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: Yes

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: 02/15/2018

The country code and number of your priority application, to be used for filing abroad under the Paris Convention, is **US 15/871,044**

Projected Publication Date: To Be Determined - pending completion of Missing Parts

Non-Publication Request: No

Early Publication Request: No
**** SMALL ENTITY ****
Title

METHODS AND APPARATUS FOR CONTROLLING FAN DEVICES

Preliminary Class

370

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

PROTECTING YOUR INVENTION OUTSIDE THE UNITED STATES

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

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

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

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

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

LICENSE FOR FOREIGN FILING UNDER

Title 35, United States Code, Section 184

Title 37, Code of Federal Regulations, 5.11 & 5.15

GRANTED

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

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

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

NOT GRANTED

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

SelectUSA

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

UNITED STATES PATENT AND TRADEMARK OFFICE

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

APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
15/871,044	01/14/2018	Eric Stefankiewicz	WAC-10APP1

CONFIRMATION NO. 9631

149297
Straub & Straub - WAC correspondence
1st Fl, Building 1, Door B
788 Shrewsbury Ave
Tinton Falls, NJ 07724

FORMALITIES LETTER

OC000000097624271

Date Mailed: 02/23/2018

NOTICE TO FILE MISSING PARTS OF NONPROVISIONAL APPLICATION

FILED UNDER 37 CFR 1.53(b)

Filing Date Granted

Items Required To Avoid Abandonment:

An application number and filing date have been accorded to this application. The item(s) indicated below, however, are missing. Applicant is given **TWO MONTHS** from the date of this Notice within which to file all required items below to avoid abandonment. Extensions of time may be obtained by filing a petition accompanied by the extension fee under the provisions of 37 CFR 1.136(a).

- The statutory basic filing fee is missing.
- The application search fee must be submitted.
- The application examination fee must be submitted.
- Surcharge as set forth in 37 CFR 1.16(f) must be submitted.
  The surcharge is due for any one of:
  - late submission of the basic filing fee, search fee, or examination fee,
  - late submission of inventor's oath or declaration,
  - filing an application that does not contain at least one claim on filing, or
  - submission of an application filed by reference to a previously filed application.

SUMMARY OF FEES DUE:

The fee(s) required within **TWO MONTHS** from the date of this Notice to avoid abandonment is/are itemized below. Small entity discount is in effect. If applicant is qualified for micro entity status, an acceptable Certification of Micro Entity Status must be submitted to establish micro entity status. (See 37 CFR 1.29 and forms PTO/SB/15A and 15B.)

- $ **75** basic filing fee.
- $ **80** surcharge.
- $ **330** search fee.
- $ **380** examination fee.
- $(**0**) previous unapplied payment amount.
- $ **865** TOTAL FEE BALANCE DUE.

Items Required To Avoid Processing Delays:

Applicant is notified that the above-identified application contains the deficiencies noted below. No period for reply is set forth in this notice for correction of these deficiencies. However, if a deficiency relates to the inventor's

oath or declaration, the applicant must file an oath or declaration in compliance with 37 CFR 1.63, or a substitute statement in compliance with 37 CFR 1.64, executed by or with respect to each actual inventor no later than the expiration of the time period set in the "Notice of Allowability" to avoid abandonment. See 37 CFR 1.53(f).

- A properly executed inventor's oath or declaration has not been received for the following inventor(s):
  Eric Stefankiewicz
  Shelley Wald

Replies must be received in the USPTO within the set time period or must include a proper Certificate of Mailing or Transmission under 37 CFR 1.8 with a mailing or transmission date within the set time period. For more information and a suggested format, see Form PTO/SB/92 and MPEP 512.

Replies should be mailed to:

Mail Stop Missing Parts
Commissioner for Patents
P.O. Box 1450
Alexandria VA 22313-1450

Registered users of EFS-Web may alternatively submit their reply to this notice via EFS-Web, including a copy of this Notice and selecting the document description "Applicant response to Pre-Exam Formalities Notice". https://sportal.uspto.gov/authenticate/AuthenticateUserLocalEPF.html

For more information about EFS-Web please call the USPTO Electronic Business Center at 1-866-217-9197 or visit our website at http://www.uspto.gov/ebc.

If you are not using EFS-Web to submit your reply, you must include a copy of this notice.

Questions about the contents of this notice and the requirements it sets forth should be directed to the Office of Data Management, Application Assistance Unit, at **(571) 272-4000** or **(571) 272-4200** or **1-888-786-0101**.

/erimando/

WAC00000110
Petitioner Minka – EX1002
Page 110 of 420

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

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

Title of Invention	METHODS AND APPARATUS FOR CONTROLLING FAN DEVICES

As the below named inventor, I hereby declare that:

This declaration is directed to:

- ☐ The attached application, or
- ■ United States application or PCT international application number 15871044 filed on JANUARY 14, 2018.

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

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

I hereby acknowledge that any willful false statement made in this declaration is punishable under 18 U.S.C. 1001 by fine or imprisonment of not more than five (5) years, or both.

WARNING:

Petitioner/applicant is cautioned to avoid submitting personal information in documents filed in a patent application that may contribute to identity theft. Personal information such as social security numbers, bank account numbers, or credit card numbers (other than a check or credit card authorization form PTO-2038 submitted for payment purposes) is never required by the USPTO to support a petition or an application. If this type of personal information is included in documents submitted to the USPTO, petitioners/applicants should consider redacting such personal information from the documents before submitting them to the USPTO. Petitioner/applicant is advised that the record of a patent application is available to the public after publication of the application (unless a non-publication request in compliance with 37 CFR 1.213(a) is made in the application) or issuance of a patent. Furthermore, the record from an abandoned application may also be available to the public if the application is referenced in a published application or an issued patent (see 37 CFR 1.14). Checks and credit card authorization forms PTO-2038 submitted for payment purposes are not retained in the application file and therefore are not publicly available.

LEGAL NAME OF INVENTOR

Inventor: Eric Stefankiewicz Date (Optional): 02/15/2018

Signature: /Eric Stefankiewicz/

Note: An application data sheet (PTO/SB/14 or equivalent), including naming the entire inventive entity, must accompany this form or must have been previously filed. Use an additional PTO/AIA/01 form for each additional inventor.

This collection of information is required by 35 U.S.C. 115 and 37 CFR 1.63. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 1 minute to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

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.

PTO/AIA/01 (06-12)
Approved for use through 01/31/2014. OMB 0651-0032
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
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As the below named inventor, I hereby declare that:

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- ☐ The attached application, or
- ■ United States application or PCT international application number 15871044 filed on JANUARY 14, 2018.

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

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

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LEGAL NAME OF INVENTOR

Inventor: Shelley Wald Date (Optional): 02/20/18

Signature: /Shelley Wald/

Note: An application data sheet (PTO/SB/14 or equivalent), including naming the entire inventive entity, must accompany this form or must have been previously filed. Use an additional PTO/AIA/01 form for each additional inventor.

This collection of information is required by 35 U.S.C. 115 and 37 CFR 1.63. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 1 minute to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

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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:	15871044
Filing Date:	14-Jan-2018
Title of Invention:	METHODS AND APPARATUS FOR CONTROLLING FAN DEVICES
First Named Inventor/Applicant Name:	Eric Stefankiewicz
Filer:	Michael P. Straub/Stephen Straub
Attorney Docket Number:	WAC-10APP1

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	75	75
UTILITY SEARCH FEE	2111	1	330	330
UTILITY EXAMINATION FEE	2311	1	380	380
Pages:				
Claims:				
Miscellaneous-Filing:				
LATE FILING FEE FOR OATH OR DECLARATION	2051	1	80	80
Petition:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				
Extension-of-Time:				
Miscellaneous:				
		Total in USD ($)		**865**

Electronic Acknowledgement Receipt	
EFS ID:	32083371
Application Number:	15871044
International Application Number:	
Confirmation Number:	9631
Title of Invention:	METHODS AND APPARATUS FOR CONTROLLING FAN DEVICES
First Named Inventor/Applicant Name:	Eric Stefankiewicz
Customer Number:	149297
Filer:	Michael P. Straub/Stephen Straub
Filer Authorized By:	Michael P. Straub
Attorney Docket Number:	WAC-10APP1
Receipt Date:	17-MAR-2018
Filing Date:	14-JAN-2018
Time Stamp:	17:42:32
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	DA
Payment was successfully received in RAM	$865
RAM confirmation Number	031918INTEFSW00006930601862
Deposit Account	601862
Authorized User	Stephen Straub
The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows: 37 CFR 1.16 (National application filing, search, and examination fees) 37 CFR 1.17 (Patent application and reexamination processing fees)	

37 CFR 1.19 (Document supply fees)

37 CFR 1.20 (Post Issuance fees)

37 CFR 1.21 (Miscellaneous fees and charges)

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Applicant Response to Pre-Exam Formalities Notice	WAC-10APP1_Notice_to_file_Missing_Parts.pdf	85653 1aff4e6d9784d8493d87d8fbf6216b0a22dc38f7	no	2
Warnings:					
Information:					
2	Oath or Declaration filed	WAC-10APP1_Stefankiewicz_inventor_decl_Signed.pdf	150576 78742e2e23c9f714236396a3a400b34c0f6e4730	no	2
Warnings:					
Information:					
3	Oath or Declaration filed	WAC-10APP1_Wald_inv_del_Signed.pdf	150560 cf824e52a4ec5c076efc9f2b2d9e61e5a750bc8d	no	2
Warnings:					
Information:					
4	Fee Worksheet (SB06)	fee-info.pdf	37359 df18b33043223a212104690c83f8b3d26aa6c5e0	no	2
Warnings:					
Information:					
		Total Files Size (in bytes):	424148		

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

New Applications Under 35 U.S.C. 111

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

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

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

New International Application Filed with the USPTO as a Receiving Office

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

UNITED STATES PATENT AND TRADEMARK OFFICE

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

APPLICATION NUMBER	FILING or 371(c) DATE	GRP ART UNIT	FIL FEE REC'D	ATTY.DOCKET.NO	TOT CLAIMS	IND CLAIMS
15/871,044	01/14/2018	2414	865	WAC-10APP1	20	2

CONFIRMATION NO. 9631

UPDATED FILING RECEIPT

149297
Straub & Straub - WAC correspondence
1st Fl, Building 1, Door B
788 Shrewsbury Ave
Tinton Falls, NJ 07724

OC000000098168145

Date Mailed: 03/20/2018

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)

Eric Stefankiewicz, Old Bethpage, NY;
Shelley Wald, Manhasset, NY;

Applicant(s)

Wangs Alliance Corporation, Port Washington, NY

Power of Attorney: The patent practitioners associated with Customer Number 149297

Domestic Priority data as claimed by applicant

This appln claims benefit of 62/617,274 01/14/2018
and claims benefit of 62/617,152 01/12/2018

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: Yes

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: 02/15/2018

The country code and number of your priority application, to be used for filing abroad under the Paris Convention, is **US 15/871,044**

Projected Publication Date: 07/18/2019

Non-Publication Request: No

Early Publication Request: No
**** SMALL ENTITY ****
Title

METHODS AND APPARATUS FOR CONTROLLING FAN DEVICES

Preliminary Class

370

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

PROTECTING YOUR INVENTION OUTSIDE THE UNITED STATES

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

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

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

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

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

LICENSE FOR FOREIGN FILING UNDER

Title 35, United States Code, Section 184

Title 37, Code of Federal Regulations, 5.11 & 5.15

GRANTED

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

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

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

NOT GRANTED

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

SelectUSA

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

PATENT APPLICATION FEE DETERMINATION RECORD Substitute for Form PTO-875	Application or Docket Number 15/871,044

APPLICATION AS FILED - PART I

	(Column 1)	(Column 2)	SMALL ENTITY		OR	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	75		N/A	
SEARCH FEE (37 CFR 1.16(k), (i), or (m))	N/A	N/A	N/A	330		N/A	
EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A	N/A	380		N/A	
TOTAL CLAIMS (37 CFR 1.16(i))	20 minus 20 =	*	x 50 =	0.00	OR		
INDEPENDENT CLAIMS (37 CFR 1.16(h))	2 minus 3 =	*	x 230 =	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			
* If the difference in column 1 is less than zero, enter "0" in column 2.			TOTAL	785		TOTAL	

APPLICATION AS AMENDED - PART II

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

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

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

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
15/871,044	01/14/2018	Eric Stefankiewicz	WAC-10APP1	9631

149297 7590 03/26/2019

Straub & Straub - WAC correspondence
1st Fl, Building 1, Door B
788 Shrewsbury Ave
Tinton Falls, NJ 07724

EXAMINER
KING, MONICA C

ART UNIT	PAPER NUMBER
2844	

MAIL DATE	DELIVERY MODE
03/26/2019	PAPER

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.

Office Action Summary	**Application No.** 15/871,044	**Applicant(s)** Stefankiewicz et al.	
	Examiner MONICA C KING	**Art Unit** 2844	**AIA (FITF) 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 1/14/2018.

☐ 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 _____ is/are: a)☑ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

Certified copies:

a)☐ All b)☐ Some** c)☐ None of the:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

** See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☑ Notice of References Cited (PTO-892)

2) ☐ Information Disclosure Statement(s) (PTO/SB/08a and/or PTO/SB/08b) Paper No(s)/Mail Date _____.

3) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date _____.

4) ☐ Other: _____.

Notice of Pre-AIA or AIA Status

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

Claim Rejections - 35 USC § 102

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.

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (a)(1) the claimed invention was patented, described in a printed publication, or in public use, on sale or otherwise available to the public before the effective filing date of the claimed invention.

Claims 1-20 are rejected under 35 U.S.C. 102**(a)(1)** as being anticipated by Suro, et al. (US 20130073431 A1, hereinafter "Suro").

Regarding claim 1, Suro discloses a control method comprising:

receiving, at a fan device including a radio frequency signal receiver and a WiFi interface, a first radio frequency (RF) control signal from a control unit, said fan device and said control unit being located at a customer premises ([0006]);

implementing, at the fan device, an operation in response to a first command communicated by the first RF control signal ([0025]); and

operating the fan device to communicate to a server located outside the customer premises, via the WiFi interface, information indicating the operation implemented in response to the first command ([0027], [0017], [0020]).

Regarding claim 2, Suro discloses the method of claim 1, wherein said first command is one of:

a fan on command, a fan off command, a fan power state change command, a fan speed up command, a fan speed down command, a fan direction change command, a light on command, a light off command, a light power state change command, a light increase command, a light decrease command ([0024]).

Regarding claim 3, Suro discloses the method of claim 1, wherein said RF control signal is sent using an RF frequency which is not used for WiFi signals ([0006]).

Regarding claim 4, Suro discloses the method of claim 3, further comprising:

operating a WiFi router located at the customer premises to receive a first WiFi control signal from a wireless terminal located at the customer premises, said first WiFi control signal communicating a second command used to control the fan device ([0018], [0017]: ceiling fan being second command);

operating the WiFi router to communicate, via a WiFi signal, the second command to the fan device; and operating the fan device to implement the second command ([0018]).

Regarding claim 5, Suro discloses the method of claim 4, further comprising:

operating the fan device to communicate to the server located outside the customer premises, via the WiFi interface, information indicating the operation implemented in response to the second command ([0027]-[0029]).

Regarding claim 6, Suro discloses the method of claim 5 wherein the second command is communicated from the wireless terminal to the fan device via the WiFi router located in the customer premises without said second command traversing a network outside the customer premises ([0020]).

Regarding claim 7, Suro discloses the method of claim 6, further comprising:

operating the server to receive a third command directed to the first fan device ([0017]: exhaust fan as third command); and

operating the server to communicate the third command via the Internet and said WiFi router to the fan device ([0027]).

Regarding claim 8, Suro discloses the method of claim 7, further comprising:

operating the server to update information about the state of one or more devices at the first customer premises based on the third command communicated to the fan device ([0017]).

Regarding claim 9, Suro discloses the method of claim 8, wherein said updating of the information about the state of one or more devices at the first customer premises is performed in response to transmitting the third command from the server ([0027]).

Regarding claim 10, Suro discloses a system comprising:

a fan device comprising ([0017]):

a fan motor ([0017]);

a radio frequency (RF) signal receiver configured to receive radio frequency (RF) control signals from a control unit, said fan device and said control unit being located at a customer premises ([0026]);

a WiFi interface ([0006]);

a fan motor control circuit configured to control the fan motor in response to a received first radio frequency control signal, said first radio frequency control signal communicating a first command ([0017]); and

a first processor configured to communicate to a server, located outside the customer premises, via the WiFi interface, information indicating an operation implemented in response to the first command ([0027]: phone being the processor).

Regarding claim 11, Suro discloses the system of claim 1, wherein said fan device further comprises:

a light ([0027]); and

a light control circuit configured to control the light in response to a received second radio frequency control signal, said second radio frequency control signal communicating a second command ([0006]); and

wherein said first processor is further configured to communicate to said server, via the WiFi interface, information indicating an operation implemented in response to said first command ([0006]-[0007]).

Regarding claim 12, Suro discloses the system of claim 11, wherein said first RF control signal communicates one of:

a fan on command, a fan off command, a fan power state change command, a fan speed up command, a fan speed down command, a fan direction change command ([0024]); and

wherein said second RF control signal communicates one of: a light on command, a light off command, a light power state change command, a light increase command, a light decrease command ([0025]).

Regarding claim 13, Suro discloses the system of claim 11, wherein said first RF control signal and said second RF control signal are sent using RF frequencies which are not used for WiFi signals.

Regarding claim 14, Suro discloses the system of claim 13, further comprising:

a WiFi router located at the customer premises, said WiFi router comprising ([0028]):

a receiver configured to receive a first WiFi control signal from a wireless terminal located at the customer premises, said first WiFi control signal communicating a third command used to control the fan device ([0008]);

a transmitter configured to communicate, via a WiFi signal, the third command to the fan device; and wherein said first processor is configured to control at least one of the fan motor control circuit or the light control circuit to implement the third command ([0017]).

Regarding claim 15, Suro discloses the system of claim 14, further comprising:

wherein said first processor is configured to control the WiFi interface in said fan device to send information indicating the operation implemented in response to the third command ([0022]).

Regarding claim 16, Suro discloses the system of claim 15, further comprising:

said wireless terminal, wherein said wireless terminal includes ([0025]):

a WiFi interface ([0006]); and

a fan device control application configured to generate said third command in response to user input ([0017]); and

wherein the third command is communicated from the wireless terminal to the fan device via the WiFi router located in the customer premises without said third command traversing a network outside the customer premises ([0020]).

Regarding claim 17, Suro discloses the system of claim 16, further comprising: said server, wherein said server includes a second processor configured to:

operating the server to receive a fourth command directed to the first fan device ([0017]); and

operating the server to communicate the fourth command via the Internet and said WiFi router to the fan device ([0018]).

Regarding claim 18, Suro discloses the system of claim 17, wherein said second processor is further configured to:

operating the server to update information about the state of one or more devices at the first customer premises based on the fourth command communicated to the fan device ([0017]).

Regarding claim 19, Suro discloses the system of claim 18, wherein said updating of the information about the state of one or more devices at the first customer premises is performed in response to transmitting the fourth command from the server ([0027]).

Regarding claim 20, Suro discloses the system of claim 16, wherein said second processor is further configured to:

operating the server to generate a proposed normal device control schedule for the first customer premises from stored information indicating the state of one or more devices at the first customer premises over a period of time ([0017]: timeclock having to do with the state of control);

operate the server to send the proposed device control schedule to a device corresponding to the first customer premise ([0017]: HVAC system is controlling the premise);

operate the server to receive a message indicating approval of the proposed normal device control schedule for the first customer premises or a revised schedule for the first customer premises ([0005]: user-manipulatable actuator); and

operate the server to store as an approved normal control schedule for the first customer premises the approved proposed normal device control schedule or the revised schedule ([0022]).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to MONICA C KING whose telephone number is (571)270-3429. The examiner can normally be reached on Mon-Fri.

Examiner interviews are available via telephone, in-person, and video conferencing using a USPTO supplied web-based collaboration tool. To schedule an interview, applicant is encouraged to use the USPTO Automated Interview Request (AIR) at http://www.uspto.gov/interviewpractice.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Douglas Owens can be reached on (571) 272-1662. 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.

/MONICA C KING/
Primary Examiner, Art Unit 2844

3/23/2019

Notice of References Cited	Application/Control No. 15/871,044	Applicant(s)/Patent Under Reexamination Stefankiewicz et al.	
	Examiner MONICA C KING	Art Unit 2844	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-20130073431-A1	03-2013	Suro; Eric	G06Q30/0623	705/26.61
	B					
	C					
	D					
	E					
	F					
	G					
	H					
	I					
	J					
	K					
	L					
	M					

FOREIGN PATENT DOCUMENTS

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

NON-PATENT DOCUMENTS

*		Include as applicable: Author, Title Date, Publisher, Edition or Volume, Pertinent Pages)
	U	
	V	
	W	
	X	

*A copy of this reference is not being furnished with this Office action. (See MPEP § 707.05(a).)
Dates in MM-YYYY format are publication dates. Classifications may be US or foreign.

Search Notes	Application/Control No.	Applicant(s)/Patent Under Reexamination
	15/871,044	Stefankiewicz et al.
	Examiner	Art Unit
	MONICA C KING	2844

CPC - Searched*		
Symbol	Date	Examiner
H05B37/0272 OR H05B37/0227 OR H05B33/0872 OR H05B37/0218 OR H05B33/0854 OR H05B33/0863 OR H05B33/0851 OR H05B33/0803 OR H05B33/0869 OR H05B37/02 OR H05B37/0281 OR H05B33/0815 OR H05B33/0845 OR H05B33/0857 OR H05B33/086 OR H05B37/0209 OR H05B39/086 OR H05B39/088	03/22/2019	MK

CPC Combination Sets - Searched*		
Symbol	Date	Examiner

US Classification - Searched*			
Class	Subclass	Date	Examiner

* 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
CPC search, limited txt search, assignee search, inventor search	03/22/2019	MK
NPL search, google patent search	03/22/2019	MK

Interference Search			
US Class/CPC Symbol	US Subclass/CPC Group	Date	Examiner
	H05B37/0272 OR H05B37/0227 OR H05B33/0872 OR H05B37/0218 OR H05B33/0854 OR H05B33/0863 OR H05B33/0851 OR H05B33/0803 OR H05B33/0869 OR H05B37/02 OR H05B37/0281 OR H05B33/0815 OR H05B33/0845 OR H05B33/0857 OR H05B33/086 OR H05B37/0209 OR H05B39/086 OR H05B39/088	03/22/2019	MK

WAC00000134
Petitioner Minka – EX1002
Page 134 of 420

Search Notes	Application/Control No.	Applicant(s)/Patent Under Reexamination
	15/871,044	Stefankiewicz et al.
	Examiner	Art Unit
	MONICA C KING	2844

WAC00000135
Petitioner Minka – EX1002
Page 135 of 420

Bibliographic Data

Application No: 15/871,044

Foreign Priority claimed: ○ Yes ◉ No

35 USC 119 (a-d) conditions met: ☐ Yes ☑ No ☐ Met After Allowance

Verified and Acknowledged: /MONICA C KING/ (Examiner's Signature) (Initials)

Title: METHODS AND APPARATUS FOR CONTROLLING FAN DEVICES

FILING or 371(c) DATE	CLASS	GROUP ART UNIT	ATTORNEY DOCKET NO.
01/14/2018	315	2844	WAC-10APP1
RULE			

APPLICANTS

Wangs Alliance Corporation, Port Washington, NY, UNITED STATES

INVENTORS

Eric Stefankiewicz Old Bethpage, NY, UNITED STATES

Shelley Wald Manhasset, NY, UNITED STATES

CONTINUING DATA

This application has PRO of 62617274 01/14/2018

This application has PRO of 62617152 01/12/2018

FOREIGN APPLICATIONS

IF REQUIRED, FOREIGN LICENSE GRANTED**

02/15/2018

**** SMALL ENTITY ****

STATE OR COUNTRY

UNITED STATES

ADDRESS

Straub & Straub - WAC correspondence
1st Fl, Building 1, Door B
788 Shrewsbury Ave
Tinton Falls, NJ 07724
UNITED STATES

FILING FEE RECEIVED

$865

EAST Search History

EAST Search History (Prior Art)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
L1	1141	rf AND WIFI AND LIGHT$3 AND FAN AND MOTOR AND CONTROL AND COMMAND AND SERVER and processor and @ad< "20180112" and interface	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2019/03/23 18:53
L2	1005	rf AND WIFI AND LIGHT$3 AND FAN AND MOTOR AND CONTROL AND COMMAND AND SERVER and processor and @ad< "20180112" and interface and radio	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2019/03/23 18:54
L3	81	2 AND ((H05B37/0272 OR H05B37/0227 OR H05B33/0872 OR H05B37/0218 OR H05B33/0854 OR H05B33/0863 OR H05B33/0851 OR H05B33/0803 OR H05B33/0869 OR H05B37/02 OR H05B37/0281 OR H05B33/0815 OR H05B33/0845 OR H05B33/0857 OR H05B33/086 OR H05B37/0209 OR H05B39/086 OR H05B39/088).CPC.)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2019/03/23 18:55
S1	49446	rf AND WIFI AND LIGHT$3	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2019/03/23 03:56
S2	2055	rf AND WIFI AND LIGHT$3 AND FAN AND MOTOR	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2019/03/23 03:57
S3	2051	rf AND WIFI AND LIGHT$3 AND FAN AND MOTOR AND CONTROL	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2019/03/23 03:57
S4	1515	rf AND WIFI AND LIGHT$3 AND FAN AND MOTOR AND CONTROL AND COMMAND	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2019/03/23 03:58

WAC00000137
Petitioner Minka – EX1002
Page 137 of 420

S5	1262	rf AND WIFI AND LIGHT$3 AND FAN AND MOTOR AND CONTROL AND COMMAND AND SERVER	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2019/03/23 03:58
S6	1247	rf AND WIFI AND LIGHT$3 AND FAN AND MOTOR AND CONTROL AND COMMAND AND SERVER and processor	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2019/03/23 16:42
S7	1247	rf AND WIFI AND LIGHT$3 AND FAN AND MOTOR AND CONTROL AND COMMAND AND SERVER and processor	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2019/03/23 16:48
S8	1144	rf AND WIFI AND LIGHT$3 AND FAN AND MOTOR AND CONTROL AND COMMAND AND SERVER and processor and @ad< "20180112"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2019/03/23 16:48

3/ 23/ 2019 6:56:08 PM
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WAC00000138
Petitioner Minka – EX1002
Page 138 of 420

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APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
15/871,044	01/14/2018	Eric Stefankiewicz	WAC-10APP1

CONFIRMATION NO. 9631

149297
Straub & Straub - WAC correspondence
1st Fl, Building 1, Door B
788 Shrewsbury Ave
Tinton Falls, NJ 07724

PUBLICATION NOTICE

OC000000109739002

Title:METHODS AND APPARATUS FOR CONTROLLING FAN DEVICES

Publication No.US-2019-0219059-A1
Publication Date:07/18/2019

NOTICE OF PUBLICATION OF APPLICATION

The above-identified application will be electronically published as a patent application publication pursuant to 37 CFR 1.211, et seq. The patent application publication number and publication date are set forth above.

The publication may be accessed through the USPTO's publically available Searchable Databases via the Internet at www.uspto.gov. The direct link to access the publication is currently http://www.uspto.gov/patft/.

The publication process established by the Office does not provide for mailing a copy of the publication to applicant. A copy of the publication may be obtained from the Office upon payment of the appropriate fee set forth in 37 CFR 1.19(a)(1). Orders for copies of patent application publications are handled by the USPTO's Public Records Division. The Public Records Division can be reached by telephone at (571) 272-3150 or (800) 972-6382, by facsimile at (571) 273-3250, by mail addressed to the United States Patent and Trademark Office, Public Records Division, Alexandria, VA 22313-1450 or via the Internet.

In addition, information on the status of the application, including the mailing date of Office actions and the dates of receipt of correspondence filed in the Office, may also be accessed via the Internet through the Patent Electronic Business Center at www.uspto.gov using the public side of the Patent Application Information and Retrieval (PAIR) system. The direct link to access this status information is currently https://portal.uspto.gov/pair/PublicPair. Prior to publication, such status information is confidential and may only be obtained by applicant using the private side of PAIR.

Further assistance in electronically accessing the publication, or about PAIR, is available by calling the Patent Electronic Business Center at 1-866-217-9197.

Office of Data Managment, Application Assistance Unit (571) 272-4000, or (571) 272-4200, or 1-888-786-0101

Electronic Patent Application Fee Transmittal	
Application Number:	15871044
Filing Date:	14-Jan-2018
Title of Invention:	METHODS AND APPARATUS FOR CONTROLLING FAN DEVICES
First Named Inventor/Applicant Name:	Eric Stefankiewicz
Filer:	Michael P. Straub/Stephen Straub
Attorney Docket Number:	WAC-10APP1
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 - 2 months with $0 paid	2252	1	300	300
Miscellaneous:				
			Total in USD ($)	**300**

Electronic Acknowledgement Receipt	
EFS ID:	36984240
Application Number:	15871044
International Application Number:	
Confirmation Number:	9631
Title of Invention:	METHODS AND APPARATUS FOR CONTROLLING FAN DEVICES
First Named Inventor/Applicant Name:	Eric Stefankiewicz
Customer Number:	149297
Filer:	Michael P. Straub/Stephen Straub
Filer Authorized By:	Michael P. Straub
Attorney Docket Number:	WAC-10APP1
Receipt Date:	26-AUG-2019
Filing Date:	14-JAN-2018
Time Stamp:	23:46:56
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	DA
Payment was successfully received in RAM	$300
RAM confirmation Number	E20198PN47191217
Deposit Account	601862
Authorized User	Stephen Straub
The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows: 37 CFR 1.16 (National application filing, search, and examination fees) 37 CFR 1.17 (Patent application and reexamination processing fees)	

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File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Amendment/Req. Reconsideration-After Non-Final Reject	WAC-10APP1_Amdt_in_resp_to_NFOA_3-26-19.pdf	159205 0cd864b6d5494e06952d5e11c8f9475ece0f73c7	no	18
Warnings:					
Information:					
2	Fee Worksheet (SB06)	fee-info.pdf	30810 80148da3196d47d423ad409c1035e9367d14d753	no	2
Warnings:					
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		Total Files Size (in bytes):	190015		

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IN THE UNITED STATES
PATENT AND TRADEMARK OFFICE

Attorney Docket No.: **WAC-10APP1**

Appl. No.: **15/871,044**

First Named Inventor: **Eric Stegankiewicz**

Filed: **January 14, 2018**

TC/A.U.: **2844**

Examiner: **KING, MONICA C.**

Confirmation No.: **9631**

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

AMENDMENT

Sir:

In response to the Office Action dated March 26, 2019 please amend the above-identified application as follows:

Amendments to the Claims are reflected in the listing of claims which begins on page 2 of this paper.

Remarks/Arguments begin on page 7 of this paper.

AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Claim 1 (currently amended): A control method comprising:

receiving, at a fan device including a fan motor, a radio frequency signal receiver and a WiFi interface, a first radio frequency (RF) control signal from a control unit, said fan device and said control unit being located at a customer premises;

implementing, at the fan device, an operation in response to a first command communicated by the first RF control signal; [[and]]

operating the fan device to communicate to a server located outside the customer premises, via the WiFi interface, information indicating the operation implemented in response to the first command; and

wherein said fan device is mounted to a ceiling at the customer premises.

Claim 2 (original): The method of claim 1, wherein said first command is one of: a fan on command, a fan off command, a fan power state change command, a fan speed up command, a fan speed down command, a fan direction change command, a light on command, a light off command, a light power state change command, a light increase command, a light decrease command.

Claim 3 (original): The method of claim 1, wherein said RF control signal is sent using an RF frequency which is not used for WiFi signals.

Claim 4 (original): The method of claim 3, further comprising:

operating a WiFi router located at the customer premises to receive a first WiFi control signal from a wireless terminal located at the customer premises , said first WiFi control signal communicating a second command used to control the fan device;

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operating the WiFi router to communicate, via a WiFi signal, the second command to the fan device; and

operating the fan device to implement the second command.

Claim 5 (original): The method of claim 4, further comprising:

operating the fan device to communicate to the server located outside the customer premises, via the WiFi interface, information indicating the operation implemented in response to the second command.

Claim 6 (original): The method of claim 5 wherein the second command is communicated from the wireless terminal to the fan device via the WiFi router located in the customer premises without said second command traversing a network outside the customer premises.

Claim 7 (original): The method of claim 6, further comprising:

operating the server to receive a third command directed to the first fan device; and

operating the server to communicate the third command via the Internet and said WiFi router to the fan device.

Claim 8 (original): The method of claim 7, further comprising:

operating the server to update information about the state of one or more devices at the first customer premises based on the third command communicated to the fan device.

Claim 9 (original): The method of claim 8, wherein said updating of the information about the state of one or more devices at the first customer premises is performed in response to transmitting the third command from the server.

Claim 10 (currently amended): A system comprising:

a fan device <u>mounted to a ceiling</u> comprising:

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a fan motor;

a radio frequency (RF) signal receiver configured to receive radio frequency (RF) control signals from a control unit, said fan device and said control unit being located at a customer premises;

a WiFi interface;

a fan motor control circuit configured to control the fan motor in response to a received first radio frequency control signal, said first radio frequency control signal communicating a first command; and

a first processor configured to communicate to a server, located outside the customer premises, via the WiFi interface, information indicating an operation implemented in response to the first command.

Claim 11 (currently amended): The system of claim [[1,]] 10, wherein said fan device further comprises:

a light; and

a light control circuit configured to control the light in response to a received second radio frequency control signal, said second radio frequency control signal communicating a second command; and

wherein said first processor is further configured to communicate to said server, via the WiFi interface, information indicating an operation implemented in response to said first command.

Claim 12 (original): The system of claim 11,

wherein said first RF control signal communicates one of: a fan on command, a fan off command, a fan power state change command, a fan speed up command, a fan speed down command, a fan direction change command; and

wherein said second RF control signal communicates one of: a light on command, a light off command, a light power state change command, a light increase command, a light decrease command.

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Claim 13 (original): The system of claim 11, wherein said first RF control signal and said second RF control signal are sent using RF frequencies which are not used for WiFi signals.

Claim 14 (original): The system of claim 13, further comprising:

a WiFi router located at the customer premises, said WiFi router comprising:

a receiver configured to receive a first WiFi control signal from a wireless terminal located at the customer premises, said first WiFi control signal communicating a third command used to control the fan device;

a transmitter configured to communicate, via a WiFi signal, the third command to the fan device; and

wherein said first processor is configured to control at least one of the fan motor control circuit or the light control circuit to implement the third command.

Claim 15 (original): The system of claim 14, further comprising:

wherein said first processor is configured to control the WiFi interface in said fan device to send information indicating the operation implemented in response to the third command.

Claim 16 (original): The system of claim 15, further comprising:

said wireless terminal, wherein said wireless terminal includes:

a WiFi interface; and

a fan device control application configured to generate said third command in response to user input; and

wherein the third command is communicated from the wireless terminal to the fan device via the WiFi router located in the customer premises without said third command traversing a network outside the customer premises.

Claim 17 (original): The system of claim 16, further comprising:

said server, wherein said server includes a second processor configured to:

operating the server to receive a fourth command directed to the first fan device; and

operating the server to communicate the fourth command via the Internet and said WiFi router to the fan device.

Claim 18 (original): The system of claim 17, wherein said second processor is further configured to:

operating the server to update information about the state of one or more devices at the first customer premises based on the fourth command communicated to the fan device.

Claim 19 (original): The system of claim 18, wherein said updating of the information about the state of one or more devices at the first customer premises is performed in response to transmitting the fourth command from the server.

Claim 20 (original): The system of claim 16, wherein said second processor is further configured to:

operating the server to generate a proposed normal device control schedule for the first customer premises from stored information indicating the state of one or more devices at the first customer premises over a period of time;

operate the server to send the proposed device control schedule to a device corresponding to the first customer premise;

operate the server to receive a message indicating approval of the proposed normal device control schedule for the first customer premises or a revised schedule for the first customer premises; and

operate the server to store as an approved normal control schedule for the first customer premises the approved proposed normal device control schedule or the revised schedule.

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REMARKS/ARGUMENTS

This Amendment is submitted in response to the Office Action dated March 26, 2019.

I. Introduction

Claims 1-20 are currently pending in the application. Claims 1-20 stand rejected for the reasons set forth in the Office Action.

Claims 1, 10 and 11 have been amended without prejudice. Claim 11 has been amended to correct a claim dependency issue.

No new subject matter is added by the amendments. The amendments are fully supported by the original application as filed. For example, support can be found for the amendment to claims 1 and 10 in specification paragraph [0004] and elsewhere in the application as originally filed.

As will be discussed below, all of the pending claims as amended are directed to patentable subject matter, are definite and none of the pending claims are anticipated or rendered obvious by the applied references.

II. All Pending Claims As Amended Are Allowable The Rejections under 102 Should Be Withdrawn

Independent Claims 1 And 10 Are Patentable Over the Applied References

Claims 1-20 stand rejected under 35 U.S. 102 as being unpatentable in view of the Suro et al. reference (U.S. Patent Application Publication No. US2013/0073431 A1).

Representative Claim 1 And The Claims Which Depend From Claim 1 Are Patentable Over the Applied Reference

Representative claim 1 as amended is patentable because it recites, among other things, the combination of features shown below in bold:

A control method comprising:

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receiving, at a fan device including a fan motor, a radio frequency signal receiver and a WiFi interface, a first radio frequency (RF) control signal from a control unit, said fan device and said control unit being located at a customer premises;

implementing, at the fan device, an operation in response to a first command communicated by the first RF control signal;

operating the fan device to communicate to a server located outside the customer premises, via the WiFi interface, information indicating the operation implemented in response to the first command; and

wherein said fan device is mounted to a ceiling at the customer premises.

The reference relied upon by the Examiner in rejecting claim 1 does **NOT** disclose, teach or suggest a control method including the combination of features recited in amended claim 1. For example, as amended the method of claim 1 requires receiving, at a fan device including a **fan motor**, **a radio frequency signal receiver and a WiFi interface**, a first radio frequency (RF) control signal from a control unit, said fan device and said control unit being located at a customer premises" and the "**fan device is mounted to a ceiling at the customer premises**". The Suro et al. reference relied upon by the Examine does **NOT** disclose, among other things, these features.

In rejecting claim 1 the Office Action states:

Regarding claim 1, Suro discloses a control method comprising:

receiving, at a fan device including a radio frequency signal receiver and a WiFi interface, a first radio frequency (RF) control signal from a control unit, said fan device and said control unit being located at a customer premises ([0006]);

implementing, at the fan device, an operation in response to a first command communicated by the first RF control signal ([0025]); and

operating the fan device to communicate to a server located outside the customer premises, via the WiFi interface, information indicating the operation implemented in response to the first command ([0027], [0017], [0020]).

(Office Action at page 2)

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In rejecting the claims the Examiner fails to identify what in the reference the Examiner is equating with the fan device, the radio frequency receiver of the fan device and the WiFi interface of the fan device, and the control unit of claim 1. The Applicant requests clarification regarding what specifically in the Suro et al. reference the Examiner is equating with these elements so that the Applicant can have a fair opportunity to respond to the Examiner's rejection in a meaningful manner.

The cited portions of the Suro et al. reference does **NOT** disclose the features for which they have been cited as will be discussed in further detail below or the features added by the amendment to claim 1.

> Suro et al. reference paragraph [0006] states:
>
> > Some load control devices are operable to transmit and receive wireless signals, such as radio-frequency (RF) or infrared (IR) signals. Such wireless load control devices may be controlled in response to commands originating from a WiFi-enabled smart phone). There is a need for a merchandise display that allows a potential customer to more personally interact with the products fro sale, for example, by controlling a lighting load using a smart phone in wireless communication with a load control device.

While paragraph [0006] discusses that "some load control devices are operable to transmit and receive wireless signals**," it does NOT disclose "a fan device including a radio frequency signal receiver and a WiFi interface". NOR does it disclose the features added by amendment that the fan device also includes a fan motor and that the fan device is mounted to a ceiling at the customer premises.**

From the paragraphs cited by the Examiner it appears that the Examiner is equating the "wall-mountable dimmer switch 110" with the fan device of claim 1. However, the "wall-mountable dimmer switch 110" does NOT include a "RF interface" and a "WiFi interface". The "wall-mountable dimmer switch 110" does NOT include "a fan motor" or any load. The "wall-mountable dimmer switch 110" is merely connected to a load which in Figure 2 is a light bulb 114. And, the "wall-

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mountable dimmer switch 110" is **NOT** part of a fan device mounted on a ceiling at the customer premises.

Claim 1 as amended is patentable over the applied reference because the applied reference does not disclose, teach or suggest the features of claim 1. Applicant respectfully requests that claim 1 be passed to issuance.

Dependent claims 2-9 which depend from claim 1 are allowable for at least the same or similar reasons as amended claim 1 from which they depend.

APPLICANT REQUEST FOR CLARIFICATION

To the extent that the Examiner maintains this rejection or issues a new rejection of claim 1, **Applicant requests that the Examiner separately, clearly and precisely identify each of the following elements by identifying the elements in the reference and the Figures by reference to Figure numerals in the applied reference(s) and portions of the Figures showing these elements: the "fan device," the "radio frequency receiver" of the fan device, the "WiFi interface" of the fan device, and the "control unit" of claim 1.** Clear identification of these elements in the applied references is important if Applicant is to have a fair and meaningful opportunity to respond to any new or repeated rejections of claims.

Representative Claim 10 And The Claims Which Depend From Claim 10 Are Patentable Over the Applied Reference

Representative claim 1 as amended is patentable because it recites, among other things, the combination of features shown below in bold:

> A system comprising:
> **a fan device mounted to a ceiling** comprising:
> **a fan motor;**
> **a radio frequency (RF) signal receiver configured to receive radio frequency (RF) control signals from a control unit, said fan device and said control unit being located at a customer premises;**
> **a WiFi interface;**
> **a fan motor control circuit** configured to control the fan motor in response to a received first radio frequency control signal, said first radio frequency control signal communicating a first command; and

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a first processor configured to communicate to a server, located outside the customer premises, via the WiFi interface, information indicating an operation implemented in response to the first command.

In rejecting the claims the Examiner fails to identify what in the reference the Examiner is equating with the fan device, the fan motor, the radio frequency receiver of the fan device and the WiFi interface of the fan device, a fan control circuit of the fan device and the control unit of claim 10. The Applicant requests clarification regarding what specifically in the Suro et al. reference the Examiner is equating with these elements so that the Applicant can have a fair opportunity to respond to the Examiner's rejection in a meaningful manner.

As discussed above in connection with claim 1, the Suro et al. reference fails to disclose a fan device mounted to a ceiling including a fan motor and both **a radio frequency (RF) signal receiver and a WiFi interface.** The Suro et al. reference as discussed in further detail below also fails to disclose a fan device including "**a first processor configured to communicate to a server, located outside the customer premises, via the WiFi interface, information indicating an operation implemented in response to the first command.**"

The cited portions of the Suro et al. reference do **NOT** disclose the features for which they have been cited as will be discussed in further detail below or the features added by the amendment to claim 10.

For example, in rejecting claim 10, the Office Action states:

> "a fan device comprising: . . . a first processor configured to communicate to a server, located outside the customer premises, via the WiFi interface, information indicating an operation implemented in response to the first command **([0027]: phone being the processor)**."
> (Office Action at page 4 (bolding added for emphasis))

The phone of the Suro et al. reference is clearly NOT part of a fan device. The phone is a customer's device separate and apart from any other devices in the Suro et al. reference. Furthermore it is not configured to communicate via the WiFi

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Interface information indicating an operation implemented in response to the first command.

Paragraph [0027] of the Suro et al. reference states:

> [0027] While the present invention has been described with the smart phone 120 communicating directly with the wireless router 140 via the WiFi link, the smartphone 120 could alternatively communicate with the wireless router 140 **using cellular communications, for example, via the Internet through a cloud server managed by the manufacturer of the products in the product display 100**. For example, when the user scans the scannable tag 122 with the smart phone 120, the browser on the smart phone cold launch a web page that is hosted on the **cloud server** and display screens similar to those of the product control application for controlling the lighting load 114. Therefore, the user does not need to download the product control application onto the smart phone 120 and the wireless router 140 could simply be a wired router. Alternatively, the web page could be hosted on a device in the product display 100, for example the wireless dimming control module 142, and the smart phone 120 could communicate directly with the wireless dimming control module 142 via the wireless router 140 and the WiFi link.
> (Suro et al. reference paragraph [0027] (bolding added for emphasis)).

A review of paragraph [0027] of the Suro et al. reference makes clear that it does NOT disclose a fan device that communicates communicate to a server, located outside the customer premises, via the WiFi interface, information indicating an operation implemented in response to the first command. The smart phone identified by the Examiner as processor of the fan device, which it is not as discussed above, also does NOT communicate via the WiFi interface to a server located outside the customer premises. NOR does the smartphone communicate information indicating an operation implemented in response to the first command. The smartphone communicates with cloud servers via cellular communications NOT WiFi. The cloud servers being the only servers mentioned in paragraph [0027]of the Suro et al. reference. The cloud servers also being the only devices mentioned in paragraph [0027] of the Suro et al. reference which are not located at the customer premises.

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The Suro et al. reference fails to disclose, teach or suggest, among other things, the features of a fan device including **a first processor configured to communicate to a server, located outside the customer premises, via the WiFi interface, information indicating an operation implemented in response to the first command".**

Claim 10 as amended is patentable over the applied reference because the applied reference does not disclose, teach or suggest the features of claim 10. Applicant respectfully requests that claim 10 be passed to issuance.

Dependent claims 11-20 which depend from claim 10 are allowable for at least the same or similar reasons as amended claim 10 from which they depend.

APPLICANT REQUEST FOR CLARIFICATION

To the extent that the Examiner maintains this rejection or issues a new rejection of claim 10, **Applicant requests that the Examiner separately, clearly and precisely identify each of the following elements by identifying the elements in the reference and the Figures by reference to Figure numerals in the applied reference(s) and portions of the Figures showing these elements: the "fan device," the "radio frequency receiver" of the fan device, the "WiFi interface" of the fan device, the "fan motor control circuit" of the fan device and the "control unit" of claim 10.** Clear identification of these elements in the applied references is important if Applicant is to have a fair and meaningful opportunity to respond to any new or repeated rejections of claims.

Applicants respectfully submit that all of the pending claims are directed to allowable subject matter, are definite, and are not anticipated or rendered obvious in view of the applied references. Hence, Applicants request that the Examiner pass this case issuance.

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III. Additional Reasons Various Dependent Claims Are Patentable

A. Dependent Claims 3

Dependent claims 3 is patentable for the same or similar reasons as claim 1 from which it depends, but also because of the features it recites.

For example, dependent claim 3 is patentable because it recites, among other things, the features identified in bold below.

> The method of claim 1, wherein said RF control signal is sent using an RF frequency which is not used for WiFi signals.

The Office Action in rejecting claim 3 states:

> Regarding claim 3, Suro discloses the method of claim 2, wherein said RF control signal is sent using an RF frequency which is not used for WiFi signals **([0006])**
>
> (Office Action at page 3 (bolding added for emphasis)).

Once again the Examiner has failed to identify what the Examiner is identifying as "an RF frequency which is NOT used for WiFi signals." In Suro et al. paragraph [0006] which is quoted above, there is a discussion of an RF signal which IS a WiFi signal but no discussion of any other RF signals or frequencies. There is also a discussion of Infrared (IR) signals. To the extent that the Examiner is trying to equate IR frequencies and IR signals with RF frequencies and signals, IR signals are different than RF signals. **IR signals do NOT utilize radio frequencies.**

The Suro et al. reference relied upon by the Examiner fails to disclose the combination of features recited in claim 3. Claim 3 is therefore allowable for the additional reasons stated above. Applicant requests that claim 3 be passed to allowance.

APPLICANT REQUEST FOR CLARIFICATION

To the extent that the Examiner maintains this rejection or issues a new rejection of claim 3, **Applicant requests that the Examiner separately, clearly and precisely identify each of the following elements by identifying the elements in the reference and the Figures by reference to Figure numerals in the applied**

reference(s) and portions of the Figures showing these elements: "RF control signal" and "RF frequency which is not used for WiFi signals" which is used to send the RF control signal. Clear identification of these elements in the applied references is important if Applicant is to have a fair and meaningful opportunity to respond to any new or repeated rejections of claims. The Chang reference relied upon by the Examiner fails to disclose the combination of features recited in claim 2. Claim 2 is therefore allowable for the additional reasons stated above. Applicant requests that claim 2 be passed to allowance.

B. Dependent Claim 20

Dependent claim 20 is patentable for the same or similar reasons as claim 10 from which it depends but also because of the features it recites. Many of the features recited in the dependent claim 20 are NOT disclosed in the Suro et al. reference. The cited portions of the Suro et al. reference do NOT disclose teach or suggest the features for which they have been cited.

For example, dependent claim 20 is patentable for among other reasons because it recites the features identified in bold below.

> The system of claim 16, wherein said second processor is further configured to:
>
> operating the server to generate a proposed normal device control schedule for the first customer premises from stored information indicating the state of one or more devices at the first customer premises over a period of time;
>
> operate the server to send the proposed device control schedule to a device corresponding to the first customer premise;
>
> operate the server to receive a message indicating approval of the proposed normal device control schedule for the first customer premises or a revised schedule for the first customer premises; and
>
> **operate the server to store as an approved normal control schedule for the first customer premises the approved proposed normal device control schedule or the revised schedule.**

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The Office Action in rejecting claim 20 s states:

> Regarding claim 20, Suro discloses the system of claim 16, wherein said second processor is further configured to:
>
> . . .
>
> operate the server to store as an approved normal control schedule for the first customer premises the approved proposed normal device control schedule or the revised schedule **([0022])**
>
> (Office Action at page 7 (bolding added for emphasis)).

The Suro et al. reference does **NOT** disclose a processor configured to operate a server to store as an approved normal control schedule for the first customer premises the approved proposed normal device control schedule or the revised schedule.

The Suro et al. reference paragraph [0022] states:

> [0022] FIG. 3 is a simplified flowchart of a product display interaction procedure 200 completed by the user to interact with the product display 100. If the smart phone 120 includes a camera and the user would like to scan the tag 122 at step 210, the user scans the tag at step 212 by taking a picture of the matrix barcode with the camera of the smart phone. The smart phone 120 then processes the tag 122 (i.e., the matrix barcode) at step 214 using a barcode reader application to determine an Internet location of the product control application, and then download the product control application from the Internet location determined from the matrix barcode at step 216. Accordingly, the user is able to easily download the product control application to their smart phone 120 at the store in which the product display 100 is located by scanning the tag 122 using a scanner application on the smart phone. Alternatively, the tag 122 (i.e., the matrix barcode could be printed in a printed publication (e.g., a magazine, a brochure, or a catalog), such that the user is able to download the product control application before coming to the store in which the product display 100 is located. Mobile tagging (i.e., the process of scanning matrix barcodes and tags with camera phones) is described in greater detail in U.S. Pat No. 6,993,573, issued Jan. 31, 2006, entitled AUTOMATIC ACCESS OF INTERNET CONTENT WITH A CAMERA-ENABLED CELL PHONE, the entire disclosure of which is hereby incorporated by reference.
>
> (Paragraph [0022] Suro et al. reference)

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Paragraph [0022] of the Suro et al. reference describes ways of downloading product control application so that a smart phone can interact with the product display 100 not the claimed features for which it has cited. It is clear from a review of paragraph [0022] quoted above and a review of Figure 3 of the Suro et al. reference that **NEITHER** paragraph [0022] **NOR** Figure 3 discussed in paragraph [0022] of the Suro et al. reference disclose teach or suggest the features of a second processor configured to "**operate the server to store as an approved normal control schedule for the first customer premises the approved proposed normal device control schedule or the revised schedule**."

The Suro et al. reference relied upon by the Examiner fails to disclose the combination of features recited in claim 20. Claim 20 is therefore allowable for the additional reasons stated above. Applicant requests that claim 20 be passed to allowance.

IV. Conclusion

In view of the foregoing amendments and remarks, it is respectively submitted that the pending claims are in condition for allowance.[1] Accordingly, it is requested that the Examiner pass this application to issuance.

---

[1] Any arguments made in this amendment pertain ***only*** to the specific aspects of the invention ***claimed***. Any claim amendments or cancellations, and any arguments, are made ***without prejudice to, or disclaimer of***, the applicant's right to seek patent protection of any unclaimed (e.g., narrower, broader, different) subject matter, such as by way of a continuation or divisional patent application for example.

Since the Applicant's remarks, amendments, and/or filings with respect to the Examiner's objections and/or rejections are sufficient to overcome these objections and/or rejections, the applicant's silence as to assertions by the Examiner in the Office Action and/or to certain facts or conclusions that may be implied by objections and/or rejections in the Office Action (such as, for example, whether a reference constitutes prior art, whether references have been properly combined or modified, whether dependent claims are separately patentable, etc.) is not a concession by the applicant that such assertions and/or implications are accurate, and that all requirements for an objection and/or a rejection have been met. Thus, the Applicant reserves the right to analyze and dispute any such assertions and implications in the future.

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None of the statements or discussion made herein are intended to be an admission that any of the applied references are prior art to the present application and Applicant preserves the right to establish that one or more of the applied references are not prior art.

To the extent necessary, a petition for extension of time under 37 C.F.R. 1.136 is hereby made and any required fee in regard to the extension or this amendment is authorized to be charged to the deposit account of Straub & Straub, deposit account number 60-1862.

Respectfully submitted,

Dated: August 26, 2019

By: /Stephen T. STRAUB, Reg. No. 43,938/
Stephen T. Straub Attorney
Reg. No. 43,938
Tel.: (732) 936-1400

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PTO/SB/08a (02-18)
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INFORMATION DISCLOSURE STATEMENT BY APPLICANT
(Not for submission under 37 CFR 1.99)

Application Number	15871044
Filing Date	2018-01-14
First Named Inventor	Eric Stefankiewicz
Art Unit	2844
Examiner Name	KING, MONICA C
Attorney Docket Number	WAC-10APP1

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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	9,589,461	B1	2017-03-07	Palm Coast Imports, LLC	

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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	20140101082	A1	2014-04-10	Nest Labs, Inc.	
	2	20140177900	A1	2014-06-26	Homewerks Worldwide, LLC	
	3	20140270714	A1	2014-09-18	Osminer et al.	
	4	20150351203	A1	2015-12-03	Zhejiang Shenghui Lighting Co., Ltd	
	5	20070110192	A1	2007-05-17	Steiner, James P.	

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	15871044
	Filing Date	2018-01-14
	First Named Inventor	Eric Stefankiewicz
	Art Unit	2844
	Examiner Name	KING, MONICA C
	Attorney Docket Number	WAC-10APP1

	6	20190219060	A1	2019-07-18	Stefankiewicz, et al.		
	7	20190220071	A1	2019-07-18	Stefankiewicz, et al.		

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[2] i	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	2017/151682	WO	A1	2017-09-08	Innosys, Inc.		

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]
	1	NOTIFICATION OF TRANSMITTAL OF THE INTERNATIONAL SEARCH REPORT AND THE WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY, OR THE DECLARATION with the INTERNATIONAL SEARCH REPORT and the WRITTEN OPINION from International application No. PCT/US 2019/013389 mail date May 13, 2019, Pages 1-23.	

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	15871044
	Filing Date	2018-01-14
	First Named Inventor	Eric Stefankiewicz
	Art Unit	2844
	Examiner Name	KING, MONICA C
	Attorney Docket Number	WAC-10APP1

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	/Stephen T. Straub, Reg. No. 43,938/	Date (YYYY-MM-DD)	2019-08-27
Name/Print	Stephen T. Straub	Registration Number	43,938

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 record s.

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.

PATENT COOPERATION TREATY

From the INTERNATIONAL SEARCHING AUTHORITY

To: STEPHEN T. STRAUB
STRAUB & STRAUB
788 SHREWSBURY AVE.
TINTON FALLS, NJ 07724

PCT

NOTIFICATION OF TRANSMITTAL OF THE INTERNATIONAL SEARCH REPORT AND THE WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY, OR THE DECLARATION

(PCT Rule 44.1)

Date of mailing *(day/month/year)*	13 MAY 2019
Applicant's or agent's file reference: WAC-10APP1T03PCT	**FOR FURTHER ACTION** See paragraphs 1 and 4 below
International application No.: PCT/US2019/013389	International filing date *(day/month/year)*: 12 January 2019
Applicant: WANGS ALLIANCE CORPORATION	

1. ☒ The applicant is hereby notified that the international search report and the written opinion of the International Searching Authority have been established and are transmitted herewith.

   Filing of amendments and statement under Article 19:
   The applicant is entitled, if he so wishes, to amend the claims of the international application (see Rule 46):

   When? The time limit for filing such amendments is normally two months from the date of transmittal of the international search report.

   How? Directly to the International Bureau of WIPO preferably through ePCT or on paper to, 34 chemin des Colombettes 1211 Geneva 20, Switzerland, Facsimile No.: +41 22 338 82 70

   For more detailed instructions, see *PCT Applicant's Guide*, International Phase, paragraphs 9.004 – 9.011.

2. ☐ The applicant is hereby notified that no international search report will be established and that the declaration under Article 17(2)(a) to that effect and the written opinion of the International Searching Authority are transmitted herewith.

3. ☐ **With regard to any protest** against payment of (an) additional fee(s) under Rule 40.2, the applicant is notified that:
   ☐ the protest together with the decision thereon has been transmitted to the International Bureau together with any request to forward the texts of both the protest and the decision thereon to the designated Offices.
   ☐ no decision has been made yet on the protest; the applicant will be notified as soon as a decision is made.

4. **Reminders**

   The applicant may **submit comments on an informal basis on the written opinion of the International Searching Authority** to the International Bureau. These comments will be made available to the public after international publication. The International Bureau will send a copy of such comments to all designated Offices unless an international preliminary examination report has been or is to be established.

   Shortly after the expiration of **18 months from the priority date, the international application will be published** by the International Bureau. If the applicant wishes to avoid or postpone publication, a notice of withdrawal of the international application, or of the priority claim, must reach the International Bureau before the completion of the technical preparations for international publication (Rules 90*bis*.1 and 90*bis*.3).

   Within **19 months** from the priority date, but only in respect of some designated Offices, a demand for international preliminary examination must be filed if the applicant wishes to postpone the entry into the national phase **until 30 months** from the priority date (in some Offices even later); otherwise, the applicant must, **within 20 months** from the priority date, perform the prescribed acts for **entry into the national phase** before those designated Offices. In respect of other designated Offices, the time limit of **30 months** (or later) will apply even if no demand is filed within 19 months. For details about the applicable time limits, Office by Office, see www.wipo.int/pct/en/texts/time_limits.html and the *PCT Applicant's Guide*, National Chapters.

   Within **22 months from the priority date, the applicant may request that a supplementary international search be carried out** by a different International Searching Authority that offers this service (Rule 45*bis*.1). The procedure for requesting supplementary international search is described in the *PCT Applicant's Guide*, International Phase, paragraphs 8.006-8.032.

Name and mailing address of the ISA/US Mail Stop PCT, Attn: ISA/US Commissioner for Patents P.O. Box 1450, Alexandria, VA 22313-1450 Facsimile No. 571-273-8300	Authorized officer Blaine R. Copenheaver PCT Helpdesk: 571-272-4300 Telephone No. PCT OSP: 571-272-7774

Form PCT/ISA/220 (July 2017)

PATENT COOPERATION TREATY

PCT

INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference WAC-10APP1T03PCT	**FOR FURTHER ACTION**	see Form PCT/ISA/220 as well as, where applicable, item 5 below.
International application No. PCT/US2019/013389	International filing date *(day/month/year)* 12 January 2019	(Earliest) Priority Date *(day/month/year)* 12 January 2018
Applicant WANGS ALLIANCE CORPORATION		

This international search report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This international search report consists of a total of 4 sheets.

☐ It is also accompanied by a copy of each prior art document cited in this report.

1. **Basis of the report**
   a. With regard to the **language**, the international search was carried out on the basis of:
      ☒ the international application in the language in which it was filed.
      ☐ a translation of the international application into _____ which is the language of a translation furnished for the purposes of international search (Rules 12.3(a) and 23.1(b)).
   b. ☐ This international search report has been established taking into account the **rectification of an obvious mistake** authorized by or notified to this Authority under Rule 91 (Rule 43.6*bis*(a)).
   c. ☐ With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, see Box No. I.

2. ☐ **Certain claims were found unsearchable** (see Box No. II).

3. ☒ **Unity of invention is lacking** (see Box No. III).

4. With regard to the **title**,
   ☒ the text is approved as submitted by the applicant.
   ☐ the text has been established by this Authority to read as follows:

5. With regard to the **abstract**,
   ☒ the text is approved as submitted by the applicant.
   ☐ the text has been established, according to Rule 38.2, by this Authority as it appears in Box No. IV. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.

6. With regard to the **drawings**,
   a. the figure of the **drawings** to be published with the abstract is Figure No. 1
      ☒ as suggested by the applicant.
      ☐ as selected by this Authority, because the applicant failed to suggest a figure.
      ☐ as selected by this Authority, because this figure better characterizes the invention.
   b. ☐ none of the figures is to be published with the abstract.

Form PCT/ISA/210 (first sheet) (January 2015)

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US2019/013389

Box No. II Observations where certain claims were found unsearchable (Continuation of item 2 of first sheet)

This international search report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:

2. ☐ Claims Nos.:
because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically:

3. ☐ Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box No. III Observations where unity of invention is lacking (Continuation of item 3 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:
See extra sheet(s).

1. ☐ As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims.

2. ☐ As all searchable claims could be searched without effort justifying additional fees, this Authority did not invite payment of additional fees.

3. ☐ As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims for which fees were paid, specifically claims Nos.:

4. ☒ No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:
1-42

Remark on Protest

☐ The additional search fees were accompanied by the applicant's protest and, where applicable, the payment of a protest fee.

☐ The additional search fees were accompanied by the applicant's protest but the applicable protest fee was not paid within the time limit specified in the invitation.

☐ No protest accompanied the payment of additional search fees.

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US2019/013389

A. CLASSIFICATION OF SUBJECT MATTER
IPC(8) - G08C 17/02; H04R 1/02; H05B 37/02; H05B 41/38 (2019.01)
CPC - H04L 12/2816; G08C 17/02; G08C 23/04; H04L 12/2838; H04L 2012/2841; H05B 33/086; H05B 37/0227; H05B 37/0272 (2019.02)

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)
See Search History document

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched
USPC - 315/294; 327/365; 381/391; 439/78; 700/286 (keyword delimited)

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

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 2017/151682 A1 (INNOSYS, INC.) 08 September 2017 (08.09.2017) entire document	1-5, 17-22, 34-42
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Y		6-16, 23-33
Y	US 2015/0351203 A1 (ZHEJIANG SHENGHUI LIGHTING CO., LTD) 03 December 2015 (03.12.2015) entire document	6-16, 23-33
Y	US 2014/0270714 A1 (OSMINER et al) 18 September 2014 (18.09.2014) entire document	8, 9, 25, 26
Y	US 2014/0101082 A1 (NEST LABS, INC.) 10 April 2014 (10.04.2014) entire document	10-16, 27-33
Y	US 9,589,461 B1 (PALM COAST IMPORTS, LLC) 07 March 2017 (07.03.2017) entire document	14, 15, 31, 32
A	US 2014/0177900 A1 (HOMEWERKS WORLDWIDE, LLC) 26 June 2014 (26.06.2014) entire document	1-42

☐ Further documents are listed in the continuation of Box C. ☐ See patent family annex.

* Special categories of cited documents:
"A" document defining the general state of the art which is not considered to be of particular relevance
"E" earlier application or patent but published on or after the international filing date
"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
"O" document referring to an oral disclosure, use, exhibition or other means
"P" document published prior to the international filing date but later than the priority date claimed
"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
29 April 2019	13 MAY 2019
Name and mailing address of the ISA/US Mail Stop PCT, Attn: ISA/US, Commissioner for Patents P.O. Box 1450, Alexandria, VA 22313-1450 Facsimile No. 571-273-8300	Authorized officer Blaine R. Copenheaver PCT Helpdesk: 571-272-4300 PCT OSP: 571-272-7774

Form PCT/ISA/210 (second sheet) (January 2015)

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US2019/013389

Continued from Box No. III Observations where unity of invention is lacking

This application contains the following inventions or groups of inventions which are not so linked as to form a single general inventive concept under PCT Rule 13.1. In order for all inventions to be examined, the appropriate additional examination fees must be paid.

Group I, claims 1-42, are drawn to a control method comprising: receiving, at a fan device including a radio frequency signal receiver and a WiFi interface, a first radio frequency (RF) control signal from a control unit.

Group II, claims 43-60, are drawn to a system (100) comprising: one or more fan devices (110, 112), said one or more fan devices including a first fan device (110, 300), said first fan device (110, 300) including: a first Direct Current (DC) fan motor (304); a first Alternating Current (AC) power interface circuit (322,322').

The inventions listed as Groups I-II do not relate to a single general inventive concept under PCT Rule 13.1 because, under PCT Rule 13.2, they lack the same or corresponding special technical features for the following reasons: the special technical feature of the Group I invention: receiving, at a fan device including a radio frequency signal receiver and a WiFi interface, a first radio frequency (RF) control signal from a control unit, said fan device and said control unit being located at a customer premises; implementing, at the fan device, an operation in response to a first command communicated by the first RF control signal; and operating the fan device to communicate to a server located outside the customer premises, via the WiFi interface, information indicating the operation implemented in response to the first command as claimed therein is not present in the invention of Group II. The special technical feature of the Group II invention: a set of fan devices (110, 111, 112) connected to a single AC power supply source; each of said fan devices (110, 111, 112) in the set of fan devices including: a Direct Current (DC) fan motor (304), said DC fan motor (304) being a brushless DC fan motor that does not include an optical sensor, an optical encoder, a magnetic encoder, a resolver, a synchro, or a Hall effect sensor; an Alternating Current (AC) power interface circuit (322 or 322') including: AC signal and ground input connections (342, 340, 343); an AC filtering circuit (3 70), said AC filtering circuit (370) including: a varistor (1004) that suppresses voltage spikes, said varistor (1004) being connected across an AC input line (1003) connected to an input terminal (342) and a neutral line (1005) connected to a neutral terminal (340); a common mode choke (1006) with a first input connection (1023) connected to the AC input line (1003) and a second input connection (1025) connected to the neutral line (1005), said common mode choke (1006) suppressing noise as claimed therein is not present in the invention of Group I.

Groups I and II lack unity of invention because even though the inventions of these groups require the technical feature of a system comprising: a fan device comprising: a fan motor, this technical feature is not a special technical feature as it does not make a contribution over the prior art.

Specifically, US 2014/0177900 to Homewerks Worldwide LLC teaches a system comprising: a fan device comprising: a fan motor (Paras. [0017-0018]).

Since none of the special technical features of the Group I or II inventions are found in more than one of the inventions, unity of invention is lacking.

PATENT COOPERATION TREATY

From the
INTERNATIONAL SEARCHING AUTHORITY

To: STEPHEN T. STRAUB
STRAUB & STRAUB
788 SHREWSBURY AVE.
TINTON FALLS, NJ 07724

PCT

WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY

(PCT Rule 43*bis*.1)

Date of mailing *(day/month/year)*	13 MAY 2019

Applicant's or agent's file reference	FOR FURTHER ACTION
WAC-10APP1T03PCT	See paragraph 2 below

International application No.	International filing date *(day/month/year)*	Priority date *(day/month/year)*
PCT/US2019/013389	12 January 2019	12 January 2018

International Patent Classification (IPC) or both national classification and IPC
IPC(8) - G08C 17/02; H04R 1/02; H05B 37/02; H05B 41/38 (2019.01)
CPC - H04L 12/2816; G08C 17/02; G08C 23/04; H04L 12/2838; H04L 2012/2841; H05B 33/086; H05B 37/0227; H05B 37/0272 (2019.02)

Applicant WANGS ALLIANCE CORPORATION

1. This opinion contains indications relating to the following items:

- ☒ Box No. I Basis of the opinion
- ☐ Box No. II Priority
- ☐ Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- ☒ Box No. IV Lack of unity of invention
- ☒ Box No. V Reasoned statement under Rule 43*bis*.1(a)(i) with regard to novelty, inventive step and industrial applicability; citations and explanations supporting such statement
- ☐ Box No. VI Certain documents cited
- ☐ Box No. VII Certain defects in the international application
- ☐ Box No. VIII Certain observations on the international application

2. **FURTHER ACTION**

If a demand for international preliminary examination is made, this opinion will be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA") except that this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1*bis*(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of 3 months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

For further options, see Form PCT/ISA/220.

Name and mailing address of the ISA/US	Date of completion of this opinion	Authorized officer
Mail Stop PCT, Attn: ISA/US Commissioner for Patents P.O. Box 1450, Alexandria, VA 22313-1450 Facsimile No. 571-273-8300	29 April 2019	Blaine R. Copenheaver PCT Helpdesk: 571-272-4300 PCT OSP: 571-272-7774

Form PCT/ISA/237 (cover sheet) (January 2015)

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY

International application No.
PCT/US2019/013389

Box No. I Basis of this opinion

1. With regard to the **language**, this opinion has been established on the basis of:
   - [x] the international application in the language in which it was filed.
   - [ ] a translation of the international application into _____ which is the language of a translation furnished for the purposes of international search (Rules 12.3(a) and 23.1(b)).

2. [ ] This opinion has been established taking into account the **rectification of an obvious mistake** authorized by or notified to this Authority under Rule 91 (Rule 43*bis*.1(a)).

3. [ ] With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, this opinion has been established on the basis of a sequence listing:
   - a. [ ] forming part of the international application as filed:
     - [ ] in the form of an Annex C/ST.25 text file.
     - [ ] on paper or in the form of an image file.
   - b. [ ] furnished together with the international application under PCT Rule 13*ter*.1(a) for the purposes of international search only in the form of an Annex C/ST.25 text file.
   - c. [ ] furnished subsequent to the international filing date for the purposes of international search only:
     - [ ] in the form of an Annex C/ST.25 text file (Rule 13*ter*.1(a)).
     - [ ] on paper or in the form of an image file (Rule 13*ter*.1(b) and Administrative Instructions, Section 713).

4. [ ] In addition, in the case that more than one version or copy of a sequence listing has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that forming part of the application as filed or does not go beyond the application as filed, as appropriate, were furnished.

5. Additional comments:

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY

International application No.
PCT/US2019/013389

Box No. IV Lack of unity of invention

1. ☒ In response to the invitation (Form PCT/ISA/206) to pay additional fees the applicant has, within the applicable time limit:

   ☐ paid additional fees.

   ☐ paid additional fees under protest and, where applicable, the protest fee.

   ☐ paid additional fees under protest but the applicable protest fee was not paid.

   ☒ not paid additional fees.

2. ☐ This Authority found that the requirement of unity of invention is not complied with and chose not to invite the applicant to pay additional fees.

3. This Authority considers that the requirement of unity of invention in accordance with Rule 13.1, 13.2 and 13.3 is

   ☐ complied with.

   ☒ not complied with for the following reasons:

This application contains the following inventions or groups of inventions which are not so linked as to form a single general inventive concept under PCT Rule 13.1. In order for all inventions to be examined, the appropriate additional examination fees must be paid.

Group I, claims 1-42, are drawn to a control method comprising: receiving, at a fan device including a radio frequency signal receiver and a WiFi interface, a first radio frequency (RF) control signal from a control unit.

Group II, claims 43-60, are drawn to a system (100) comprising: one or more fan devices (110, 112), said one or more fan devices including a first fan device (110, 300), said first fan device (110, 300) including: a first Direct Current (DC) fan motor (304); a first Alternating Current (AC) power interface circuit (322,322').

The inventions listed as Groups I-II do not relate to a single general inventive concept under PCT Rule 13.1 because, under PCT Rule 13.2, they lack the same or corresponding special technical features for the following reasons: the special technical feature of the Group I invention: receiving, at a fan device including a radio frequency signal receiver and a WiFi interface, a first radio frequency (RF) control signal from a control unit, said fan device and said control unit being located at a customer premises; implementing, at the fan device, an operation in response to a first command communicated by the first RF control signal; and operating the fan device to communicate to a server located outside the customer premises, via the WiFi interface, information indicating the operation implemented in response to the first command as claimed therein is not present in the invention of Group II. The special technical feature of the Group II invention: a set of fan devices (110, 111, 112) connected to a single AC power supply source; each of said fan devices (110, 111, 112) in the set of fan devices including: a Direct Current (DC) fan motor (304), said DC fan motor (304) being a brushless DC fan motor that does not include an optical sensor, an optical encoder, a magnetic encoder, a resolver, a synchro, or a Hall effect sensor; an Alternating Current (AC) power interface circuit (322 or 322') including: AC signal and ground input connections (342, 340, 343); an AC filtering circuit (3 70), said AC filtering circuit (370) including: a varistor (1004) that suppresses voltage spikes, said varistor (1004) being connected across an AC input line (1003) connected to an input terminal (342) and a neutral line (1005) connected to a neutral terminal (340); a common mode choke (1006) with a first input connection (1023) connected to the AC input line (1003) and a second input connection (1025) connected to the neutral line (1005), said common mode choke (1006) suppressing noise as claimed therein is not present in the invention of Group I.

Groups I and II lack unity of invention because even though the inventions of these groups require the technical feature of a system comprising: a fan device comprising: a fan motor, this technical feature is not a special technical feature as it does not make a contribution over the prior art.

Specifically, US 2014/0177900 to Homewerks Worldwide LLC teaches a system comprising: a fan device comprising: a fan motor (Paras. [0017-0018]).

Since none of the special technical features of the Group I or II inventions are found in more than one of the inventions, unity of invention is lacking.

4. Consequently, this opinion has been established in respect of the following parts of the international application:

   ☐ all parts.

   ☒ the parts relating to claims Nos. 1-42

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Box No. V **Reasoned statement under Rule 43*bis*.1(a)(i) with regard to novelty, inventive step and industrial applicability; citations and explanations supporting such statement**

1. Statement

Novelty (N)	Claims	6-16, 23-33	YES
	Claims	1-5, 17-22, 34-42	NO
Inventive step (IS)	Claims	None	YES
	Claims	1-42	NO
Industrial applicability (IA)	Claims	1-42	YES
	Claims	None	NO

2. Citations and explanations:

Claims 1-5, 17-22, and 34-42 lack novelty under PCT Article 33(2) as being anticipated by InnoSys, Inc. (hereinafter InnoSys).

Regarding claim 1, InnoSys discloses a control method comprising (abstract):
receiving, at a fan device including a radio frequency signal receiver and a WiFi interface, a first radio frequency (RF) control signal from a control unit, said fan device and said control unit being located at a customer premises (The control unit may be linked to devices such as motorized windows, automatic doors, thermostats, HVAC systems [i.e. a fan device], motorized shades and other devices to adjust the climate inside automatically and intelligently. The sensors may also be integrated into a WIFI or LAN network [i.e. a WiFi interface] and displayed in a web terminal or other device to show the status of a building and to identify areas of potential problems, para 0116, The switchable wireless controller 370 can include multiple wireless transmitters, such as, but not limited to, IR emitters, which can be enabled and disabled individually or in groups. The switchable wireless controller 370 can also include wired or wireless receivers, such as, but not limited to, IR receiver(s), RF receivers [i.e. a radio frequency signal receiver and a WiFi interface], etc., to receive signals or commands [i.e. a first radio frequency (RF) control signal from a control unit] to be relayed and optionally format converted, para 0142, If the user is not present in a home, residence [i.e. fan device and said control unit being located at a customer premises], apartment, condo, building or structure the lights can be scheduled to turn on to imitate the idea that the building is occupied or to turn them off to save the energy cost on the power bill, para 0159);
implementing, at the fan device, an operation in response to a first command communicated by the first RF control signal (The switchable wireless controller 370 can include multiple wireless transmitters, such as, but not limited to, IR emitters, which can be enabled and disabled individually or in groups. The switchable wireless controller 370 can also include wired or wireless receivers, such as, but not limited to, IR receiver(s), RF receivers, etc., to receive signals or commands [i.e. an operation in response to a first command communicated by the first RF control signal] to be relayed and optionally format converted, para 0142, The user can schedule events and/or tasks for heaters, fans, coolers, air conditioners, central air, televisions, DVD, DVR, Blu-ray, cable and satellite boxes and service providers, other appliances and/or devices to turn on/off and specific times using software applications on their phone, tablet, computer, personal device(s), etc., by specifying the month, day, hour, and minute when a device can turn on/off or perform any other varying task [i.e. implementing, at the fan device, an operation in response to a first command communicated by the first RF control signal], para 0159); and
operating the fan device to communicate to a server located outside the customer premises, via the WiFi interface, information indicating the operation implemented in response to the first command (The information may be uploaded to remote servers [i.e. a server located outside the customer premises] and combined with other data from other buildings/structures/elements to build a picture of complete building/site efficiency, para 0116, A server/control unit 284 can be connected by WiFi or other connections to remote devices 288, 290, 292 such as, but not limited to, heaters, coolers or HVAC equipment [i.e. operating the fan device to communicate to a server located outside the customer premises, via the WiFi interface], lighting systems, entertainment systems or audiovisual equipment such as, but not limited to, televisions, receivers, speakers, media players, audio players, communications systems, power supplies and/or power controls/monitors, etc. Handheld devices, mobile thermostats, remote controls, etc. (e.g., 280) can be connected to the server/control unit 284 by wired/wireless connections or combinations thereof, for example through a home/office WiFi Internet router 282, para 0138, in addition to controlling and monitoring the light, etc. also controls and monitors temperature including room and local temperature, humidity, entertainment status including whether the television is turned on, the channel, show, volume, etc., selected, the temperature in various locations and spaces in the house, residence, apartment, building, condo, office, school, etc. the heater, cooler, air conditioner on/off/level/ power consumption [i.e. information indicating the operation implemented in response to the first command], etc., combinations of these, etc., para 0059).

Regarding claim 2, InnoSys further discloses that said first command is one of: a fan on command, a fan off command, a fan power state change command, a fan speed up command, a fan speed down command, a fan direction change command, a light on command, a light off command, a light power state change command, a light increase command, a light decrease command (The user can schedule events and/or tasks for heaters, fans, coolers, air conditioners, central air, televisions, DVD, DVR, Blu-ray, cable and satellite boxes and service providers, other appliances and/or devices to turn on/off and specific times using software applications on their phone, tablet, computer, personal device(s), etc., by specifying the month, day, hour, and minute when a device can turn on/off or perform any other varying task [i.e. a fan on command, a fan off command, a fan power state change command], para 0159).

Regarding claim 3, InnoSys further discloses that said RF control signal is sent using an RF frequency which is not used for WiFi signals (a switchable wireless controller can perform signal conversion, for example receiving Bluetooth or other RF signals [i.e. RF control signal is sent using an RF frequency which is not used for WiFi signals] and converting them to IR or other wireless signals, thereby enabling a remote control, smart phone, tablet, personal device, computers, etc. to output a Bluetooth signal which is received and translated by the switchable wireless controller to generate IR signals to control one or more electronic devices, para 0002).

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Regarding claim 4, InnoSys further discloses further comprising:
operating a WiFi router located at the customer premises to receive a first WiFi control signal from a wireless terminal located at the customer premises, said first WiFi control signal communicating a second command used to control the fan device (Handheld devices, mobile thermostats, remote controls, etc. (e.g., 280) can be connected to the server/control unit 284 by wired/wireless connections or combinations thereof, for example through a home/office WiFi Internet router 282 [i.e. operating a WiFi router located at the customer premises to receive a first WiFi control signal from a wireless terminal located at the customer premises], para 0138, Having the device connected to the Internet through an Internet router, the user can control their remote devices on the wide area network (WAN) from outside their home or business network when the user is away. In embodiments of the present invention, alarms, proximity, global positioning system (GPS) information, location, signals, etc. can be used. The present invention can be present to turn on or off or dim or increase lighting, heating, cooling, temperature, air flow [i.e. WiFi control signal communicating a second command used to control the fan device], other appliances, etc., para 0152);
operating the WiFi router to communicate, via a WiFi signal, the second command to the fan device (Handheld devices, mobile thermostats, remote controls, etc. (e.g., 280) can be connected to the server/control unit 284 by wired/wireless connections or combinations thereof, for example through a home/office WiFi Internet router 282 [i.e. operating a WiFi router], para 0138, Having the device connected to the Internet through an Internet router, the user can control their remote devices on the wide area network (WAN) from outside their home or business network when the user is away. In embodiments of the present invention, alarms, proximity, global positioning system (GPS) information, location, signals, etc. can be used. The present invention can be present to turn on or off or dim or increase lighting, heating, cooling, temperature, air flow [i.e. communicate, via a WiFi signal, the second command to the fan device], other appliances, etc., para 0152); and
operating the fan device to implement the second command (Handheld devices, mobile thermostats, remote controls, etc. (e.g., 280) can be connected to the server/control unit 284 by wired/wireless connections or combinations thereof, for example through a home/office WiFi Internet router 282, para 0138, in addition to controlling and monitoring the light, etc. also controls and monitors temperature including room and local temperature, humidity, entertainment status including whether the television is turned on, the channel, show, volume, etc., selected, the temperature in various locations and spaces in the house, residence, apartment, building, condo, office, school, etc. the heater, cooler, air conditioner on/off/level/ power consumption [i.e. operating the fan device to implement the second command], etc., combinations of these, etc., para 0059).

Regarding claim 5, InnoSys further discloses further comprising:
operating the fan device to communicate to the server located outside the customer premises, via the WiFi interface, information indicating the operation implemented in response to the second command (The information may be uploaded to remote servers [i.e. a server located outside the customer premises] and combined with other data from other buildings/structures/elements to build a picture of complete building/site efficiency, para 0116, A server/control unit 284 can be connected by WiFi or other connections to remote devices 288, 290, 292 such as, but not limited to, heaters, coolers or HVAC equipment [i.e. operating the fan device to communicate to a server located outside the customer premises, via the WiFi interface], lighting systems, entertainment systems or audiovisual equipment such as, but not limited to, televisions, receivers, speakers, media players, audio players, communications systems, power supplies and/or power controls/monitors, etc. Handheld devices, mobile thermostats, remote controls, etc. (e.g., 280) can be connected to the server/control unit 284 by wired/wireless connections or combinations thereof, for example through a home/office WiFi Internet router 282, para 0138, in addition to controlling and monitoring the light, etc. also controls and monitors temperature including room and local temperature, humidity, entertainment status including whether the television is turned on, the channel, show, volume, etc., selected, the temperature in various locations and spaces in the house, residence, apartment, building, condo, office, school, etc. the heater, cooler, air conditioner on/off/level/ power consumption [i.e. information indicating the operation implemented in response to the second command], etc., combinations of these, etc., para 0059).

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Regarding claim 17, InnoSys discloses a system comprising (abstract):
a fan device (This system can be used in all control devices such as heaters, air-conditioners, televisions, personal fans [i.e. a fan device], air purifiers, DVD units, DVR, satellite, cable boxes, etc., para 0006) comprising:
a fan motor (including fans, motors [i.e. a fan motor], USB, battery chargers, etc. Linear regulation, linear regulators, switching regulators, voltage regulators, current regulation, current regulators, shunt, regulation, shunt regulators, combinations of these, etc. may be used, para 0167);
a radio frequency (RF) signal receiver configured to receive radio frequency (RF) control signals from a control unit, said fan device and said control unit being located at a customer premises (switchable wireless controller 370 can also include wired or wireless receivers, such as, but not limited to, IR receiver(s), RF receivers [i.e. a radio frequency (RF) signal receiver configured to receive radio frequency (RF) control signals from a control unit], para 0142, If the user is not present in a home, residence [i.e. fan device and said control unit being located at a customer premises], apartment, condo, building or structure the lights can be scheduled to turn on to imitate the idea that the building is occupied or to turn them off to save the energy cost on the power bill, para 0159);
a WiFi interface (A server/control unit 284 can be connected by WiFi or other connections to remote devices 288, 290, 292 such as, but not limited to, heaters, coolers or HVAC equipment, lighting systems, entertainment systems or audiovisual equipment such as, but not limited to, televisions, receivers, speakers, media players, audio players, communications systems, power supplies and/or power controls/monitors, etc. Handheld devices, mobile thermostats, remote controls, etc. (e.g., 280) can be connected to the server/control unit 284 by wired/wireless connections or combinations thereof, for example through a home/office WiFi Internet router 282 [i.e. the WiFi interface], para 0138);
a fan motor control circuit configured to control the fan motor in response to a received first radio frequency control signal, said first radio frequency control signal communicating a first command (The switchable wireless controller 370 can include multiple wireless transmitters, such as, but not limited to, IR emitters, which can be enabled and disabled individually or in groups. The switchable wireless controller 370 can also include wired or wireless receivers, such as, but not limited to, IR receiver(s), RF receivers, etc., to receive signals or commands [i.e. radio frequency control signal communicating a first command I] to be relayed and optionally format converted, para 0142, The user can schedule events and/or tasks for heaters, fans, coolers, air conditioners, central air, televisions, DVD, DVR, Blu-ray, cable and satellite boxes and service providers, other appliances and/or devices to turn on/off and specific times using software applications on their phone, tablet, computer, personal device(s), etc., by specifying the month, day, hour, and minute when a device can turn on/off or perform any other varying task [i.e. a fan motor control circuit configured to control the fan motor in response to a received first radio frequency control signal], para 0159); and
a first processor configured to communicate to a server, located outside the customer premises, via the WiFi interface, information indicating an operation implemented in response to the first command (Control can use, microcontroller(s), microprocessor(s) [i.e. a first processor], digital signal processor(s) (DSPs), field programmable gate array(s) (FPGAs), complex logic device(s) (CLDs), para 0063, The information may be uploaded to remote servers [i.e. a server located outside the customer premises] and combined with other data from other buildings/structures/elements to build a picture of complete building/site efficiency, para 0116, A server/control unit 284 can be connected by WiFi or other connections to remote devices 288, 290, 292 such as, but not limited to, heaters, coolers or HVAC equipment [i.e. operating the fan device to communicate to a server located outside the customer premises, via the WiFi interface], lighting systems, entertainment systems or audiovisual equipment such as, but not limited to, televisions, receivers, speakers, media players, audio players, communications systems, power supplies and/or power controls/monitors, etc. Handheld devices, mobile thermostats, remote controls, etc. (e.g., 280) can be connected to the server/control unit 284 by wired/wireless connections or combinations thereof, for example through a home/office WiFi Internet router 282, para 0138, in addition to controlling and monitoring the light, etc. also controls and monitors temperature including room and local temperature, humidity, entertainment status including whether the television is turned on, the channel, show, volume, etc., selected, the temperature in various locations and spaces in the house, residence, apartment, building, condo, office, school, etc. the heater, cooler, air conditioner on/off/level/ power consumption [i.e. information indicating the operation implemented in response to the first command], etc., combinations of these, etc., para 0059).

Regarding claim 18, InnoSys further discloses that said fan device further comprises:
a light (lighting devices [i.e. a light] that can be controlled wirelessly by the same convention, signals, protocols, etc. as the remote devices, para 0015); and
a light control circuit configured to control the light in response to a received second radio frequency control signal, said second radio frequency control signal communicating a second command (The lighting devices can respond to user's presets when a familiar Bluetooth device is recognized and in range [i.e. a light control circuit configured to control the light in response to a received second radio frequency control signal]. This can consist of but is not limited to, dimming level, position, color, or status, temperature, rates, other parameters/conditions [i.e. second radio frequency control signal communicating a second command], etc., para 0020); and
wherein said first processor is further configured to communicate to said server, via the WiFi interface, information indicating an operation implemented in response to said first command (The information may be uploaded to remote servers [i.e. a server located outside the customer premises] and combined with other data from other buildings/structures/elements to build a picture of complete building/site efficiency, para 0116, A server/control unit 284 can be connected by WiFi or other connections to remote devices 288, 290, 292 such as, but not limited to, heaters, coolers or HVAC equipment [i.e. operating the fan device to communicate to a server located outside the customer premises, via the WiFi interface], lighting systems, entertainment systems or audiovisual equipment such as, but not limited to, televisions, receivers, speakers, media players, audio players, communications systems, power supplies and/or power controls/monitors, etc. Handheld devices, mobile thermostats, remote controls, etc. (e.g., 280) can be connected to the server/control unit 284 by wired/wireless connections or combinations thereof, for example through a home/office WiFi Internet router 282, para 0138, in addition to controlling and monitoring the light, etc. also controls and monitors temperature including room and local temperature, humidity, entertainment status including whether the television is turned on, the channel, show, volume, etc., selected, the temperature in various locations and spaces in the house, residence, apartment, building, condo, office, school, etc. the heater, cooler, air conditioner on/off/level/ power consumption [i.e. information indicating the operation implemented in response to the first command], etc., combinations of these, etc., para 0059).

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Regarding claim 19, InnoSys further discloses that said first RF control signal communicates one of: a fan on command, a fan off command, a fan power state change command, a fan speed up command, a fan speed down command, a fan direction change command (The user can schedule events and/or tasks for heaters, fans, coolers, air conditioners, central air, televisions, DVD, DVR, Blu-ray, cable and satellite boxes and service providers, other appliances and/or devices to turn on/off and specific times using software applications on their phone, tablet, computer, personal device(s), etc., by specifying the month, day, hour, and minute when a device can turn on/off or perform any other varying task [i.e. a fan on command, a fan off command, a fan power state change command], para 0159); and
wherein said second RF control signal communicates one of: a light on command, a light off command, a light power state change command, a light increase command, a light decrease command (The lighting devices can respond to user's presets when a familiar Bluetooth device is recognized and in range. This can consist of but is not limited to, dimming level, position, color, or status, temperature, rates, other parameters/conditions [i.e. said second RF control signal communicates one of: a light on command, a light off command, a light power state change command, a light increase command, a light decrease command], etc., para 0020).

Regarding claim 20, InnoSys further discloses that said first RF control signal and said second RF control signal are sent using RF frequencies which are not used for WiFi signals (a switchable wireless controller can perform signal conversion, for example receiving Bluetooth or other RF signals [i.e. RF control signal is sent using an RF frequency which is not used for WiFi signals] and converting them to IR or other wireless signals, thereby enabling a remote control, smart phone, tablet, personal device, computers, etc. to output a Bluetooth signal which is received and translated by the switchable wireless controller to generate IR signals to control one or more electronic devices, para 0002).

Regarding claim 21, InnoSys further discloses further comprising:
a WiFi router located at the customer premises (Handheld devices, mobile thermostats, remote controls, etc. (e.g., 280) can be connected to the server/control unit 284 by wired/wireless connections or combinations thereof, for example through a home/office WiFi Internet router 282 [i.e. a WiFi router located at the customer premises], para 0138), said WiFi router comprising:
a receiver configured to receive a first WiFi control signal from a wireless terminal located at the customer premises, said first WiFi control signal communicating a third command used to control the fan device (Handheld devices, mobile thermostats, remote controls, etc. (e.g., 280) can be connected to the server/control unit 284 by wired/wireless connections or combinations thereof, for example through a home/office WiFi Internet router 282 [i.e. a receiver configured to receive a first WiFi control signal from a wireless terminal located at the customer premises], para 0138, Having the device connected to the Internet through an Internet router, the user can control their remote devices on the wide area network (WAN) from outside their home or business network when the user is away. In embodiments of the present invention, alarms, proximity, global positioning system (GPS) information, location, signals, etc. can be used. The present invention can be present to turn on or off or dim or increase lighting, heating, cooling, temperature, air flow [i.e. WiFi control signal communicating a third command used to control the fan device], other appliances, etc., para 0152);
a transmitter configured to communicate, via a WiFi signal, the third command to the fan device (a switchable wireless controller can perform signal conversion, for example receiving Bluetooth or other RF signals and converting them to IR or other wireless signals, thereby enabling a remote control, smart phone, tablet, personal device, computers, etc. to output a Bluetooth signal [i.e. a transmitter configured to communicate, via a WiFi signal, the third command to the fan device] which is received and translated by the switchable wireless controller to generate IR signals to control one or more electronic devices, para 0002); and
wherein said first processor is configured to control at least one of the fan motor control circuit or the light control circuit to implement the third command (The user can schedule events and/or tasks for heaters, fans, coolers, air conditioners, central air, televisions, DVD, DVR, Blu-ray, cable and satellite boxes and service providers, other appliances and/or devices to turn on/off and specific times using software applications on their phone, tablet, computer, personal device(s), etc., by specifying the month, day, hour, and minute when a device can turn on/off or perform any other varying task [i.e. control at least one of the fan motor control circuit to implement the third command], para 0159).

Regarding claim 22, InnoSys further discloses further comprising:
wherein said first processor is configured to control the WiFi interface in said fan device to send information indicating the operation implemented in response to the third command (A server/control unit 284 can be connected by WiFi or other connections to remote devices 288, 290, 292 such as, but not limited to, heaters, coolers or HVAC equipment [i.e. control the WiFi interface in said fan device], lighting systems, entertainment systems or audiovisual equipment such as, but not limited to, televisions, receivers, speakers, media players, audio players, communications systems, power supplies and/or power controls/monitors, etc. Handheld devices, mobile thermostats, remote controls, etc. (e.g., 280) can be connected to the server/control unit 284 by wired/wireless connections or combinations thereof, for example through a home/office WiFi Internet router 282, para 0138, in addition to controlling and monitoring the light, etc. also controls and monitors temperature including room and local temperature, humidity, entertainment status including whether the television is turned on, the channel, show, volume, etc., selected, the temperature in various locations and spaces in the house, residence, apartment, building, condo, office, school, etc. the heater, cooler, air conditioner on/off/level/ power consumption [i.e. send information indicating the operation implemented in response to the third command], etc., combinations of these, etc., para 0059).

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Regarding claim 34, InnoSys discloses a fan device controller (The control unit may be linked to devices such as motorized windows, automatic doors, thermostats, HVAC systems [i.e. a fan device], motorized shades and other devices to adjust the climate inside automatically and intelligently. The sensors may also be integrated into a WIFI or LAN network and displayed in a web terminal or other device to show the status of a building and to identify areas of potential problems, para 0116, The switchable wireless controller 370 [i.e. a fan device controller] can include multiple wireless transmitters, such as, but not limited to, IR emitters, which can be enabled and disabled individually or in groups. The switchable wireless controller 370 can also include wired or wireless receivers, such as, but not limited to, IR receiver(s), RF receivers, etc., to receive signals or commands to be relayed and optionally format converted, para 0142) including:
an AC voltage input (determine, calculate, expand upon, track, provide analytics, etc. of power consumption, energy-efficiency, power factor, energy costs, etc. by for example, using an energy/power monitoring device or devices to measure either or both the AC and/or DC input power [i.e. an AC voltage input], etc., para 0120);
an AC output for supplying power to a fan device (Elements of the system can be installed in place of light switches, lamp controls, fan controls, AC line outlet boxes [i.e. an AC output for supplying power to a fan device], junction boxes, etc., para 0101);
an RF signal interface including an RF signal transmitter for transmitting commands to a device to be controlled (Each of the IR emitters can be enabled and disabled as needed or desired to transmit commands to electronic devices, para 0002, The switchable wireless controller 370 can include multiple wireless transmitters, such as, but not limited to, IR emitters [i.e. an RF signal transmitter for transmitting commands to a device to be controlled], which can be enabled and disabled individually or in groups. The switchable wireless controller 370 can also include wired or wireless receivers, such as, but not limited to, IR receiver(s), RF receivers, etc., to receive signals or commands to be relayed and optionally format converted, para 0142);
an RF controller for controlling the RF signal interface to send control signals including one or more commands to said fan device (Bluetooth or other RF signals and converting them to IR or other wireless signals, thereby enabling a remote control, smart phone, tablet, personal device, computers, etc. to output a Bluetooth signal which is received and translated by the switchable wireless controller to generate IR signals to control one or more electronic devices [i.e. an RF controller for controlling the RF signal interface to send control signals including one or more commands to said fan device], para 0002); and
a disconnect switch for disconnecting said AC output from said AC input when said disconnect switch is switched to a disconnect state from a connect state (the AC power lines which can be switch selectable [implicitly, since the AC power line is switchable it can also have a disconnect] including user or utility selectable, para 0158, Elements of the system can be installed in place of light switches [i.e. a disconnect switch for disconnecting said AC output from said AC input when said disconnect switch is switched to a disconnect state from a connect state], lamp controls, fan controls, AC line outlet boxes, junction boxes, etc., para 0101).

Regarding claim 35, InnoSys further discloses further comprising:
a fan control input for turning a fan on or off (The user can schedule events and/or tasks for heaters, fans, coolers, air conditioners, central air, televisions, DVD, DVR, Blu-ray, cable and satellite boxes and service providers, other appliances and/or devices to turn on/off and specific times using software applications on their phone, tablet, computer, personal device(s), etc., by specifying the month, day, hour, and minute when a device can turn on/off or perform any other varying task [i.e. fan control input for turning a fan on or off], para 0159), and
a light control input for turning a light on or off (The user can schedule events and/or tasks for heaters, fans, coolers, air conditioners, central air, televisions, DVD, DVR, Blu-ray, cable and satellite boxes and service providers, other appliances and/or devices to turn on/off and specific times using software applications on their phone, tablet, computer, personal device(s), etc., by specifying the month, day, hour, and minute when a device can turn on/off or perform any other varying task [i.e. a light control input for turning a light on or off], para 0159).

Regarding claim 36, InnoSys further discloses further comprising:
a light up input coupled to said RF controller (a daylight harvester can be any circuit/sensor combination configured to sense ambient light and to dim an associated solid state light when the ambient light is bright enough. This energy management technique reduces lighting from the solid state light (for example, in the fluorescent lamp replacement) when ambient light (whether natural or artificial or a combination) is present. In some embodiments, a desired light level for the space is selected, and the daylight harvester adjusts the light level from the solid state light to reach the desired light level [i.e. a light up input coupled to said RF controller]. When ambient light is available from sources other than the solid state light, for example but not limited to daylight from a window, the daylight harvester will be able to reduce the electrical current to the solid state light, thereby dimming the solid state light to save power, while keeping the total light in the area (the ambient plus the light from the solid state light) at the selected level, para 0147); and
a light down input coupled to said RF controller (a daylight harvester can be any circuit/sensor combination configured to sense ambient light and to dim an associated solid state light when the ambient light is bright enough. This energy management technique reduces lighting from the solid state light (for example, in the fluorescent lamp replacement) when ambient light (whether natural or artificial or a combination) is present. In some embodiments, a desired light level for the space is selected, and the daylight harvester adjusts the light level from the solid state light to reach the desired light level [i.e. a light down input coupled to said RF controller]. When ambient light is available from sources other than the solid state light, for example but not limited to daylight from a window, the daylight harvester will be able to reduce the electrical current to the solid state light, thereby dimming the solid state light to save power, while keeping the total light in the area (the ambient plus the light from the solid state light) at the selected level, para 0147).

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Regarding claim 37, InnoSys further discloses further comprising:
a fan speed up input coupled to said RF controller (control one or more furnaces/air conditioners, air blowers, fans, evaporation/evaporative (swamp) coolers, electrical heaters, baseboard heaters, radiative heaters, under floor covering heaters, ceramic heaters, quartz lamp heaters, two- and tri-fuel (including, for example, but not limited to one or more of propane, butane, natural gas, hydrogen, fuel cells, electricity, solar heaters, solar coolers, boilers, portable heater of any type, air conditioner(s) of any type including central air, window air conditioners, roof top units, radiant heaters, radiant floor heaters of all types and kinds, natural gas heaters, propane heaters, other types of fuel heaters, water heaters, hot water heaters, electrical heaters of any type, oil heaters, wood heaters, pellet heaters, hot air heaters, ceiling fans (including the direction of rotation and speed of rotation [i.e. a fan speed up input coupled to said RF controller] for ceiling and any other type of fan) etc., para 0113); and
a fan speed down input coupled to said RF controller (control one or more furnaces/air conditioners, air blowers, fans, evaporation/evaporative (swamp) coolers, electrical heaters, baseboard heaters, radiative heaters, under floor covering heaters, ceramic heaters, quartz lamp heaters, two- and tri-fuel (including, for example, but not limited to one or more of propane, butane, natural gas, hydrogen, fuel cells, electricity, solar heaters, solar coolers, boilers, portable heater of any type, air conditioner(s) of any type including central air, window air conditioners, roof top units, radiant heaters, radiant floor heaters of all types and kinds, natural gas heaters, propane heaters, other types of fuel heaters, water heaters, hot water heaters, electrical heaters of any type, oil heaters, wood heaters, pellet heaters, hot air heaters, ceiling fans (including the direction of rotation and speed of rotation [i.e. fan speed down input coupled to said RF controller] for ceiling and any other type of fan) etc., para 0113).

Regarding claim 38, InnoSys further discloses further comprising:
a fan reverse input coupled to said RF controller (control one or more furnaces/air conditioners, air blowers, fans, evaporation/evaporative (swamp) coolers, electrical heaters, baseboard heaters, radiative heaters, under floor covering heaters, ceramic heaters, quartz lamp heaters, two- and tri-fuel (including, for example, but not limited to one or more of propane, butane, natural gas, hydrogen, fuel cells, electricity, solar heaters, solar coolers, boilers, portable heater of any type, air conditioner(s) of any type including central air, window air conditioners, roof top units, radiant heaters, radiant floor heaters of all types and kinds, natural gas heaters, propane heaters, other types of fuel heaters, water heaters, hot water heaters, electrical heaters of any type, oil heaters, wood heaters, pellet heaters, hot air heaters, ceiling fans (including the direction of rotation [i.e. a fan reverse input coupled to said RF controller] and speed of rotation for ceiling and any other type of fan) etc., para 0113).

Regarding claim 39, InnoSys further discloses further comprising:
a DC power supply connected to said disconnect switch and to said RF controller (the AC power lines which can be switch selectable [implicitly, since the AC power line is switchable it can also have a disconnect] including user or utility selectable, para 0158, a buck, buck-boost, boost-buck, and/or boost switching topology is used to provide power for the present invention. As an example, a buck circuit can be used to provide AC to DC regulated power to the present invention. An example of an efficient way of providing such power is to for example have the buck circuit be controlled based on the lowest and strictest required regulation voltage that typically is used for the control circuits [i.e. a DC power supply connected to said disconnect switch], para 0167, Either or both the wired analog signal source 652 and wired to wireless adaptor 654 can be powered from an AC line 650 [i.e. a DC power supply connected to said disconnect switch and to said RF controller] or by batteries or other energy sources including but not limited to those discussed herein, para 0193), said DC power supply receiving AC power from said disconnect switch and supplying DC power generated from said AC power to the RF controller (a wired to wireless adaptor 654 which receives a control signal (e.g., 0 to 10V control signal or other type of control signal, etc. including but not limited to those discussed herein).) from a wired analog signal source and/or in some embodiments for example but not limited to a digital signal source, a controller, Controller Power Pack, etc. 652 and converts it to a wireless or other wired signal or signals including but not limited to those discussed herein, signal. The wireless signal is transmitted to a wireless receiver 656 to control one or more lamps, lights, or other 0 to 10V controlled devices 656. Either or both the wired analog signal source 652 and wired to wireless adaptor 654 can be powered from an AC line 650 [i.e. DC power supply receiving AC power from said disconnect switch and supplying DC power generated from said AC power to the RF controller] or by batteries or other energy sources including but not limited to those discussed herein. In some embodiments the wired to wireless adaptor 652 can include an optional relay or switch or switches to enable and disable power and/or control signals to light(s), lamp(s), lighting fixture(s), fixtures in general, load(s), heater(s), air conditioner(s), fan (s), furnace(s), other types of devices, entertainment, appliances, stoves, toasters, microwave ovens, ovens, dishwashers, washers, dryers, etc., other appliances, systems, etc. including but not limited to those discussed herein, etc. combinations of these, other devices, etc. and combinations of those 658. Such a one or more relay and or switch(es) in 652 can be controlled by other means and signals that connect to analog and or digital circuits, state machines, and/or microcontroller(s), microprocessor(s), FPGA(s), DSP(s), etc. combinations of these, etc. that control/decide the one or more relay(s) and/or one or more switch(es). The wired to wireless adaptor 654 and/or other devices, sensors, including but not limited to IOT sensors and other IOT devices may be powered by the AC line, batteries, other energy sources including but not limited to those discussed herein, other devices, etc. As a non- limiting example a 0 to 10 V signal from a BAS, a power pack, a controller, a EMS, etc. of any kind and/or form, type, etc. that produces, for example, but not limited to a 0 to 10 V signal, voltage, etc. can be converted to one or more of a wireless RF and or IR signal of any type of modulation, protocol, encryption, interface, etc. that is transmitted to one or more receivers and/or transceivers, etc. to control and dim/trim/set/etc. one or more lamps, lights, lighting fixtures, loads including combinations of one or more of the loads including but not limited to heaters, appliances, fans, HVAC in general, etc. including but not limited to those discussed herein. In some embodiments the wired to wireless adaptor 652 can include an optional relay or switch to enable and disable power and/or control signals to the wired to wireless adaptor 654 or to other devices, para 0193).

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Regarding claim 40, InnoSys further discloses that switching the disconnect switch to a disconnect state cuts power to both the AC output and to said DC power supply thereby cutting power to a fan device coupled to said fan device controller and to the RF controller at the same time (a wired to wireless adaptor 654 which receives a control signal (e.g., 0 to 10V control signal or other type of control signal, etc. including but not limited to those discussed herein).) from a wired analog signal source and/or in some embodiments for example but not limited to a digital signal source, a controller, Controller Power Pack, etc. 652 and converts it to a wireless or other wired signal or signals including but not limited to those discussed herein, signal. The wireless signal is transmitted to a wireless receiver 656 to control one or more lamps, lights, or other 0 to 10V controlled devices 656. Either or both the wired analog signal source 652 and wired to wireless adaptor 654 can be powered from an AC line 650 or by batteries or other energy sources including but not limited to those discussed herein. In some embodiments the wired to wireless adaptor 652 can include an optional relay or switch or switches to enable and disable power and/or control signals to light(s), lamp(s), lighting fixture(s), fixtures in general, load(s), heater(s), air conditioner(s), fan(s), furnace(s), other types of devices, entertainment, appliances, stoves, toasters, microwave ovens, ovens, dishwashers, washers, dryers, etc., other appliances, systems, etc. including but not limited to those discussed herein, etc. combinations of these, other devices, etc. and combinations of those 658. Such a one or more relay and or switch(es) in 652 can be controlled by other means and signals that connect to analog and or digital circuits, state machines, and/or microcontroller(s), microprocessor(s), FPGA(s), DSP(s), etc. combinations of these, etc. that control/decide the one or more relay(s) and/or one or more switch(es). The wired to wireless adaptor 654 and/or other devices, sensors, including but not limited to IOT sensors and other IOT devices may be powered by the AC line, batteries, other energy sources including but not limited to those discussed herein, other devices, etc. As a non- limiting example a 0 to 10 V signal from a BAS, a power pack, a controller, a EMS, etc. of any kind and/or form, type, etc. that produces, for example, but not limited to a 0 to 10 V signal, voltage, etc. can be converted to one or more of a wireless RF and or IR signal of any type of modulation, protocol, encryption, interface, etc. that is transmitted to one or more receivers and/or transceivers, etc. to control and dim/trim/set/etc. one or more lamps, lights, lighting fixtures, loads including combinations of one or more of the loads including but not limited to heaters, appliances, fans, HVAC in general, etc. including but not limited to those discussed herein. In some embodiments the wired to wireless adaptor 652 can include an optional relay or switch to enable and disable power and/or control signals to the wired to wireless adaptor 654 or to other devices [i.e. switching the disconnect switch to a disconnect state cuts power to both the AC output and to said DC power supply thereby cutting power to a fan device coupled to said fan device controller and to the RF controller at the same time], para 0193).

Regarding claim 41, InnoSys further discloses that said RF controller includes a processor (Control can use, microcontroller(s), microprocessor(s) [i.e. controller includes a processor], digital signal processor(s) (DSPs), field programmable gate array(s) (FPGAs), complex logic device(s) (CLDs), or other methods, techniques, technologies discussed herein, etc., para 0063); and
wherein said processor is configured to:
generate commands in response to input received via one of the inputs included in said fan device controller (Status updates, faults, control, monitor, interrupt, changes, system updates, etc. can all be set, monitored adapted, modified, enhanced, controlled, etc. with the present invention including locally and remotely. Voice, e-mail, gestures, movement, position, web, smart phone and tablet (etc.) applications (apps) [i.e. generate commands in response to input received via one of the inputs included in said fan device controller], other remote controls and monitoring etc. can be used with the present invention to tailor, optimize, maximize, manage, modify, share, allocate, distribute, balance, transfer (including transferring and interacting with power grids), etc. energy/power for the present invention, para 0119); and
control said RF interface to transmit said commands in RF signals to the fan device (Bluetooth or other RF signals and converting them to IR or other wireless signals, thereby enabling a remote control, smart phone, tablet, personal device, computers, etc. to output a Bluetooth signal which is received and translated by the switchable wireless controller to generate IR signals to control one or more electronic devices [i.e. an RF controller for controlling the RF signal interface to send control signals including one or more commands to said fan device], para 0002).

Regarding claim 42, InnoSys further discloses that said fan device controller is configured to fit in an electrical box in a wall of a customer premises (Elements of the system can be installed in place of light switches, lamp controls, fan controls, AC line outlet boxes [i.e. fan device controller is configured to fit in an electrical box in a wall of a customer premises], junction boxes, etc., para 0101).

Claims 6, 7, 23, and 24 lack an inventive step under PCT Article 33(3) as being obvious over InnoSys, Inc. (hereinafter InnoSys) in view of Zhejiang Shenghui Lighting Co., Ltd (hereinafter Zhejiang).

Regarding claim 6, InnoSys discloses the invention above, but InnoSys did not disclose that the second command is communicated from the wireless terminal to the fan device via the WiFi router located in the customer premises without said second command traversing a network outside the customer premises. However, Zhejiang is in the field of light emitting diode (LED) technologies (para 0002) and discloses that the second command is communicated from the wireless terminal to the fan device via the WiFi router located in the customer premises without said second command traversing a network outside the customer premises (The wireless lighting control system in FIG. 2 includes a wireless lighting device 1, a Wi-Fi router 2, a smart terminal 3, and multiple appliances. The smart terminal 3 may connect to Wi-Fi router 2, connect to the Internet, or connect directly to the Wi-Fi unit 13 of the LED lighting device 1 [i.e. the second command is communicated from the wireless terminal to the device via the WiFi router located in the customer premises without said second command traversing a network outside the customer premises], para 0019). It would have been obvious to one of ordinary skill in the art at the time of the invention to modify InnoSys with the teachings of Zhejiang for the purpose of simultaneously controlling multiple appliances (Zhejiang para 0019).

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Regarding claim 7, modified InnoSys discloses the invention above, and InnoSys further discloses further comprising:
operating the server to receive a third command directed to the first fan device (Handheld devices, mobile thermostats, remote controls, etc. (e.g., 280) can be connected to the server/control unit 284 by wired/wireless connections or combinations thereof, for example through a home/office WiFi Internet router 282 [i.e. operating the server to receive], para 0138, Having the device connected to the Internet through an Internet router, the user can control their remote devices on the wide area network (WAN) from outside their home or business network when the user is away. In embodiments of the present invention, alarms, proximity, global positioning system (GPS) information, location, signals, etc. can be used. The present invention can be present to turn on or off or dim or increase lighting, heating, cooling, temperature, air flow [i.e. operating the server to receive a third command directed to the first fan device], other appliances, etc., para 0152); and
operating the server to communicate the third command via the Internet and said WiFi router to the fan device (The information may be uploaded to remote servers [i.e. a server located outside the customer premises] and combined with other data from other buildings/structures/elements to build a picture of complete building/site efficiency, para 0116, A server/control unit 284 can be connected by WiFi or other connections to remote devices 288, 290, 292 such as, but not limited to, heaters, coolers or HVAC equipment [i.e. communicate the third command via the Internet and said WiFi router to the fan device], lighting systems, entertainment systems or audiovisual equipment such as, but not limited to, televisions, receivers, speakers, media players, audio players, communications systems, power supplies and/or power controls/monitors, etc. Handheld devices, mobile thermostats, remote controls, etc. (e.g., 280) can be connected to the server/control unit 284 by wired/wireless connections or combinations thereof, for example through a home/office WiFi Internet router 282 [i.e. communicate the third command via the Internet and said WiFi router to the fan device], para 0138).

Regarding claim 23, InnoSys discloses the invention above, and InnoSys further discloses further comprising said wireless terminal (incorporated into, part of, attached, connected to, etc. a piece of furniture, a television (TV), other entertainment, etc. including but not limited to stereo, radio, DVD, CD, Blu-Ray, amplifiers, X-box, Wii, etc., table ornaments, ceiling mounts, WiFi routers and switches [i.e. wireless terminal], wall mounted, motion detectors, security systems, heaters, video monitors, HVAC systems, recording devices, appliances, water valves, door and/or window locks, etc., combinations of these, etc., para 0066), wherein said wireless terminal includes a WiFi interface (wireless connection, including but not limited to a WiFi [i.e. a WiFi interface] or Bluetooth connection, para 0132); and a fan device control application configured to generate said third command in response to user input (Status updates, faults, control, monitor, interrupt, changes, system updates, etc. can all be set, monitored adapted, modified, enhanced, controlled, etc. with the present invention including locally and remotely. Voice, e-mail, gestures, movement, position, web, smart phone and tablet (etc.) applications (apps) [i.e. a fan device control application configured to generate said third command in response to user input], other remote controls and monitoring etc. can be used with the present invention to tailor, optimize, maximize, manage, modify, share, allocate, distribute, balance, transfer (including transferring and interacting with power grids), etc. energy/power for the present invention, para 0119), but InnoSys did not disclose that the third command is communicated from the wireless terminal to the fan device via the WiFi router located in the customer premises without said third command traversing a network outside the customer premises. However, Zhejiang discloses that the third command is communicated from the wireless terminal to the fan device via the WiFi router located in the customer premises without said third command traversing a network outside the customer premises (The wireless lighting control system in FIG. 2 includes a wireless lighting device 1, a Wi-Fi router 2, a smart terminal 3, and multiple appliances. The smart terminal 3 may connect to Wi-Fi router 2, connect to the Internet, or connect directly to the Wi-Fi unit 13 of the LED lighting device 1 [i.e. the third command is communicated from the wireless terminal to the device via the WiFi router located in the customer premises without said second command traversing a network outside the customer premises], para 0019). It would have been obvious to one of ordinary skill in the art at the time of the invention to modify InnoSys with the teachings of Zhejiang for the purpose of simultaneously controlling multiple appliances (Zhejiang para 0019).

Regarding claim 24, modified InnoSys discloses the invention above, and InnoSys further discloses further comprising:
said server, wherein said server includes a second processor (Control can use, microcontroller(s), microprocessor(s) [i.e. server includes a second processor], digital signal processor(s) (DSPs), field programmable gate array(s) (FPGAs), complex logic device(s) (CLDs), para 0063) configured to:
operating the server to receive a fourth command directed to the first fan device (Having the device connected to the Internet through an Internet router, the user can control their remote devices on the wide area network (WAN) from outside their home or business network when the user is away. In embodiments of the present invention, alarms, proximity, global positioning system (GPS) information, location, signals, etc. can be used. The present invention can be present to turn on or off or dim or increase lighting, heating, cooling, temperature, air flow [i.e. operating the server to receive a fourth command directed to the first fan], other appliances, etc., para 0152); and
operating the server to communicate the fourth command via the Internet and said WiFi router to the fan device (Having the device connected to the Internet through an Internet router, the user can control their remote devices on the wide area network (WAN) from outside their home or business network when the user is away. In embodiments of the present invention, alarms, proximity, global positioning system (GPS) information, location, signals, etc. can be used. The present invention can be present to turn on or off or dim or increase lighting, heating, cooling, temperature, air flow [i.e. operating the server to communicate the fourth command via the Internet and said WiFi router to the fan device], other appliances, etc., para 0152).

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Claims 8, 9, 25, and 26 lack an inventive step under PCT Article 33(3) as being obvious over InnoSys, Inc. (hereinafter InnoSys) in view of Zhejiang Shenghui Lighting Co., Ltd (hereinafter Zhejiang) and Osminer et al. (hereinafter Osminer).

Regarding claim 8, modified InnoSys discloses the invention above, but InnoSys did not disclose further comprising operating the server to update information about the state of one or more devices at the first customer premises based on the third command communicated to the fan device. However, Osminer is in the field of home control systems (para 0001) and discloses further comprising operating the server to update information about the state of one or more devices at the first customer premises based on the third command communicated to the fan device (Device status update module 1426 keeps track of the current status of various devices at the customer premise and updates the status of each home device at the control panel whenever a change in a device's status occurs [i.e. update information about the state of one or more devices at the first customer premises based on the command communicated to the fan device]. For example, the device status update module 1426 updates the status of home alarm so that it is correctly displayed on the control panel display after activation and deactivation, para 0097, the control message is transmitted to a server which is coupled to said video recording device via a communications network that is external to said customer premise when said digital video recording device is not an IP capable device, para 0126). It would have been obvious to one of ordinary skill in the art at the time of the invention to modify InnoSys with the teachings of Osminer for the purpose of keeping track of the current status of various devices at the customer premise (Osminer para 0097).

Regarding claim 9, modified InnoSys discloses the invention above, but InnoSys did not disclose that said updating of the information about the state of one or more devices at the first customer premises is performed in response to transmitting the third command from the server. However, Osminer discloses that said updating of the information about the state of one or more devices at the first customer premises is performed in response to transmitting the third command from the server (Device status update module 1426 keeps track of the current status of various devices at the customer premise and updates the status of each home device at the control panel whenever a change in a device's status occurs [i.e. updating of the information about the state of one or more devices at the first customer premises is performed in response to transmitting the command from the server]. For example, the device status update module 1426 updates the status of home alarm so that it is correctly displayed on the control panel display after activation and deactivation, para 0097, the control message is transmitted to a server which is coupled to said video recording device via a communications network that is external to said customer premise when said digital video recording device is not an IP capable device, para 0126). It would have been obvious to one of ordinary skill in the art at the time of the invention to modify InnoSys with the teachings of Osminer for the purpose of keeping track of the current status of various devices at the customer premise (Osminer para 0097).

Regarding claim 25, modified InnoSys discloses the invention above, but InnoSys did not disclose that said second processor is further configured to operating the server to update information about the state of one or more devices at the first customer premises based on the fourth command communicated to the fan device. However, Osminer discloses that said second processor is further configured to operating the server to update information about the state of one or more devices at the first customer premises based on the fourth command communicated to the fan device (Device status update module 1426 keeps track of the current status of various devices at the customer premise and updates the status of each home device at the control panel whenever a change in a device's status occurs [i.e. update information about the state of one or more devices at the first customer premises based on the command communicated to the fan device]. For example, the device status update module 1426 updates the status of home alarm so that it is correctly displayed on the control panel display after activation and deactivation, para 0097, the control message is transmitted to a server which is coupled to said video recording device via a communications network that is external to said customer premise when said digital video recording device is not an IP capable device, para 0126). It would have been obvious to one of ordinary skill in the art at the time of the invention to modify InnoSys with the teachings of Osminer for the purpose of keeping track of the current status of various devices at the customer premise (Osminer para 0097).

Regarding claim 26, modified InnoSys discloses the invention above, but InnoSys did not disclose that said updating of the information about the state of one or more devices at the first customer premises is performed in response to transmitting the fourth command from the server. However, Osminer discloses that said updating of the information about the state of one or more devices at the first customer premises is performed in response to transmitting the fourth command from the server (Device status update module 1426 keeps track of the current status of various devices at the customer premise and updates the status of each home device at the control panel whenever a change in a device's status occurs [i.e. updating of the information about the state of one or more devices at the first customer premises is performed in response to transmitting the command from the server]. For example, the device status update module 1426 updates the status of home alarm so that it is correctly displayed on the control panel display after activation and deactivation, para 0097, the control message is transmitted to a server which is coupled to said video recording device via a communications network that is external to said customer premise when said digital video recording device is not an IP capable device, para 0126). It would have been obvious to one of ordinary skill in the art at the time of the invention to modify InnoSys with the teachings of Osminer for the purpose of keeping track of the current status of various devices at the customer premise (Osminer para 0097).

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Claims 10-13, 16, 27-30, and 33 lack an inventive step under PCT Article 33(3) as being obvious over InnoSys, Inc. (hereinafter InnoSys) in view of Zhejiang Shenghui Lighting Co., Ltd (hereinafter Zhejiang) and Nest Labs, Inc. (hereinafter Nest).

Regarding claim 10, modified InnoSys discloses the invention above, but InnoSys did not disclose further comprising operating the server to generate a proposed normal device control schedule for the first customer premises from stored information indicating the state of one or more devices at the first customer premises over a period of time; communicate from the server the proposed device control schedule to a device corresponding to the first customer premise; receive at the server a message indicating approval of the proposed normal device control schedule for the first customer premises or a revised schedule for the first customer premises; and storing as an approved normal control schedule for the first customer premises the approved proposed normal device control schedule or the revised schedule. However, Nest is in the field of machine learning and intelligent controllers (para 0002) and discloses further comprising operating the server to generate a proposed normal device control schedule for the first customer premises from stored information indicating the state of one or more devices at the first customer premises over a period of time (the auto-away temperature adjustments are carried out as soon as the probability of human presence, or the presence probability, falls below a threshold value, while, in other implementations, auto-away temperature adjustments are carried out only following a period of time during which no occupancy is detected. This generally predetermined period of time of non-occupancy may be 30 minutes, 60 minutes, 90 minutes, or more. In certain implementations, the predetermined period of time of non-occupancy is about 120 minutes. The predetermined period of time of non-occupancy can be modified based on various types of user inputs, recorded sensor data, data obtained from remote sources, stored patterns of occupancy and non-occupancy, and other types of electronically stored data, including rules used to determine when auto-away control-schedule adjustments are made, para 0172, The schedule 4402 consists of an awake/at home interval, between 7:00 AM and 9:00 PM, for which the desired temperature is 76 degrees and a sleeping interval, between 9:00 PM and 7:00 AM, for which the desired temperature is 66 degrees. Schedule 4402 represents a normal control schedule for residence [i.e. generate a proposed normal device control schedule for the first customer premises from stored information indicating the state of one or more devices at the first customer premises over a period of time], para 0174); communicate from the server the proposed device control schedule to a device corresponding to the first customer premise (The controlled entity may include multiple devices, machines, system, or organizations and the intelligent controller may itself be distributed among multiple components and discrete devices and systems. In addition to outputting control signals to controlled entities and receiving sensor input, the intelligent controller also provides a user interface 410-413 through which a human user can input immediate-control inputs to the intelligent controller as well as create and modify the various types of control schedules, and may also provide the immediate-control and schedule interfaces to remote entities [i.e. communicate from the server the proposed device control schedule to a device corresponding to the first customer premise], para 0068); receive at the server a message indicating approval of the proposed normal device control schedule for the first customer premises or a revised schedule for the first customer premises (the tuned or modified schedule 4720 is not automatically adapted, but is instead first proposed to a user for user approval. User acceptance may be solicited, for example, in cases where the user has indicated a preference to be asked about schedule updates [i.e. receive at the server a message indicating approval of the proposed normal device control schedule for the first customer premises or a revised schedule for the first customer premises], rather than schedule updates being automatically adopted, para 0199); and storing as an approved normal control schedule for the first customer premises the approved proposed normal device control schedule or the revised schedule (The information used by the controller logic may include one or more stored control schedules 706, received output from one or more sensors 708-710, immediate control inputs received through an immediate-control interface 712, and data, commands, and other information received from remote data-processing systems [i.e. storing as an approved normal control schedule for the first customer premises the approved proposed normal device control schedule or the revised schedule], including cloud-based data-processing systems 713, para 0073). It would have been obvious to one of ordinary skill in the art at the time of the invention to modify InnoSys with the teachings of Nest for the purpose of selecting operational modes and modifying control schedules with respect to the presence and absence of the one or more entities (Nest abstract).

Regarding claim 11, modified InnoSys discloses the invention above, but InnoSys did not disclose further comprising operating the server to control one or more devices at the first customer premises based on the stored approved normal device control schedule, said one or more devices including the first fan device. However, Nest discloses further comprising operating the server to control one or more devices at the first customer premises based on the stored approved normal device control schedule, said one or more devices including the first fan device (controller 802 receives control inputs from users or other entities 804 and uses the control inputs, along with stored control schedules and other information, to generate output control signals 805 that control operation of one or more controlled entities 808 [i.e. control one or more devices at the first customer premises based on the stored approved normal device control schedule, said one or more devices including the first fan device], para 0074). It would have been obvious to one of ordinary skill in the art at the time of the invention to modify InnoSys with the teachings of Nest for the purpose of selecting operational modes and modifying control schedules with respect to the presence and absence of the one or more entities (Nest abstract).

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Regarding claim 12, modified InnoSys discloses the invention above, but InnoSys did not disclose that operating the server to control one or more devices at the first customer premises based on the stored approved normal device control schedule includes transmitting a control signal from the server to the first fan device via the Internet and WIFi router to control the fan device to turn on at a time indicated by said approved normal control schedule. However, Nest discloses that operating the server to control one or more devices at the first customer premises based on the stored approved normal device control schedule includes transmitting a control signal from the server to the first fan device via the Internet and WIFi router to control the fan device to turn on at a time indicated by said approved normal control schedule (smart-home devices include one or more different types of sensors, one or more controllers and/or actuators, and one or more communications interfaces that connect the smart-home devices to other smart-home devices, routers, bridges, and hubs within a local smart-home environment, various different types of local computer systems, and to the Internet, through which a smart-home device may communicate with cloud-computing servers and other remote computing systems. Data communications are generally carried out using any of a large variety of different types of communications media and protocols, including wireless protocols, such as Wi-Fi [i.e. transmitting a control signal from the server to the first fan device via the Internet and WIFi router], ZigBee, 6LoWPAN, various types of wired protocols, including CAT6 Ethernet, HomePlug, and other such wired protocols, and various other types of communications protocols and technologies , para 0065, controller 802 receives control inputs from users or other entities 804 and uses the control inputs, along with stored control schedules and other information, to generate output control signals 805 that control operation of one or more controlled entities 808 [i.e. control the fan device to turn on at a time indicated by said approved normal control schedule], para 0074). It would have been obvious to one of ordinary skill in the art at the time of the invention to modify InnoSys with the teachings of Nest for the purpose of selecting operational modes and modifying control schedules with respect to the presence and absence of the one or more entities (Nest abstract).

Regarding claim 13, modified InnoSys discloses the invention above, but InnoSys did not disclose further comprising operating the server to generate an away schedule to be used to control one or more device at the first customer premises when the customer indicates they are away from the customer premises. However, Nest discloses further comprising operating the server to generate an away schedule to be used to control one or more device at the first customer premises when the customer indicates they are away from the customer premises (An intelligent thermostat may incorporate presence and/or absence detection and absence-related schedule adjustments to lower the temperature when the intelligent thermostat determines that there are no occupants present in the environment, according to an auto-away feature. In certain implementations, the auto-away temperature adjustments are carried out as soon as the probability of human presence, or the presence probability, falls below a threshold value, while, in other implementations, auto-away temperature adjustments are carried out only following a period of time during which no occupancy is detected. This generally predetermined period of time of non-occupancy may be 30 minutes, 60 minutes, 90 minutes, or more. In certain implementations, the predetermined period of time of non-occupancy is about 120 minutes. The predetermined period of time of non-occupancy can be modified based on various types of user inputs, recorded sensor data, data obtained from remote sources, stored patterns of occupancy and non-occupancy, and other types of electronically stored data, including rules used to determine when auto-away control-schedule adjustments are made [i.e. generate an away schedule to be used to control one or more device at the first customer premises when the customer indicates they are away from the customer premises], para 0172). It would have been obvious to one of ordinary skill in the art at the time of the invention to modify InnoSys with the teachings of Nest for the purpose of selecting operational modes and modifying control schedules with respect to the presence and absence of the one or more entities (Nest abstract).

Regarding claim 16, modified InnoSys discloses the invention above, but InnoSys did not disclose further comprising receiving, at the server, a signal from a user indicating an away status; and switching, at the server, from using the stored approved normal schedule to using the stored away schedule to control the one or more devices at the first customer premises. However, Nest discloses further comprising receiving, at the server, a signal from a user indicating an away status (The predetermined period of time of non-occupancy can be modified based on various types of user inputs [i.e. receiving, at the server, a signal from a user indicating an away status], recorded sensor data, data obtained from remote sources, stored patterns of occupancy and non-occupancy, and other types of electronically stored data, including rules used to determine when auto-away control-schedule adjustments are made [i.e. switching, at the server, from using the stored approved normal schedule to using the stored away schedule to control the one or more devices at the first customer premises], para 0172); and switching, at the server, from using the stored approved normal schedule to using the stored away schedule to control the one or more devices at the first customer premises (The predetermined period of time of non-occupancy can be modified based on various types of user inputs, recorded sensor data, data obtained from remote sources, stored patterns of occupancy and non-occupancy, and other types of electronically stored data, including rules used to determine when auto-away control-schedule adjustments are made [i.e. switching, at the server, from using the stored approved normal schedule to using the stored away schedule to control the one or more devices at the first customer premises], para 0172). It would have been obvious to one of ordinary skill in the art at the time of the invention to modify InnoSys with the teachings of Nest for the purpose of selecting operational modes and modifying control schedules with respect to the presence and absence of the one or more entities (Nest abstract).

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Regarding claim 27, modified InnoSys discloses the invention above, but InnoSys did not disclose that said second processor is further configured to operating the server to generate a proposed normal device control schedule for the first customer premises from stored information indicating the state of one or more devices at the first customer premises over a period of time; operate the server to send (e.g., via the Internet and WiFi router located at the first customer premises) the proposed device control schedule to a device corresponding to the first customer premise (e.g., cell phone of a user who is located at the first customer premises); operate the server to receive a message indicating approval of the proposed normal device control schedule for the first customer premises or a revised schedule for the first customer premises; and operate the server to store as an approved normal control schedule for the first customer premises the approved proposed normal device control schedule or the revised schedule. However, Nest discloses that said second processor is further configured to operating the server to generate a proposed normal device control schedule for the first customer premises from stored information indicating the state of one or more devices at the first customer premises over a period of time (the auto-away temperature adjustments are carried out as soon as the probability of human presence, or the presence probability, falls below a threshold value, while, in other implementations, auto-away temperature adjustments are carried out only following a period of time during which no occupancy is detected. This generally predetermined period of time of non-occupancy may be 30 minutes, 60 minutes, 90 minutes, or more. In certain implementations, the predetermined period of time of non-occupancy is about 120 minutes. The predetermined period of time of non-occupancy can be modified based on various types of user inputs, recorded sensor data, data obtained from remote sources, stored patterns of occupancy and non-occupancy, and other types of electronically stored data, including rules used to determine when auto-away control-schedule adjustments are made, para 0172, The schedule 4402 consists of an awake/at home interval, between 7:00 AM and 9:00 PM, for which the desired temperature is 76 degrees and a sleeping interval, between 9:00 PM and 7:00 AM, for which the desired temperature is 66 degrees. Schedule 4402 represents a normal control schedule for residence [i.e. generate a proposed normal device control schedule for the first customer premises from stored information indicating the state of one or more devices at the first customer premises over a period of time], para 0174); operate the server to send (e.g., via the Internet and WiFi router located at the first customer premises) the proposed device control schedule to a device corresponding to the first customer premise (e.g., cell phone of a user who is located at the first customer premises) (The controlled entity may include multiple devices, machines, system, or organizations and the intelligent controller may itself be distributed among multiple components and discrete devices and systems. In addition to outputting control signals to controlled entities and receiving sensor input, the intelligent controller also provides a user interface 410-413 through which a human user can input immediate-control inputs to the intelligent controller as well as create and modify the various types of control schedules, and may also provide the immediate-control and schedule interfaces to remote entities [i.e. communicate from the server the proposed device control schedule to a device corresponding to the first customer premise], para 0068, ne or a subset of the multiple controllers acts as a local router or bridge on behalf of the remaining intelligent controllers of the multiple intelligent controllers so that data and messages sent from a first intelligent controller to a target intelligent controller or target remote computing system can be transmitted to, and forwarded by, a second intelligent controller acting as a router or bridge to the target, para 0082, data from a remote computing facility 2522, data from various user devices, including cell phones and mobile phones 2524 [i.e. the proposed device control schedule to a device corresponding to the first customer premise (e.g., cell phone of a user who is located at the first customer premises)], and data from various smart appliances within the controlled environment 2526. The types of information used by an intelligent controller compile presence-probability maps and scalar values that may include many additional types of information in different implementations and contexts. As one example, an intelligent controller may provide a presence-indication interface allowing users to explicitly indicate their presence and absence with respect to the controlled environment, para 0119); operate the server to receive a message indicating approval of the proposed normal device control schedule for the first customer premises or a revised schedule for the first customer premises (the tuned or modified schedule 4720 is not automatically adapted, but is instead first proposed to a user for user approval. User acceptance may be solicited, for example, in cases where the user has indicated a preference to be asked about schedule updates [i.e. receive at the server a message indicating approval of the proposed normal device control schedule for the first customer premises or a revised schedule for the first customer premises], rather than schedule updates being automatically adopted, para 0199); and operate the server to store as an approved normal control schedule for the first customer premises the approved proposed normal device control schedule or the revised schedule (The information used by the controller logic may include one or more stored control schedules 706, received output from one or more sensors 708-710, immediate control inputs received through an immediate-control interface 712, and data, commands, and other information received from remote data-processing systems [i.e. storing as an approved normal control schedule for the first customer premises the approved proposed normal device control schedule or the revised schedule], including cloud-based data-processing systems 713, para 0073). It would have been obvious to one of ordinary skill in the art at the time of the invention to modify InnoSys with the teachings of Nest for the purpose of selecting operational modes and modifying control schedules with respect to the presence and absence of the one or more entities (Nest abstract).

Regarding claim 28, modified InnoSys discloses the invention above, but InnoSys did not disclose that said second processor is further configured to operating the server to control one or more devices at the first customer premises based on the stored approved normal device control schedule, said one or more devices including the first fan device. However, Nest discloses that said second processor is further configured to operating the server to control one or more devices at the first customer premises based on the stored approved normal device control schedule, said one or more devices including the first fan device (controller 802 receives control inputs from users or other entities 804 and uses the control inputs, along with stored control schedules and other information, to generate output control signals 805 that control operation of one or more controlled entities 808 [i.e. control one or more devices at the first customer premises based on the stored approved normal device control schedule, said one or more devices including the first fan device], para 0074). It would have been obvious to one of ordinary skill in the art at the time of the invention to modify InnoSys with the teachings of Nest for the purpose of selecting operational modes and modifying control schedules with respect to the presence and absence of the one or more entities (Nest abstract).

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Regarding claim 29, modified InnoSys discloses the invention above, but InnoSys did not disclose that said second processor is configured to operate the server to send a control signal from the server to the first fan device via the Internet and WIFi router to control the fan device to turn on at a time indicated by said approved normal control schedule, as part of being configured to operate the server to control one or more devices at the first customer premises based on the stored approved normal device control schedule. However, Nest discloses that said second processor is configured to operate the server to send a control signal from the server to the first fan device via the Internet and WIFi router to control the fan device to turn on at a time indicated by said approved normal control schedule, as part of being configured to operate the server to control one or more devices at the first customer premises based on the stored approved normal device control schedule (smart-home devices include one or more different types of sensors, one or more controllers and/or actuators, and one or more communications interfaces that connect the smart-home devices to other smart-home devices, routers, bridges, and hubs within a local smart-home environment, various different types of local computer systems, and to the Internet, through which a smart-home device may communicate with cloud-computing servers and other remote computing systems. Data communications are generally carried out using any of a large variety of different types of communications media and protocols, including wireless protocols, such as Wi-Fi [i.e. transmitting a control signal from the server to the first fan device via the Internet and WIFi router], ZigBee, 6LoWPAN, various types of wired protocols, including CAT6 Ethernet, HomePlug, and other such wired protocols, and various other types of communications protocols and technologies , para 0065, controller 802 receives control inputs from users or other entities 804 and uses the control inputs, along with stored control schedules and other information, to generate output control signals 805 that control operation of one or more controlled entities 808 [i.e. control the fan device to turn on at a time indicated by said approved normal control schedule], para 0074). It would have been obvious to one of ordinary skill in the art at the time of the invention to modify InnoSys with the teachings of Nest for the purpose of selecting operational modes and modifying control schedules with respect to the presence and absence of the one or more entities (Nest abstract).

Regarding claim 30, modified InnoSys discloses the invention above, but InnoSys did not disclose that said second processor is further configured to operate the server to generate an away schedule to be used to control one or more device at the first customer premises when the customer indicates they are away from the customer premises. However, Nest discloses that said second processor is further configured to operate the server to generate an away schedule to be used to control one or more device at the first customer premises when the customer indicates they are away from the customer premises (An intelligent thermostat may incorporate presence and/or absence detection and absence-related schedule adjustments to lower the temperature when the intelligent thermostat determines that there are no occupants present in the environment, according to an auto-away feature. In certain implementations, the auto-away temperature adjustments are carried out as soon as the probability of human presence, or the presence probability, falls below a threshold value, while, in other implementations, auto-away temperature adjustments are carried out only following a period of time during which no occupancy is detected. This generally predetermined period of time of non-occupancy may be 30 minutes, 60 minutes, 90 minutes, or more. In certain implementations, the predetermined period of time of non-occupancy is about 120 minutes. The predetermined period of time of non-occupancy can be modified based on various types of user inputs, recorded sensor data, data obtained from remote sources, stored patterns of occupancy and non-occupancy, and other types of electronically stored data, including rules used to determine when auto-away control-schedule adjustments are made [i.e. generate an away schedule to be used to control one or more device at the first customer premises when the customer indicates they are away from the customer premises], para 0172). It would have been obvious to one of ordinary skill in the art at the time of the invention to modify InnoSys with the teachings of Nest for the purpose of selecting operational modes and modifying control schedules with respect to the presence and absence of the one or more entities (Nest abstract).

Regarding claim 33, modified InnoSys discloses the invention above, but InnoSys did not disclose that said server further comprises a receiver configured to receive a signal from a user indicating an away status; and wherein said second processor is further configured to control the server to switch from using the stored approved normal schedule to using the stored away schedule to control the one or more devices at the first customer premises. However, Nest discloses that said server further comprises a receiver configured to receive a signal from a user indicating an away status (The predetermined period of time of non-occupancy can be modified based on various types of user inputs [i.e. receiving, at the server, a signal from a user indicating an away status], recorded sensor data, data obtained from remote sources, stored patterns of occupancy and non-occupancy, and other types of electronically stored data, including rules used to determine when auto-away control-schedule adjustments are made [i.e. switching, at the server, from using the stored approved normal schedule to using the stored away schedule to control the one or more devices at the first customer premises], para 0172); and wherein said second processor is further configured to control the server to switch from using the stored approved normal schedule to using the stored away schedule to control the one or more devices at the first customer premises (The predetermined period of time of non-occupancy can be modified based on various types of user inputs, recorded sensor data, data obtained from remote sources, stored patterns of occupancy and non-occupancy, and other types of electronically stored data, including rules used to determine when auto-away control-schedule adjustments are made [i.e. switching, at the server, from using the stored approved normal schedule to using the stored away schedule to control the one or more devices at the first customer premises], para 0172). It would have been obvious to one of ordinary skill in the art at the time of the invention to modify InnoSys with the teachings of Nest for the purpose of selecting operational modes and modifying control schedules with respect to the presence and absence of the one or more entities (Nest abstract).

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Claims 14, 15, 31, and 32 lack an inventive step under PCT Article 33(3) as being obvious over InnoSys, Inc. (hereinafter InnoSys) in view of Zhejiang Shenghui Lighting Co., Ltd (hereinafter Zhejiang), Nest Labs, Inc. (hereinafter Nest), and Palm Coast Imports, LLC (hereinafter Palm).

Regarding claim 14, modified InnoSys discloses the invention above, but InnoSys did not disclose that operating the server to generate an away schedule includes generating said away schedule as a function of a random function used to at least partially randomize the on or off times of one or more devices. However, Palm is in the field of ceiling fans (col 1 ln 15-19) and discloses that operating the server to generate an away schedule includes generating said away schedule as a function of a random function used to at least partially randomize the on or off times of one or more devices (When away from home, many residents use lighting control systems such as timers and/or carrier control units, to turn lights on and off so as to simulate occupancy of a building, col 1 ln 12-21, subsequent activation and deactivation of the monitored device 35 by turning the power 34 to the controlled device 35 on or off can be stored in memory 36 so as to faithfully record use of the controlled device 35 over a considerable length of time. Activation and deactivation of the controlled device 35 in the system's "run" mode, as set forth below, is accomplished by simply changing the state of switch 46, col 4 ln 22-43, Day-of-week and time-of-day information from a clock and calendar unit 40, and the event type (i.e. on or off) is stored is memory 36 for each on/off event by the control unit 33 in the intelligent control system 37. Depending upon the size of the memory 36, the control unit 33 can store multiple records for each day. Moreover, the intelligent control system 37 can be programmed to randomly insert offset times to change the learned on/off times of controlled devices [i.e. a random function used to at least partially randomize the on or off times of one or more devices], col 4 ln 44-52). It would have been obvious to one of ordinary skill in the art at the time of the invention to modify InnoSys with the teachings of Palm for the purpose of simulating occupancy while the homeowners are away from home (Palm col 7 ln 5-20).

Regarding claim 15, modified InnoSys discloses the invention above, but InnoSys did not disclose that operating the server to generate the away schedule includes using information about past device on and off status in combination with said random function to control the on and off times for at least one device, said on and off times deviating from historical on and off times by an amount of time which does not exceed a set maximum amount of time and which is determined by said random function. However, Palm discloses that operating the server to generate the away schedule includes using information about past device on and off status in combination with said random function to control the on and off times for at least one device (subsequent activation and deactivation of the monitored device 35 by turning the power 34 to the controlled device 35 on or off can be stored in memory 36 so as to faithfully record use of the controlled device 35 over a considerable length of time. Activation and deactivation of the controlled device 35 in the system's "run" mode, as set forth below, is accomplished by simply changing the state of switch 46, col 4 ln 22-43, Day-of-week and time-of-day information from a clock and calendar unit 40, and the event type (i.e. on or off) is stored is memory 36 for each on/off event by the control unit 33 in the intelligent control system 37. Depending upon the size of the memory 36, the control unit 33 can store multiple records for each day. Moreover, the intelligent control system 37 can be programmed to randomly insert offset times to change the learned on/off times of controlled devices [i.e. using information about past device on and off status in combination with said random function to control the on and off times for at least one device], col 4 ln 44-52), said on and off times deviating from historical on and off times by an amount of time which does not exceed a set maximum amount of time and which is determined by said random function (the system controller seeks to determine whether a random offset has been selected by the system's user. If yes, the random offset criteria for matching on and off events in memory 36 are calculated based on the present day and time. If the on event record in memory 36 matches the parameters for the on event record with the random offset the switch 46 is closed and the control unit 33 checks to see if the user is requesting an exit from the run mode. If an exit is not requested, the control unit 33 returns to its task of determining when the switch 46 should be opened and closed in response to event records in memory 36 [i.e. a set maximum amount of time and which is determined by said random function], col 6 ln 51-62, If a random offset is selected, the offset criteria for matching on and off events in memory 36 are calculated based on the present day and time. If the criterion matches the record(s) in memory 36, the first matching record is selected. A check is made to determine if the event control signal for this record has already been sent. If yes, a check for more records that match the criteria is performed. If no, the corresponding event control command is transmitted via the controlled device interface 48 to all controlled devices 35 and the event record in memory 36 will be flagged as "sent" and a check for more records that match the criteria is performed, col 8 ln 25-60). It would have been obvious to one of ordinary skill in the art at the time of the invention to modify InnoSys with the teachings of Palm for the purpose of simulating occupancy while the homeowners are away from home (Palm col 7 ln 5-20).

Regarding claim 31, modified InnoSys discloses the invention above, but InnoSys did not disclose that said second processor is configured to: generate said away schedule as a function of a random function used to at least partially randomize the on or off times of one or more devices, as part of being configured to operate the server to generate an away schedule. However, Palm discloses that said second processor is configured to: generate said away schedule as a function of a random function used to at least partially randomize the on or off times of one or more devices, as part of being configured to operate the server to generate an away schedule (When away from home, many residents use lighting control systems such as timers and/or carrier control units, to turn lights on and off so as to simulate occupancy of a building, col 1 ln 12-21, subsequent activation and deactivation of the monitored device 35 by turning the power 34 to the controlled device 35 on or off can be stored in memory 36 so as to faithfully record use of the controlled device 35 over a considerable length of time. Activation and deactivation of the controlled device 35 in the system's "run" mode, as set forth below, is accomplished by simply changing the state of switch 46, col 4 ln 22-43, Day-of-week and time-of-day information from a clock and calendar unit 40, and the event type (i.e. on or off) is stored is memory 36 for each on/off event by the control unit 33 in the intelligent control system 37. Depending upon the size of the memory 36, the control unit 33 can store multiple records for each day. Moreover, the intelligent control system 37 can be programmed to randomly insert offset times to change the learned on/off times of controlled devices [i.e. a random function used to at least partially randomize the on or off times of one or more devices], col 4 ln 44-52). It would have been obvious to one of ordinary skill in the art at the time of the invention to modify InnoSys with the teachings of Palm for the purpose of simulating occupancy while the homeowners are away from home (Palm col 7 ln 5-20).

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Regarding claim 32, modified InnoSys discloses the invention above, but InnoSys did not disclose that said second processor is configured to use information about past device on and off status in combination with said random function to control the on and off times for at least one device, said on and off times deviating from historical on and off times by an amount of time which does not exceed a set maximum amount of time and which is determined by said random function, as part of being configured to operate the server to generate the away schedule. However, Palm discloses that said second processor is configured to use information about past device on and off status in combination with said random function to control the on and off times for at least one device (subsequent activation and deactivation of the monitored device 35 by turning the power 34 to the controlled device 35 on or off can be stored in memory 36 so as to faithfully record use of the controlled device 35 over a considerable length of time. Activation and deactivation of the controlled device 35 in the system's "run" mode, as set forth below, is accomplished by simply changing the state of switch 46, col 4 ln 22-43, Day-of-week and time-of-day information from a clock and calendar unit 40, and the event type (i.e. on or off) is stored is memory 36 for each on/off event by the control unit 33 in the intelligent control system 37. Depending upon the size of the memory 36, the control unit 33 can store multiple records for each day. Moreover, the intelligent control system 37 can be programmed to randomly insert offset times to change the learned on/off times of controlled devices [i.e. using information about past device on and off status in combination with said random function to control the on and off times for at least one device], col 4 ln 44-52), said on and off times deviating from historical on and off times by an amount of time which does not exceed a set maximum amount of time and which is determined by said random function, as part of being configured to operate the server to generate the away schedule (the system controller seeks to determine whether a random offset has been selected by the system's user. If yes, the random offset criteria for matching on and off events in memory 36 are calculated based on the present day and time. If the on event record in memory 36 matches the parameters for the on event record with the random offset the switch 46 is closed and the control unit 33 checks to see if the user is requesting an exit from the run mode. If an exit is not requested, the control unit 33 returns to its task of determining when the switch 46 should be opened and closed in response to event records in memory 36 [i.e. a set maximum amount of time and which is determined by said random function], col 6 ln 51-62, If a random offset is selected, the offset criteria for matching on and off events in memory 36 are calculated based on the present day and time. If the criterion matches the record(s) in memory 36, the first matching record is selected. A check is made to determine if the event control signal for this record has already been sent. If yes, a check for more records that match the criteria is performed. If no, the corresponding event control command is transmitted via the controlled device interface 48 to all controlled devices 35 and the event record in memory 36 will be flagged as "sent" and a check for more records that match the criteria is performed, col 8 ln 25-60). It would have been obvious to one of ordinary skill in the art at the time of the invention to modify InnoSys with the teachings of Palm for the purpose of simulating occupancy while the homeowners are away from home (Palm col 7 ln 5-20).

Claims 1-42 meet the criteria set out in PCT Article 33(4), and thus have industrial applicability because the subject matter claimed can be made or used in industry.

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(54) **Title**: Switched Wireless Signaling

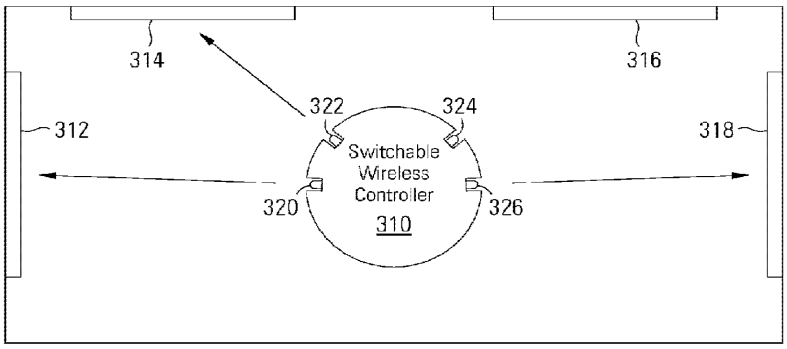


FIG. 15

(57) **Abstract**: A wireless control system includes multiple wireless transmitters and a control circuit configured to transmit information from the wireless transmitters, wherein the control circuit is configured to selectably enable and disable each of the wireless transmitters.

Switched Wireless Signaling

BACKGROUND

[0001] Many electronic devices can be used with wireless control such as infrared (IR) remote controls. When multiple such devices are used in close proximity, the number of remote controls can become undesirably large, control signals can interfere with one another, and power consumption can grow undesirably. A need exists for more efficient and usable control systems for multiple electronic devices.

SUMMARY

[0002] Some embodiments of the present invention provide for efficient, controllable wireless control of multiple electronic devices as well as sensors including but not limited to optical communications including but not limited to infrared communications, in some cases including providing switchable control to enable and disable transmitters/emitters. For example, in some non-limiting embodiments a switchable IR relay or controller can include multiple IR emitters to control multiple devices. Each of the IR emitters can be enabled and disabled as needed or desired to transmit commands to electronic devices, thereby reducing power consumption and in some cases providing directional control to IR signals. Electronic devices can be controlled through such a switchable IR controller by the user using a remote control, smart phone, tablet, personal device, computers, etc. In some cases, a switchable wireless controller can perform communications relaying, receiving and retransmitting commands from one device to another, such as, but not limited to, relaying commands from a remote control to one or more electronic devices to extend the range of the remote control or to control multiple devices simultaneously from one remote control. In some cases, a switchable wireless controller can perform signal conversion, for example receiving Bluetooth or other RF signals and converting them to IR or other wireless signals, thereby enabling a remote control, smart phone, tablet, personal device, computers, etc. to output a

Bluetooth signal which is received and translated by the switchable wireless controller to generate IR signals to control one or more electronic devices.

[0003] The present invention can be used with a holster for a remote control that provides for example but not limited to additional solar power to power and charge up the remote. Such a holster can be designed to be both attractive and decorative while providing power to the remote unit. Such a holster can also have the appearance of a conventional "wall" dimmer or light control. and can be used to control fan(s), portable air conditioner(s), window air conditioner(s), evaporative cooler,(s), etc., combinations of these and other types heating, cooling, flow, HVAC, registers, vents, ducts, etc.

[0004] These devices can be controlled by the user through a smart phone, tablet, personal device, computers, etc., running software applications while connected to a home or business wifi network. This network can be connected to a server or main control unit that communicates to the remote devices wirelessly.

It is also possible to connect the server to the remote devices via the power lines that already exist in, for example, the home or business, etc.

[0005] These devices can also be controlled via Bluetooth connection through a smart phone, tablet, personal device, computers, etc. In some embodiments of the present invention, this method typically bypasses the WiFi network and the server or main controller and connects directly to the remote devices wirelessly. In other embodiments more than one of the methodologies discussed herein may be used in various implementations.

[0006] This system can be used in all control devices such as heaters, air-conditioners, televisions, personal fans, air purifiers, DVD units, DVR, satellite, cable boxes, etc., using an infrared LED that can output commands the devices recognize. The remote device unit can also capture infrared commands from remote controls that operate their respected devices.

[0007] Using for example but not limited to Bluetooth or Bluetooth Low Energy (BLE or BTLE) to connect to the remote devices, the devices can adjust appliances and/or devices in a room, home, or business or any other locations according to the user's desires. When the user enters a room, for example, home, or business the devices can recognize the Bluetooth device of the user and adjust the lighting, heating, air-conditioning, blinds, including solar blinds, solar drapes, solar shutters, solar curtains, solar shades, etc. and other devices.

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[0008] These remote devices can relay data and information back to the user on their smart phone, tablet, personal device, computers, laptops, servers, cloud, etc., such as battery charge, voltage, current usage, power, state, etc.

[0009] This system can be used with speakers that may be built into the control panel, or into the lights themselves in any form factor to provide music and other audio signals for a variety of purposes including but not limited to receiving audio signals and information including music that are sent to them wirelessly.

[0010] The user can create scheduled remote events, tasks, etc., for example, for infrared controlled appliances or devices to carry out specific functions and at specific times with simple to complex sequences that can also include scheduling which can optionally be conditionally modified.

[0011] This system can also be used with sensors that sense water, moisture, barometric pressure and humidity and can be used for irrigation, flood prevention, humidity control, etc.

[0012] This system can also be used for motion sensing and proximity sensing to aid in home or business security and for sensing when an individual enters a room or building and customizing the infrared controlled devices based on the individual, other information including but not limited to time, day of the week and/or month, date, user input, weather conditions, other input and feedback, etc.

[0013] A standard, custom or adapted remote can be used with this system to aid individuals without access to smart phones, tablets, computers, etc., so they can still control and interact with their infrared devices remotely. Such a remote can also be wired and wireless and can use existing visual devices such as televisions, computer and other monitors, etc. Embodiments of the present invention can also use microphones to receive and execute voice commands including using voice recognition as well as speakers to provide information and query as well as provide alerts and warnings. Other embodiments can use gesturing including hand gesturing as well as combinations of other methods herein to create, sort, sequence, schedule, organize, evaluate, make decisions, execute commands and perform tasks, implement and act on conditional statements, stack, analyze, etc. In many cases, the scheduling and sequencing as well as the organization and sorting and even the creation can be conditional on the results and outcomes of previous events, scheduled tasks, information, input, both internal and external information and stimuli, etc. The present invention allows overriding previously scheduled, sequenced and/or sorted operations and executions to adapt to new stimuli, input, results, information, etc. or to ignore such and continue with the

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program sequencing and schedule or to allow a combination of both or to allow weighted combinations of both or other scenarios as well including adaptable responses and requests to changes in scenarios, situations, results, input, unexpected outcomes and results, etc. Some of these responses include interacting with the user or others such as neighbors, family and friends, guardians, surveillance personnel, etc.

[0014] These remote devices can relay data and information back to the user on their smart phone, tablet, personal device, computers, etc., such as battery charge, voltage, current usage, power, state, etc.

[0015] This invention contains lighting devices that can be controlled wirelessly by the same convention, signals, protocols, etc. as the remote devices. These lighting devices, for example, can be dimmed, turned on/off, turned, rotated, moved, etc., from a smart phone, tablet, personal device, etc. The remote movement works, for example, by way of servos in the arms and/or body of the lamp, light, light fixture, ballast, desk lamp, etc. In some embodiments of the present invention, The lighting devices, if capable of changing colors, can be controlled to change color based on the users wants.

[0016] These lighting devices can be powered by a battery that is charged by solar panels installed into shades/blinds/shutters/curtains/drapes or, for example, into the lighting devices themselves. The lighting can be either or both inside and/or outside lights that can be set, programmed, controlled, etc. to time shift and light (i.e., time of day such that it is sunny to time of night when it is dark) shifted by for example using storage devices including but not limited to batteries, fuel cells, etc.

[0017] The shades/blinds/shutters/drapes/curtains can interact with the lighting devices as in general they can are part of the same network.

[0018] The lights can be set-up to a schedule and for example sequence including but not limited to pre-programmed input, etc. based on minutes, hours, days, months, years. They can be programmed to carry out commands at specific times set by the user. For example, The light can be programmed to turn on in the morning in a diverse number of ways from gently and slowly to abrupt, assertively turning on to awake the user.

[0019] Combined with motion sensors the lighting devices can be used for security purposes and/or for providing light in the dark when motion is sensed.

[0020] The lighting devices can respond to user's presets when a familiar Bluetooth device is recognized and in range. This can consist of but is not limited to, dimming level, position, color, or status, temperature, rates, other parameters/conditions, etc.

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[0021] The lighting device(s) can dim either all or the respective brightness or can prioritize which lighting device(s) should continue to use and receive certain power level(s) when the supplied battery power from the shades/blinds/drapes/curtains/shutters is/are getting low in order to conserve battery power.

[0022] This summary provides only a general outline of some embodiments according to the present invention. Many other embodiments of the present invention will become more fully apparent from the following detailed description.

BRIEF DESCRIPTION OF THE DRAWINGS

[0023] A further understanding of the various exemplary embodiments may be realized by reference to the figures which are described in remaining portions of the specification. In the figures, like reference numerals may be used throughout several drawings to refer to similar components.

[0024] Fig. 1 depicts a switchable wireless controller with multiple wireless emitters and internal switches in accordance with some embodiments of the invention.

[0025] Fig. 2 depicts a switchable wireless controller with multiple wireless emitters and external switches in accordance with some embodiments of the invention.

[0026] Fig. 3 depicts a block diagram of a home automation system with mobile sensors in accordance with some embodiments of the invention.

[0027] Fig. 4 depicts a block diagram of wireless/wired connections between components of a home automation system with mobile sensors in accordance with some embodiments of the invention.

[0028] Figs. 5-7 depict perspective, top, and side views of an IR sensor and/or transmitter suitable for use in some embodiments of a home automation system in accordance with some embodiments of the invention.

[0029] Figs. 8-10 depicts side, perspective and top views of another IR sensor and/or transmitter suitable for use in some embodiments of a home automation system in accordance with some embodiments of the invention.

[0030] Fig. 11 depicts example usage of a home automation system with mobile sensors in a home floorplan in accordance with some embodiments of the invention.

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[0031] Fig. 12 depicts a diagram of WiFi connections in an example embodiment of a home automation system in accordance with some embodiments of the invention.

[0032] Fig. 13 depicts a diagram of Bluetooth connections in an example embodiment of a home automation system in accordance with some embodiments of the invention.

[0033] Fig. 14 depicts a switchable wireless controller configured to transmit wireless control signals to four televisions in accordance with some embodiments of the invention.

[0034] Fig. 15 depicts a switchable wireless controller configured to transmit wireless control signals to three of four televisions by disabling at least one wireless emitter/transmitter in the controller in accordance with some embodiments of the invention.

[0035] Fig. 16 depicts a switchable wireless controller configured to transmit wireless control signals to three televisions in accordance with some embodiments of the invention.

[0036] Fig. 17 depicts a solid state lighting fluorescent tube replacement powering an external switchable wireless controller in accordance with some embodiments of the invention.

[0037] Fig. 18 depicts a solid state lighting fluorescent tube replacement powering an internal switchable wireless controller in accordance with some embodiments of the invention.

[0038] Fig. 19 depicts a group of solid state fluorescent tube replacements powering switchable wireless controllers which are wirelessly interconnected and which receive wireless commands from a remote control in accordance with some embodiments of the invention.

[0039] Figs. 20-22 depict an IR interpreter in side, front perspective and rear perspective views in accordance with some embodiments of the invention.

[0040] Fig. 23 depicts a group of solid state fluorescent tube replacements powering external sensor units with switchable wireless controllers which are wirelessly interconnected and which can receive wireless commands from a remote control in accordance with some embodiments of the invention.

[0041] Fig. 24 depicts a non-limiting example dimming control circuit for generating a dimming control signal based on a motion detected signal and a pulse width modulated (PWM) signal in accordance with some embodiments of the invention.

[0042] Fig. 25 depicts a non-limiting example circuit for combining multiple motion detected signals to generate a global motion detected signal in accordance with some embodiments of the invention.

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[0043] Figs. 26-31 depict a wired to wireless adapters of various example protocols which transmit wireless controls signals to a wireless receiver to control one or more lamps, lights, or other 0 to 10V controlled devices in accordance with some embodiments of the invention.

DESCRIPTION

[0044] Some embodiments of the present invention provide for efficient, controllable wireless control of multiple electronic devices, in some cases including providing switchable control to enable and disable transmitters/emitters. For example, in some non-limiting embodiments a switchable IR relay or controller can include multiple IR emitters to control multiple devices. Each of the IR emitters can be enabled and disabled as needed or desired to transmit commands to electronic devices, thereby reducing power consumption and in some cases providing directional control to IR signals. Electronic devices can be controlled through such a switchable IR controller by the user using a remote control, smart phone, tablet, personal device, computers, etc. In some cases, a switchable wireless controller can perform communications relaying, receiving and retransmitting commands from one device to another, such as, but not limited to, relaying commands from a remote control to one or more electronic devices to extend the range of the remote control or to control multiple devices simultaneously from one remote control. In some cases, a switchable wireless controller can perform signal conversion, for example receiving Bluetooth or other RF signals and converting them to IR or other wireless signals, thereby enabling a remote control, smart phone, tablet, personal device, computers, etc. to output a Bluetooth signal which is received and translated by the switchable wireless controller to generate IR signals to control one or more electronic devices.

[0045] This system can be used in all control devices such as heaters, air-conditioners, televisions, personal fans, air purifiers, DVD units, DVR, satellite, cable boxes, etc., using an infrared LED that can output commands the devices recognize. The remote device unit can also capture infrared commands from remote controls that operate their respected devices.

[0046] Using Bluetooth to connect to the remote devices, the devices can adjust appliances and/or devices in a room, home, or business or any other locations according to the user's desires. When the user enters a room, for example, home, or business the devices can recognize the Bluetooth device of the user and adjust the lighting, heating, air-conditioning,

blinds, including solar blinds, solar drapes, solar shutters, solar curtains, solar shades, etc. and other devices.

[0047] These remote devices can relay data and information back to the user on their smart phone, tablet, personal device, computers, laptops, servers, cloud, etc., such as battery charge, voltage, current usage, power, state, etc.

[0048] This system can be used with speakers that may be built into the control panel, or into the lights themselves in any form factor to provide music and other audio signals for a variety of purposes including but not limited to receiving audio signals and information including music that are sent to them wirelessly.

[0049] The user can create scheduled remote events, tasks, etc., for example, for infrared controlled appliances or devices to carry out specific functions and at specific times with simple to complex sequences that can also include scheduling which can optionally be conditionally modified.

[0050] This system can also be used with sensors that sense water, moisture, barometric pressure and humidity and can be used for irrigation, flood prevention, humidity control, etc.

[0051] This system can also be used for motion sensing and proximity sensing to aid in home or business security and for sensing when an individual enters a room or building and customizing the infrared controlled devices based on the individual, other information including but not limited to time, day of the week and/or month, date, user input, weather conditions, other input and feedback, etc. Any type of motion detector/detection or combinations of motion detectors/detection techniques including but not limited to ultrasonic, passive infrared (PIR), sonar, radar, time-of-flight including but not limited to proximity, capacitance, near field communications (NFC), presence sensing, gesture sensing, movement sensing, reflectance sensors including but not limited to those based on IR, RF, sound, combinations of these, etc. radio frequency identification (RFID), transmit-receive wireless including but not limited to transmit-received and/or time of flight, optical, RF, electromagnetic (EM), magnetic, electrical, sound, etc., combinations of these may be used, incorporated, be part of, etc., of the present invention.

[0052] A standard, custom or adapted remote can be used with this system to aid individuals without access to smart phones, tablets, computers, etc., so they can still control and interact with their infrared devices remotely. Such a remote can also be wired and wireless and can use existing visual devices such as televisions, computer and other monitors, etc. Embodiments of the present invention can also use microphones to receive and execute

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voice commands including using voice recognition as well as speakers to provide information and query as well as provide alerts and warnings. Other embodiments can use gesturing including hand gesturing as well as combinations of other methods herein to create, sort, sequence, schedule, organize, evaluate, make decisions, execute commands and perform tasks, implement and act on conditional statements, stack, analyze, etc. In many cases, the scheduling and sequencing as well as the organization and sorting and even the creation can be conditional on the results and outcomes of previous events, scheduled tasks, information, input, both internal and external information and stimuli, etc. The present invention allows overriding previously scheduled, sequenced and/or sorted operations and executions to adapt to new stimuli, input, results, information, etc. or to ignore such and continue with the program sequencing and schedule or to allow a combination of both or to allow weighted combinations of both or other scenarios as well including adaptable responses and requests to changes in scenarios, situations, results, input, unexpected outcomes and results, etc. Some of these responses include interacting with the user or others such as neighbors, family and friends, guardians, surveillance personnel, etc.

[0053] These remote devices can relay data and information back to the user on their smart phone, tablet, personal device, computers, etc., such as battery charge, voltage, current usage, power, state, etc.

[0054] To ensure that the IR transmitter or IR transmitter array is visible to any and all devices in the current area, the IR unit may employ gimbals, servo motors, stepper motors, linear motors and any type of IR lens such as Fresnel, convex, concave, aspheric, achromatic, ball, half-ball, plano-convex and any other lens to create omnidirectional sensitivity to the IR sensor or IR sensor arrays.

[0055] The present invention may employ the reflective mirror-like surface of certain OLEDs structures and devices (which is sometimes dependent on construction and, for example, choices of materials used, for example, for the ohmic and/or electrode contacts) as a light reflecting surface for providing directional light from another light source such as an LED, and it may also be used as a mirror surface for a number of purposes including but not limited to reflecting light from, for example, other SSL including LEDs. An example implementation of this is use in a vanity mirror that reflects normal visible light when the OLED is turned off, but illuminates when it is turned on that, for example, can also wavelength/color change from white or blue at wake up to amber before bedtime. Another

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example is combination light containing one or more each of OLEDs and LEDs each of which can be independently controlled, dimmed and monitored, etc.

[0056] The present invention is not limited to controlling any single device and is capable of connecting to virtually an unlimited number of devices. Likewise multiple solid state lamp/lighting devices may be controlled by a single IR unit with one or more IR emitters or through any single or more than one phone/tablet/computer/smart device, etc. In some embodiments of the present invention, fluorescent lamp replacements are provided including but not limited to T8, T12, and/or T5 linear solid state lighting including LED, OLED, QD, etc. combinations of these, etc. In some embodiments of the present invention, the wireless or wired implementation may be used to provide dimmable, color/wavelength-changing, full or partial spectrum selectable and programmable lighting that can also have IR LED emitter incorporated into the solid state lighting replacement for fluorescent tubes such that one or more IR LEDs at different angles, positions, locations for example on linear fluorescent tubes may be used to remotely wired and/or wirelessly control IR remote control heaters, coolers, air conditioners, humidifiers, televisions, DVD, DVR, VHS, Blu-ray players and recorders, cable and/or satellite receivers, CD players and recorders, other audio-visual and entertainment equipment, etc. In other embodiments of the present invention, lighting that is directly plugged into the AC lines may also may use powerline, wireless and/or wired interfaces that may be used to provide dimmable, color/wavelength-changing, full or partial spectrum selectable and programmable lighting that can also have IR LED emitter incorporated into the solid state lighting replacement for fluorescent tubes such that one or more IR LEDs at different angles, positions, locations may be used to remotely wired or wirelessly control IR remote control heaters, coolers, air conditioners, humidifiers, televisions, DVD, DVR, VHS, Blu-ray players and recorders, cable and/or satellite receivers, CD players and recorders, other audio-visual and entertainment equipment, etc.

[0057] The present invention allows automatic, manual, programmable including user-programmable or selectable switchover from linear to duty cycle (e.g., pulse width modulation (PWM)) or duty cycle to linear regulation as a function of either current or voltage on the load (e.g., OLED, LED, QD, other solid state lighting, combinations of these, etc.)

[0058] Embodiments of the present invention can track user movements and, for example, light and/or heat the way using for example, but not limited to, motion, proximity, RF, RFID,

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heat, temperature, sound, pressure, displacement, radar, ultrasonic, infrared, velocity, acceleration, thermal, etc.

[0059] The switchable controller can operate with virtually any smart phone, tablet, laptop, computer, server, etc. to, for example, dynamically separately select and control any number of lights including controlling light level (dimming), power factor, power/energy usage (i.e., kWH), input and output current, voltage, etc. The cost of ownership and the cost of implementation are relatively low for this system yet extremely flexible and powerful including high efficiency low and high power drivers that are adaptable and support many forms of dimming, monitoring and control. graphical user interface (GUI) pages as well as a very large number of user-adjustable and selectable and custom colors can be used with the present invention. A graphical user interface can be provided on one or multiple control devices, such as, but not limited to, smart phone, tablet, laptop, computer, server, remote control, etc. Such a graphical user interface can support the selection and control of devices on an individual basis or in groups, for example grouped by area, room, type, user-defined groups of devices, etc. The graphical user interface enables the user to turn devices on and off, to set dimming levels, colors, etc. For example, a color wheel is provided in some embodiments to select lighting colors. In some embodiments, predefined colors can be selected. In some embodiments, RGBW or CMYK, etc., values can be entered using numerical entry, icon selection, movement of graphical input icons such as sliders, knobs, etc., touch gestures such as swiping to vary settings, etc. The graphical user interface also enables the user to save settings individually or by groups, to name settings, to share settings with other users, to store and retrieve settings, to schedule settings changes based on time, day, sensor inputs, etc. In some embodiments, the graphical user interface also provides user feedback of device status such as, but not limited to, on/off state, power factor, power efficiency, color, upcoming scheduled events, etc. In some embodiments of the present invention, this particular suite of GUIs, in addition to controlling and monitoring the light, etc. also controls and monitors temperature including room and local temperature, humidity, entertainment status including whether the television is turned on, the channel, show, volume, etc., selected, the temperature in various locations and spaces in the house, residence, apartment, building, condo, office, school, etc. the heater, cooler, air conditioner on/off/level/ power consumption, etc., combinations of these, etc.

[0060] Embodiments of the present invention can use, for example, but not limited to, energy harvesting including but not limited to, photovoltaics, solar cells, etc. to power the

sensors from the light or lights emitting optical energy in the visible or other ranges including but not limited to the stray light that the light from the fluorescent lamp replacements (FLRs) or fixtures or other types of lighting and/or lighting fixtures including but not limited to other type of solid state lighting (SSL), fluorescent lighting, incandescent lighting, HID, etc., lighting to charge batteries to supply energy and power the sensors. Embodiments of present invention can be digitally controlled, can use or consist of digital lighting and controls, etc. In embodiments of the present invention, the ballast can be used as the power source/power supply for the sensors, detectors, controls, etc.

[0061] Some embodiments of the present invention can use the shunted current during constant current control of the FLRs and or dimming to power smart/intelligent sensors including but not limited to Internet of Things (IOT) sensors, etc. all from the ballast which also supplies energy and power to the SSL including but not limited to LED and/or OLED and/or quantum dot lighting.

[0062] Embodiments of the present invention can also provide power/current to a selected number of IR emitters including but not limited to IR LEDs. Such IR emitters can be either turned on collectively or selectively including one or more of the IR emitters including zero, one, up to N-1 emitters. The present invention can also use other methods of optical transmission including but not limited to fiber optics, etc., wires to external IR LEDs, etc.

[0063] A simplified example of a four (or more, for example 2 x 4) IR LEDs each of which can be selected to be turned on or off individually or in groups, etc. is shown in Fig. XX Such selection can be done, manually, automatically, programmed, scheduled, etc. Control can use, microcontroller(s), microprocessor(s), digital signal processor(s) (DSPs), field programmable gate array(s) (FPGAs), complex logic device(s) (CLDs), or other methods, techniques, technologies discussed herein, etc.

[0064] Embodiments and implementations of the present invention can be, for example, but not limited to, inside, inside, outside, external to, incorporated into, part of, attached, connected to, etc. a lamp, lighting fixture, a light source of any type including but not limited to solid state lighting, fluorescent lighting, incandescent lighting, high intensity discharge (HID) lighting, fluorescent lamp replacements (FLR) using solid state lighting, incandescent lamp replacements using solid state lighting, replacements using solid state lighting, etc., combinations of these, etc.

[0065] Some implementations of the present invention, the lighting source or sources may or can consist of, for example, but not limited to, night lights, reading lights, desk lamps,

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table lamps, task lamps, overhead lamps, ceiling lamps, floor lamps, pendant lamps, sconce lamps, down lights, accent lights, bed lamps, night table lamps, can lights, cove lights, fan lights, fans, ceiling fans, edge lit lights, flat panels, hanging lamps, lights, light fixtures, architectural lighting, any type of lamps, lights, light fixtures, etc., combinations of these, etc.

[0066] In other embodiments of the present invention, there may not or will not be a source of lighting or a significant source of lighting associated with the present invention, for example, the present invention could be stand-alone, or, for example, but not limited to, inside, inside, outside, external to, incorporated into, part of, attached, connected to, etc. a piece of furniture, a television (TV), other entertainment, etc. including but not limited to stereo, radio, DVD, CD, Blu-Ray, amplifiers, X-box, Wii, etc., table ornaments, ceiling mounts, WiFi routers and switches, wall mounted, motion detectors, security systems, heaters, video monitors, HVAC systems, recording devices, appliances, water valves, door and/or window locks, etc., combinations of these, etc.

[0067] Fig. 14 shows a non-limiting example embodiment of the present invention used to control one or more devices such as TVs, projectors, computers including mouse(s), monitors, other audio visual devices, etc. In Fig. 15, one or more TVs can be selectively turned on or off, controlled, etc. If desired, only one individual TV (or other audio-visual device or other device in general) can be controlled individually. Note that although only 4 emitter units are shown in Figs. 14 and 15, there can be any number $N>0$ with a subset $n<N$ being turned on and powered.

[0068] Fig. 15 shows a non-limiting example of only certain TVs being controlled via the present invention. Note that the IR emitters can be selected to have any reasonable emitting angle or combinations of emitting angles, etc. and can be of any number greater than zero.

[0069] Fig, 16 shows yet another non-limiting example depicting 3 audio visual devices, in this case, 3 TVs each of which can be individually controlled or controlled in groups or otherwise. Again although only 3 emitting units, with each emitting unit consisting of one or more emitters, are shown, any number greater than zero of emitting units can be used in the present invention with one or more (up to the total number of) emitting units being selected to individually, sequentially, sequence, group, etc., combinations of these, emit.

[0070] Fig. 17 depicts a SSL (e.g., LED, OLED and/or QD) fluorescent lamp replacement with an externally attached and powered IR transmitter, receiver, or transceiver (which could be more than one) with, for example but not limited to, motion, temperature, daylight

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harvester, ambient light sensor(s), color sensor, full spectrum sensors, other sensors including but not limited to Internet of Things (IOT) sensors, etc.

[0071] Fig, 18 depicts a SSL (e.g., LED, OLED and/or QD) fluorescent lamp replacement with one or more of an internally incorporated and powered IR transmitter, receiver, or transceiver (which could be more than one) with, for example but not limited to, motion, temperature, daylight harvester, ambient light sensor(s), color sensor, full spectrum sensors, other sensors including but not limited to Internet of Things (IOT) sensors, etc. Note that in some embodiments of the present invention the FLRs can be powered by the ballast or the AC line or both or by other sources of energy/power including but not limited to the output of a ballast, the AC line or either of these, etc. Note that for both internal and external implementations of the present invention there can be more than one external sensor unit with one or more sensors, transmitters, receivers, etc. powered by, for example, but not limited to, the FLR and/or other sources including but not limited to lighting including but not limited to SSL, and more than one internal sensor units with one or more sensors, transmitters, receivers, etc. powered by, for example, but not limited to, the FLR and/or other sources including but not limited to lighting including but not limited to SSL, or a combination of one or more each of internal and external sensor units.

[0072] Other embodiments and implementations of the present invention can be powered by the same source as the lamp whether the lamp is powered by AC line voltage, ballast, batteries, battery chargers, solar or other alternative energy source(s), etc., combinations of these, etc.

[0073] Other embodiments and implementations of the present invention can be powered by a different source as the lamp whether the lamp is powered by AC line voltage, ballast, batteries, battery chargers, solar or other alternative energy source(s), etc., combinations of these, etc.

[0074] Embodiments of the present invention can have light sources that are dimmable, color tunable, white color temperature tunable, full color spectrum adjustable, etc.

[0075] Fig. 19 shows an example of system of SSL FLRs which can be powered in general by any energy source including but not limited to AC line or ballast output or solar and/or other alternative energy and/or energy harvesting source or sources that also power the array of selectable optical emitters which can emit at one or more optical frequencies/wavelengths including but not limited to one or more optical and/or IR frequencies/wavelengths in which

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only the selected emitters emit. Note the selected emitters can range from none (or one) to all of the emitters.

[0076] Fig. 23 depicts a non-limiting example of yet another embodiment of the present invention in which a system consisting of one or more lights with motion sensors of any type as well as other sensors of any type or form including but not limited to IOT, temperature, environment, humidity, noise, sound, fire, smoke, heat, light, color, spectrum, etc. Note in some implementations of the present invention the sensors may be optional or not on all lamps.

[0077] In some embodiments of the present invention two or more wires and, as shown in the non-limiting example depicted in Fig. 23, three wires can be used to provide communications between the others using, for example but not limited to, digital lines and/or digital buses such as but not limited to RS485, CAN, DMX, DMX512, DALI, SPI, I2C, other forms of serial interfaces, PWM, and/or analog including but not limited to 0 to 10 volt, 0 to 3 V, other analog voltage ranges, and/or optical emitters including but not limited to IR emitters and/or wireless communications including but not limited to RF in the range of sub GHz down to less than 1 kHz to 2.4 GHz to THz.

[0078] In general such embodiments and implementations will have at least one or smart phones, tablets, digital assistants, computers, laptops, etc., dedicated controls including but not limited to remote control(s), wall dimmer(s), smart watches, smart wearables, cellular modems, gateways, mobile phone carriers, etc.

[0079] Although some of the embodiments have shown and depicted FLRs, in general any type and form of lighting can be used including but not limited to Edison socket lamps such as A-lamps, PAR lamps, BR lamps, MR lamps, fluorescent lamp form factors of any type and shape, and other lamps discussed herein, etc., combinations of these as well as any type of lighting fixture or fixtures including but not limited to down light, can light, under cabinet, over cabinet, sconce, troffer, pendant fixtures, chandelier fixtures, under cabinet, over cabinet, track lighting, other types of lamps, lights, lighting fixtures including but not limited to those discussed herein, etc., combinations of these, etc.

[0080] The smart drivers, in addition to the performance specified for the simple drivers can support, among others, optional wall (Triac), 0 to 10 V, powerline (PLC), wireless, DMX and DALI dimming. In addition to versions that support white light dimming via smart phones, tablets, iPods, iPads, iPhones, Android devices, Kindles, computers, etc., RGB, WRGB, WRGBA, RGBA, etc. color/mood changing LED, OLED, QD and/or other SSL

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panels are also supported via the same interfaces and mobile/computer devices which can also provide white light. Examples of control and monitoring system using iPhones, iPads and iPods to control and monitor the light color and light (dimming) level are showed below. In other embodiments of the present invention blue and amber LEDs, OLEDs, QDs, other SSL, etc., and/or combinations of these, etc. can be used to provide white color as well as blue color or amber color so as to provide appropriate lighting for various times of the day which could, for example, support healthy lighting options including lighting to support circadian rhythms, seasonal affective disorder (SAD), etc. In an example embodiment, blue and amber OLEDs can be integrated and incorporated into the same lighting panel and each color is independently controllable such that the blue and amber OLEDs – or other lighting sources such as quantum dots (QDs) – can be independently controlled, adjusted, dimmed, turned on or off, etc. for example by having one or more separately addressable electrodes, contacts, etc. For example, the lighting can be set to white (or blue wavelength/color-enriched) in the morning and set to amber at night for people and animals on a more typical circadian rhythm cycle and the lighting can be set to white (or blue wavelength/color-enriched) in the afternoon, or night or other appropriate time(s) and set to amber at later night or late night (with the time being dependent on the individual's particular schedule including but not limited to work schedule, etc.) for people and animals on a non-normal circadian rhythm cycle.

[0081] The present invention can be virtually any shape including the more common and practical ones like an A-lamp, PAR 30, PAR 38, R30, can lamps, down lights, accent lights, under cabinet lights, accent lights, sconces, pendants, chandeliers, track lighting, hallway lighting, patio lighting, entrance lighting, M16, etc. round, square, cylindrical, rectangular, etc. as well as U-shaped, U-shape, U-Bent, U-Bend, U6, U6W, linear such as T8, T5, T12, linear however more two dimensional like a panel, etc., combinations of these, etc. The SSL lights can also be adapted for and installed in ceiling lights or other fixtures, whether recessed or mounted to a ceiling or wall, including but not limited to ceiling fixtures with decorative and/or functional covers or diffusers. SSL lights can be installed in any orientation in fixtures, such as horizontally or vertically or any other orientation.

[0082] Any practical number of channels from 2 to hundreds or thousands of channels with, for example, 12, 16, 32, 64, 100, 128, 250, 256, 500, 512, and so on can be implemented.

[0083] Embodiments of the present invention include smart remote dimming of, for example, an SSL including but not limited to LED, OLED, QD, combinations of these, etc. for desk/task lamps and all other types of lamps, lighting, luminaires, etc. discussed herein that is locally and remotely dimmable with power supply/driver design considerations that include, but are not limited to, high PF, low THD, low EMI, dimming, flicker-free operation and high to extremely high efficiency.

[0084] Remote control and monitoring wired/wireless interfaces can also have manual/local control and dimming via, for example, a potentiometer or encoder/decoder. Some embodiments and implementations of the present invention include smart SSL including but not limited to LED, OLED, QD, other SSL, etc. combinations of these, etc. driver monitoring and logging of pertinent data and parameters including input current, input voltage, inrush current, voltage spikes, power factor, true input power, Volt-Amp (VA) input power, PF, output current, output voltage, output power, etc. Most of these parameters and especially the input parameters can be transmitted either as waveforms (e.g., amplitude vs. time) or as instantaneous or average data points.

[0085] Highly innovative and novel flexible and adaptable OLED or QD large or larger area replacements for fluorescent lamp luminaire retrofitting including both ballast-less (i.e., OLED power supply directly connected to AC lines) replacement and 'drop-in' socket replacement (i.e.,T-8 or T-12 OLED power supply directly connected to either a magnetic or electronic ballast in place of the fluorescent lamp tube) – are provided, such as the example T8 or T12 fluorescent lamp conversion using an OLED and/or LED retrofit 'kit' which, for example, can be made up of either WOLED or RGB OLED panels and in some implementation LED panels that are 'stitched' together to form a flexible area panel. In this example embodiment, four 4 foot long T8 FLs are replaced by OLED area lighting which may be a single panel or a group of stitched panels with an OLED power supply that is designed to plug either directly into the ballast(s) for the T8 FLs or into the AC mains (or both) so as to make it easier to retrofit and install (when the ballast eventually fails, the ballast can be removed and the OLED power supply can be plugged directly into the AC lines. Other embodiments can include other SSL including but not limited to LED, OLED, QD, etc., combinations, etc. of these. The OLED/LED/QD/SSL retrofit including the power supply can be hung/suspended (like a false ceiling) from the FL luminaire or, for example, the OLED/LED/QD/SSL power supply can be inserted in place of the ballast and the OLED/LED/QD/SSL stitched panel can be attached/suspended from the

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OLED/LED/QD/SSL power supply and drivers. The present invention can also be used with Edison sockets such as A-lamps, PAR 30, PAR 38, MR 16, etc. as well as high intensity discharge (HID) including but not limited to sodium discharge lamps, mercury vapor lamps, metal halide (MH) lamps , ceramic MH lamps , sodium vapor lamps, xenon short-arc lamps, ultra high pressure lamps (UHPs), other types of gas and metal-halide and/or metal salts, etc. Edge emitting solid state lighting (SSL) including edge emitting LEDs and/or Edge-Lit LEDs can be used with the present invention.

[0086] Another embodiment provides for highly flexible and adaptable SSL/LED/OLED/QD replacement area lighting that in some embodiments is extremely easy to install and suspend with gravity leveling the SSL/LED/OLED/QD panels and the associated power supply and drivers supported by, for example, the fluorescent luminaire/fixture by a number of secure methods. In addition, the OLED panels do not need diffusers typically used with fluorescent luminaires. Also, innovative color changeable RGB OLED and/or QD and/or LED fluorescent replacement retrofitting lighting (with associated OLED RGB power supplies) can be readily implemented with this approach that can be dual use (i.e., white or user-selectable color) without compromising performance, efficiency, efficacy, etc. In some embodiments, an OLED or, for example, an OLED/LED A-lamp can swivel about the axis of the socket. The internal power supply is contained within the socket. The internal drivers are dimmable, high efficiency and high PF. In some embodiments, a white LED and an amber OLED are used to provide white light 'daylight' and amber light 'nightlight' to support, for example, circadian rhythms and other health effects at work places, homes, hospitals, etc.

[0087] In some embodiments, a vertical version of the OLED or LED/OLED A-lamp is provided with the internal OLED and LED drivers inside the A26 lamp socket and a round plastic cover cylinder attached between the socket on the OLED panel. Another version of the OLED A-lamp includes two back-to-back OLED panels powered by internal driver(s). The internal drivers are dimmable, high efficiency and high power factor (PF). Embodiments of the present invention may also use motors, actuators, etc. to tilt, move, angle, etc. the OLED (or LED or both) lighting. In other embodiments of the present invention, the OLEDs may be replaced or augmented with either white LEDs (or any other color) or RGB LEDs to perform the T8, T12, T5, U shaped or other fluorescent lamp replacement, etc. Other embodiments of the present invention may employ wireless power transfer such as inductive coupling or resonant coupling to remotely power the OLEDs or LEDs.

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[0088] In some embodiments, a motorized, telescoping mount or support is provided for a lighting panel, enabling the light to extend to a desired position and direct the light in a desired direction, and then to retract into a compact configuration when not in use or when commanded. In some embodiments, the retracted configuration provides protection for the lighting panel, either within a housing or using segments of the telescoping mount for protection. Such embodiments may also be portable and may also have personalized settings such that the lamp returns to the same height, angle, etc. (i.e. location) when turned on or commanded to do so. Any number of such personalized settings from 1 to N where N can be a very large number can be incorporated and be part of the present invention.

[0089] The present invention may be integrated with other forms of automation, control, monitoring and management of energy and power, etc.

[0090] The present invention may have speakers placed inside standard light bulb formats such as T8, T10, PAR30, etc. These light/speaker combos, or simply speaker assemblies may be wired or wireless, connecting to various electronic systems capable of providing audio signals. Methods of communication include Bluetooth, radio, LAN, RS-232, SPI, I2C, other forms of serial interfaces, DMX, DALI, etc. and other forms and protocols of communication. Embodiments and implementations of the present invention can include the inclusion of speakers and/or microphones into the light devices which provide experiences where both light and sound interact together. For example, the light amplitude may be correlated to audio amplitude, so that the intensity increases when the music is louder. Other situations for such a device include setting up a home theater with 5.1, 7.1, etc. surround sound in which simply replacing the lights with the speaker-enabled lighting device can be used instead. A full home surround system can be implemented using this present invention.

[0091] The present invention may be in the form of non-standard lighting solution such as but not limited to wall surfaces, mirrors, floor tiles, automotive head lamps, curved surfaces such as rotating cylinders and furniture components.

[0092] The present invention can coordinate with other storage/charging systems including wall mount, desk furniture (which may also have, for example, solar cells attached to, for example, but not limited to sofas, chairs, seats, tables of any type, desks, shelves, ottomans, love seats, beds, head boards, dressers, pianos, foot boards, end tables, bookshelves, floors, walls, ceilings, etc. so as to be able to optimize/maximize the energy storage and usage.

[0093] The present invention can support all standards and conventions for 0 to 10 V dimming or other dimming techniques including but not limited to DALI, DMX, RS232,

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RS485, other serial interfaces and protocols, etc. In addition the present invention can support, for example, but not limited to, overcurrent, undervoltage, overvoltage, short circuit, under current, and over-temperature protection.

[0094] The electronics for converters, inverters, direct current to alternating current (i.e., DC to AC), chargers, distribution, etc. in general may use and be configured in continuous conduction mode (CCM), critical conduction mode (CRM), discontinuous conduction mode (DCM), resonant conduction modes, etc., with any type of circuit topology including but not limited to buck, boost, buck-boost, boost-buck, cuk, SEPIC, flyback, forward-converters, etc. The present invention works with both isolated and non-isolated designs including, but not limited to, buck, boost-buck, buck-boost, boost, flyback and forward-converters. The present invention itself may also be non-isolated or isolated, for example using a tagalong inductor or transformer winding or other isolating techniques, including, but not limited to, transformers including signal, gate, isolation, etc. transformers, optoisolators, optocouplers, etc.

[0095] The present invention may include other implementations that contain various other control circuits including, but not limited to, linear, square, square-root, power-law, sine, cosine, other trigonometric functions, logarithmic, exponential, cubic, cube root, hyperbolic, etc. in addition to error, difference, summing, integrating, differentiators, etc. type of op amps. In addition, logic, including digital and Boolean logic such as AND, NOT (inverter), OR, Exclusive OR gates, etc., complex logic devices (CLDs), field programmable gate arrays (FPGAs), microcontrollers, microprocessors, digital signal processors (DSPs), application specific integrated circuits (ASICs), etc. can also be used either alone or in combinations including analog and digital combinations for the present invention. Parts of the present invention can be incorporated into an integrated circuit, be an integrated circuit, etc.

[0096] The present invention may be used with a linear regulator, a switching regulator, a linear power supply, a switching power supply, multiple linear and switching regulator and power supplies, hybrid linear and switching regulators, hybrids of these, combinations of these, etc.

[0097] The present invention can also incorporate at an appropriate location or locations one or more thermistors (i.e., either of a negative temperature coefficient [NTC] or a positive temperature coefficient [PTC]) to provide temperature-based load current limiting.

[0098] The present invention can also be used for purposes and applications other than discussed above.

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[0099] Embodiments of the present invention can use comparators, other op amp configurations and circuits, including but not limited to error amplifiers, summing amplifiers, log amplifiers, integrating amplifiers, averaging amplifiers, differentiators and differentiating amplifiers, etc. and/or other digital and analog circuits, microcontrollers, microprocessors, complex logic devices, field programmable gate arrays, etc.

[0100] The present invention includes implementations that contain various control circuits including, but not limited to, linear, square, square-root, power-law, sine, cosine, other trigonometric functions, logarithmic, exponential, cubic, cube root, hyperbolic, etc. in addition to error, difference, summing, integrating, differentiators, etc. type of op amps. In addition, logic, including digital and Boolean logic such as AND, NOT (inverter), OR, Exclusive OR gates, etc., complex logic devices (CLDs), field programmable gate arrays (FPGAs), microcontrollers, microprocessors, application specific integrated circuits (ASICs), etc. can also be used either alone or in combinations including analog and digital combinations for the present invention. The present invention can be incorporated into an integrated circuit, be an integrated circuit, etc.

[0101] The example embodiments disclosed herein illustrate certain features of the present invention and not limiting in any way, form or function of present invention. The present invention is, likewise, not limited in materials choices including semiconductor materials such as, but not limited to, silicon (Si), silicon carbide (SiC), silicon on insulator (SOI), other silicon combination and alloys such as silicon germanium (SiGe), etc., diamond, graphene, gallium nitride (GaN) and GaN-based materials, gallium arsenide (GaAs) and GaAs-based materials, etc. The present invention can include any type of switching elements including, but not limited to, field effect transistors (FETs) of any type such as metal oxide semiconductor field effect transistors (MOSFETs) including either p-channel or n-channel MOSFETs of any type, junction field effect transistors (JFETs) of any type, metal emitter semiconductor field effect transistors, etc. again, either p-channel or n-channel or both, bipolar junction transistors (BJTs) again, either NPN or PNP or both, heterojunction bipolar transistors (HBTs) of any type, high electron mobility transistors (HEMTs) of any type, unijunction transistors of any type, modulation doped field effect transistors (MODFETs) of any type, etc., again, in general, n-channel or p-channel or both, vacuum tubes including diodes, triodes, tetrodes, pentodes, etc. and any other type of switch, light/optical/temperature/humidity/pressure/force/position sensing device, circuit, system, etc solar cells including all types and makes or photovoltaic, hybrid, etc. solar cells.

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Embodiments and implementations of the present invention can be activated to open at dawn and/or at a prescribed time as an wake-up system or part of an alarm system including a protection or alert system. The present invention can be used to schedule and sequence turn-on, turn-off, dimming, increasing, decreasing, channel changing, recording, monitoring, control, etc. of any number of devices, appliances, heaters, coolers, fans, air conditioners, furnaces, humidifiers, dehumidifiers, etc., in any combination and combinations of sequences and scheduling including time scheduling with set or variable or specific set or variable timing and duration that can be, for example, user selected, sequenced and/or scheduled or automatically selected, sequenced and/or scheduled.

Embodiments and implementations of the present invention can be used to provide privacy both during the day and at night

Embodiments and implementations of the present invention can also charge at night using lighting sources such as street lamps, outdoor lighting and other sources of human-made or natural solar/light/optical energy, etc.

Switches can be set to route and switch power from the solar shades, panels, curtains, drapes, shutters, blinds, etc. to batteries and other storage devices, cells, etc., to DC to DC converters, DC to AC inverters, AC to AC inverters, etc. other power sources, other power storage, converters, consumers, users, including power consumers such as heaters, coolers, air conditioners, fans, etc., and/or to the power grid, etc. Such power switching and direction and bidirectional power transfer, movement, distribution, redistribution, etc. can be accomplished wirelessly, wired, by powerline, by combinations of these, etc., by manual and/or automatic operation, including automatic decision making, algorithms, other forms of remote control, etc.

Embodiments and implementations of the present invention can include smart and intelligent power inverters and converters including wired, wireless, powerline remote controlled and monitored with analytics.

Embodiments and implementations of the present invention can be used for alert, home and/or business protection by including motion sensors or other intrusion detection which transmits status through the system.

Embodiments and implementations of the present invention can be used for fire detection, smoke detection, carbon monoxide detection, gas detection including but not limited to natural gas detection by including the appropriate detectors or sensors which transmit status through the system.

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Embodiments and implementations of the present invention can monitor for water, moisture leaks and optionally being able to turn off water by including moisture sensors which transmit status through the system and optionally including automated valves which can be opened and closed by remote commands transmitted through the system.

Embodiments and implementations of the present invention can provide remote operation and monitoring for physically or mentally impaired.

Implementation of the present invention can perform powering on or off or optionally dimming, depending on the type of load, including remote wired, wireless, and/or powerline, appliances, heaters, coolers, fans, HVAC, air conditioners, furnaces, central air, humidifiers, dehumidifiers, TVs, entertainment centers, Cable boxes, satellite boxes, gaming boxes, DVD, Blu-Ray. DVRs, VCRs, CDs, audio and/or video tapes, stereo players, record players, amplifiers, radios, including frequency modulated (FM) and amplitude modulated (AM) mono and stereo radios, as well as weather, shortwave and/or other radio frequencies, ranges, bands. etc., switching networks, switches including IR controlled audio visual (AV) switches, and monitoring power usage, time usage, user usage, efficiency, etc.

Elements of the system can be installed in place of light switches, lamp controls, fan controls, AC line outlet boxes, junction boxes, etc.

[0102] In some embodiments, the switchable wireless controller can be powered by and/or can control solar cell shades/blinds/curtains etc. such as those disclosed in US Patent Application 13/795,149, filed March 12, 2013 for a "Solar Powered Portable Control Panel", and can be used with any lighting and/or control systems such as those disclosed in US Patent Application 15/114,064, filed July 25, 2016 for "Solid State Lighting Systems", which are both incorporated herein by reference for all purposes.

[0103] Embodiments of the present invention can use, for example, but not limited to, energy harvesting including but not limited to, photovoltaics, solar cells, etc. to power the sensors from the light or lights emitting optical energy in the visible or other ranges including but not limited to the stray light that the light from the fluorescent lamp replacements (FLRs) or fixtures or other types of lighting and/or lighting fixtures including but not limited to other type of solid state lighting (SSL), fluorescent lighting, incandescent lighting, HID, etc., lighting to charge batteries to supply energy and power the sensors. Embodiments of present invention can be digitally controlled, can use or consist of digital lighting and controls, etc. In embodiments of the present invention, the ballast can be used as the power source/power supply for the sensors, detectors, controls, etc.

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[0104] Some embodiments of the present invention can use the shunted current during constant current control of the FLRs and or dimming to power smart/intelligent sensors including but not limited to Internet of Things (IOT) sensors, etc. all from the ballast which also supplies energy and power to the SSL including but not limited to LED and/or OLED and/or quantum dot lighting.

[0105] Embodiments of the present invention can also provide power/current to a selected number of IR emitters including but not limited to IR LEDs. Such IR emitters can be either turned on collectively or selectively including one or more of the IR emitters including zero, one, up to N-1 emitters. The present invention can also use other methods of optical transmission including but not limited to fiber optics, etc., wires to external IR LEDs, etc.

[0106] A simplified example of a four (or more for example 2 x 4) IR LEDs each of which can be selected to be turned on or off individually or in groups, etc. Such selection can be done, manually, automatically, programmed, scheduled, etc. Control can use, microcontroller(s), microprocessor(s), digital signal processor(s) (DSPs), field programmable gate array(s) (FPGAs), complex logic device(s) (CLDs), or other methods, techniques, technologies discussed herein, etc.

[0107] Turning to Fig. 1, an example switchable wireless system 10 is depicted with a controller 20, which drives, controls, powers and/or switches wireless emitters 12, 14, 16, 18. For example, in some embodiments, the controller 20 receives wired and/or wireless commands and generates corresponding wireless output signals from one or more of wireless emitters 12, 14, 16, 18. In some embodiments, the controller 20 is configured to power only the needed wireless emitters 12, 14, 16, 18, based upon the device(s) being controlled by the wireless output signals from one or more of wireless emitters 12, 14, 16, 18. For example, if each of the wireless emitters 12, 14, 16, 18 is aimed at a different television or display panel, the wireless emitters 12, 14, 16, 18 can be powered or enabled only when their corresponding display panels are in use. Such a configuration can be beneficial, for example, when each of the display panels use the same IR commands, so they can all be controlled simultaneously by a single IR signal, to turn them on/off, control volume, input source, enter configuration menus, etc. If one or more of the display panels corresponding to the wireless emitters 12, 14, 16, 18 is to receive commands and the others are not, then those corresponding wireless emitters 12, 14, 16, 18 can be enabled and driven by the controller 20 to generate the necessary IR control signals, while others of the wireless emitters 12, 14, 16, 18 are disabled. In such a case, the wireless emitters 12, 14, 16, 18 are configured to have a suitable

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directional control, for example using shields and/or lenses to control the direction in which IR signals are transmitted, each being aimed at their corresponding display panel or other electronic device.

[0108] The switching of the wireless emitters 12, 14, 16, 18 can be performed by the controller 20, either by switching the output current to the wireless emitters 12, 14, 16, 18 with enable/disable switches, or by enabling and disabling the generation of output commands which are converted into electrical currents to the wireless emitters 12, 14, 16, 18.

[0109] Turning to Fig. 2, another example switchable wireless system 30 is depicted with a controller 40, which drives, controls, powers and/or switches wireless emitters 32, 34, 36, 38 using switches 33, 35, 37, 39. The controller 40 may comprise, for example but not limited to, a microcontroller, FPGA, ARM processor, microprocessor, etc., with wired and/or wireless control.

[0110] Embodiments of the present invention can have/use solid state lighting including, but not limited to LEDs, OLEDs, Quantum Dots (QDs), etc. as well as other types of light sources/light producing/generating lighting on the other 'side' (i.e., the interior/room facing) instead of the outside facing which has the solar cells/panels. In other embodiments, there may be panels on both sides. The solar cells/panels may be made up/consist of different types of, materials, homojunction, heterojunction, single crystal, poly-crystalline, amorphous, flexible, etc. solar and/or photovoltaic systems, materials that collectively cover all or part of, for example, the deep infrared through the infrared, through the infrared, through the visible, to the ultraviolet and even the deeper ultraviolet. In other embodiments, systems that absorb and use other parts of the electromagnetic spectrum including but not limited to radio frequencies (RF), microwave, millimeter-wave, sub-millimeter wave, terahertz, etc., long wavelengths, the AM and FM, short-wave, etc. to harvest additional power and potentially also block wireless signals from penetrating the window covering, shade, curtain, drape, blind, shutter, etc. In other embodiments, the solar and/or other energy absorber may be integrated and/or incorporated onto the same substrate either heterogeneously or homogeneously; for example, GaN-based LEDs and solar cells, GaAs-based LEDs and solar cells, OLED lighting and OLED solar cells, QD lighting and QD solar cells, other solid state lighting and solid state solar/photovoltaic cells, other types of materials and structures for lighting and electromagnetic absorption, transmission, generation, conversion, etc. The solar/photovoltaic/etc. cells/panels can be wired/connected in parallel, series, combinations of these, etc. The cells/panels can be square, rectangular, circular, elliptical, odd shaped,

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irregular shaped, essentially two dimensional, three dimensional, spherical, hemispherical, cylindrical, parallel piped, etc.

[0111] The automation system is adapted in some embodiments with motors or other actuators to open and close window coverings such as, but not limited to, curtains, blinds, drapes, louvers, shutters, etc. Such automated opening or closing can be scheduled and/or triggered based on sensors, etc. For example, window coverings can be programmed to automatically close at a particular time each evening, or when a light sensor indicates low light conditions at dusk or sundown. Window coverings can be programmed to automatically and gradually open in the morning or at a desired waking time in a bedroom to gradually awaken sleepers or at a particular light level or in combination with time, light, other stimuli and information or subsets of these or other combinations or by individual selections, etc. Window coverings can incorporate sound reduction, sound absorption, or other sound proofing materials to reduce outside noise. Window coverings can be provided with interior lighting devices or panels, for example to provide room lighting while continuing to partially or fully cover and block a window. Solar collectors on the outside of a window covering can collect power from sunlight, streetlights, or other light sources outside while powering lighting on the inside of the window covering, allowing more preferable lighting with desired color, wavelengths, illumination levels, etc. to be powered and provided on the inside of the window covering, thereby providing privacy and energy efficient lighting and dampening noise from outside.

[0112] In some embodiments, a smart phone or other mobile control device is used to control a space heater or other heating and/or cooling system, referred to herein as a temperature controlling device, or other elements of a home automation and/or home entertainment and/or home control system. In some of these embodiments, the smart phone, tablet, including but not limited to iPod, iPad, iPhone, remote control or other mobile control device includes a temperature sensor and is operable to provide temperature measurements as part of a thermostat system. In some cases, the temperature sensor in the smart phone or other mobile control device controls the space heater, fan, portable air conditioner, window air conditioner, evaporative cooler, combinations of these and other types heating, cooling, flow, HVAC, registers, vents and/or ducts, etc. based on the temperature at the location of the smart phone, rather than at the location of the space heater. In some cases, the temperature at multiple locations is measured and used to control the space heater or other heating and/or cooling system, for example including multiple smart phones in the system to control the

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temperature at multiple locations in a residence. The temperature at the location of the heater can also be included in the control algorithm, for example limiting the temperature at the location of a space heater so that it does not exceed a maximum temperature.

[0113] Such a "mobile thermostat" with a switchable wireless controller can be used to control a heating and/or cooling system in a residence to substantially heat or cool only the locations used by occupants based on temperature measurements by for example, remote controls, smart phones, tablets, laptops, personal digital assistants, other portable digital assistants, voice commands, voice recognition, motion detection, proximity detection, pressure detection, RFID, Bluetooth, other signal strength detection, GPS, smart phones etc. on or near the occupants. In some embodiments, the heating and/or cooling system can be configured to maintain a basic default level of heating or cooling elsewhere. Such "mobile thermostat(s)" can also be employed in any location within a dwelling, residence, home, office, building, warehouse, etc. and be connected with the HVAC system via wired, wireless, power line control, etc. In some embodiments of the present invention, the mobile thermostats can be powered wirelessly by solar, mechanical, vibration, radio frequency (RF), infrared, other forms of energy harvesting, etc. and can also use batteries that are charged by these various energy harvesting including, but not limited to solar cells, and combinations, etc. of solar cells and other energy harvesting. One or more of these "mobile thermostats" may be employed at any given time including a mixture of "mobile thermostats" consisting of cellular phone(s), smart detectors, tablets, laptops, etc., portable and/or fixed sensors, etc. and any combination of these that can be static or dynamically changing, etc. These "mobile thermostats" can coordinate with the master (or one or more master thermostats that control one or more furnaces/air conditioners, air blowers, fans, evaporation/evaporative (swamp) coolers, electrical heaters, baseboard heaters, radiative heaters, under floor covering heaters, ceramic heaters, quartz lamp heaters, two- and tri-fuel (including, for example, but not limited to one or more of propane, butane, natural gas, hydrogen, fuel cells, electricity, solar heaters, solar coolers, boilers, portable heater of any type, air conditioner(s) of any type including central air, window air conditioners, roof top units, radiant heaters, radiant floor heaters of all types and kinds, natural gas heaters, propane heaters, other types of fuel heaters, water heaters, hot water heaters, electrical heaters of any type, oil heaters, wood heaters, pellet heaters, hot air heaters, ceiling fans (including the direction of rotation and speed of rotation for ceiling and any other type of fan) etc. which, in some embodiments, can be coordinated with each other including coordinated in a user defined way, approach, model,

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algorithm, etc. Embodiments of the present invention can also take into account weather related and temperature and temporal timing events and effects that affect the heating and/or cooling and proximity including location and attributes such as location, number of windows, multiple sense/sensor points etc. Powered fans, HVAC registers, residential registers, vents and ventilation in general and heater/cooler vent shutters and ducts can be used to direct, restrict, limit, enhance, decrease, increase, etc. the temperature of various locations within a dwelling, either autonomously, or collectively coordinated, manually, automatically, user command selectable, etc. Such fans, registers and vents and in general ventilation can be powered with solar, batteries, other energy harvesting, wireless energy transfer, inductive coupled power transfer, inductive coupled wireless power transfer, AC line, etc. Example embodiments can include, but are not limited to, wireless/inductively coupled power transfer from the solar cell shades to the distribution/power charging of batteries, fuel cells, mechanical energy storage systems such as momentum flywheels, and other types of energy storage that can be used to charge cell phones, smart phones, tablets, uninterruptable power sources/systems (UPSs), computers, servers, routers, lights, smart phones, shavers, radios, music and movie players including, but not limited to, MP3, Ipod, DVD, DVR, VCR, Blu-ray, etc., flashlights, work lights, desk lamps and lights, task lamps and lights, emergency lights, etc. and in general any type of device that requires energy to operate including but not limited to the controller and monitor for the embodiments of the present invention system including, but not limited to, motors, actuators, sensors, detectors, data logging, analytics, etc. for the solar shades and HVAC fans, vents, registers, etc.

[0114] Solar cells of any type and/or any material and/or any structure and/or any efficiency can be used with the present invention. Such solar cells include, but are not limited to, silicon (Si)-based, gallium arsenide (GaAs)-based, gallium nitride (GaN)-based, other Group IV, Group III-V, Group II-VI, OLED cells, quantum dot cells, etc. semiconductor and light sensitive materials, heterojunctions, heterostructures, combinations of these, etc. Multiple types of solar cells that include and cover multiple bandgaps/ wavelength ranges/etc. may be used to together or separately to cover various regions of the spectrum including, but not limited to the infrared (IR), visible, ultraviolet (UV), etc. regions. The solar cells may be mixed and matched and may be part of a solar tracking system that changes the position, angle, or other attribute of the solar cells to obtain the desired (i.e., maximum or optimum) response and may include maximum power point tracking (MPPT) and other such methods to maximize and optimize the energy/power transfer, etc.

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[0115] The present invention can use any type of sensors, detectors in any number and any combinations from simple to advanced, sophisticated and complicated including but not limited to temperature, light, solar, position, inclination, speed, location, acceleration, etc., again in any combination or use. Such sensors include but are not limited to thermocouples, thermistors, platinum-based temperature sensors, resistance temperature detectors (RTDs), semiconductor, integrated circuits, micro-electro-mechanical systems (MEMS), gyroscopes, global positioning systems (GPS), triangulation, sound, electrical (including to measure/detect/monitor electrical parameters such as input and output voltage, current, power, power factor, harmonics, distortion, total harmonic distortion (THD), etc. for example both collectively and individually) mechanical, vibrational, wind direction, strain gauges, moisture, humidity, radio frequency (RF) detectors and sensors including but not limited to radio frequency identification (RFID), infrared detectors, spectrum analyzers and detectors/sensors, time detectors including ones that can detect and use atomic clock signals sent by radio transmitters, etc. Any, a subset or all of these detectors and sensors may be used in any combinations with the present invention. Uses include but are not limited to solar/light detection and response, data logging, analytics, predictions, simulations and modeling, movement and actuation of any type or form including motor, piezoelectric, air/pneumatic, tilting, angling, rotating, etc. including, but not limited to, as part of the energy control, monitoring, management, logging of various embodiments of the present invention.

[0116] In an embodiment of the control unit, environmental conditions such as temperature, humidity, barometric pressure, dew point and luminance may be recorded to be used for interpreting the climate both inside and outside of structures, for the use of determining if a disaster has occurred such as flooding, fire, freezing temperatures, etc., for determining the insulating efficiency of windows, walls and other structures designed to insulate or otherwise block the outside climate from the inside. The control unit may be linked to devices such as motorized windows, automatic doors, thermostats, HVAC systems, motorized shades and other devices to adjust the climate inside automatically and intelligently. The sensors may also be integrated into a WIFI or LAN network and displayed in a web terminal or other device to show the status of a building and to identify areas of potential problems. The information may be uploaded to remote servers and combined with other data from other buildings/structures/elements to build a picture of complete building/site efficiency.

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[0117] The control unit may use algorithms intended to allow the tracking and location determination of individuals inside a certain area. Methods such as RSSI and other techniques may be used to determine motion and occupancy. This information may be used for remote monitoring of the physically impaired to ensure that there is movement in the home/area/building. The system may also be used in situation where the mentally/physically impaired need to be located and their movements tracked in a non-contact non-observable manner. Actions that may be monitored include standing/sitting/dwelling in a certain location and the duration of the action, location relative to the sensors and triangulated in 3D space, and other actions. Movement that is sensed may also be used to detect intruders into restricted areas and for home automation such as turning on a home theater system when one enters a room, etc.

[0118] Energy derived from the wind may also be used, incorporated, integrated into the present invention including, for example, providing additional sources of energy and power including both during the day and during the night. Wind energy can be used to, for example, drive generators to produce electrical and/or mechanical energy which can be consumed, stored, etc. as part of the present invention.

[0119] Status updates, faults, control, monitor, interrupt, changes, system updates, etc. can all be set, monitored adapted, modified, enhanced, controlled, etc. with the present invention including locally and remotely. Voice, e-mail, gestures, movement, position, web, smart phone and tablet (etc.) applications (apps), other remote controls and monitoring etc. can be used with the present invention to tailor, optimize, maximize, manage, modify, share, allocate, distribute, balance, transfer (including transferring and interacting with power grids), etc. energy/power for the present invention. The present invention can also be used with social media and other such internet software such as Facebook, Google, Instagram, Twitter, etc. and in conjunction with security and fire protection systems, etc., entertainment, cable and satellite systems and providers and to provide assistance and monitoring to and for elderly, senior, disabled person(s), etc. including remote assistance that can be controlled, monitored, managed, etc. by others remotely.

[0120] The control system can be used to control entertainment sources including providing custom apps, web pages and/or social media interfaces that combine various media (i.e., antenna TV, cable satellite, stereo, DVD, DVR, VCR, Blu-ray, CD, HVAC including but not limited to heating, cooling, humidity, temperature, air flow, air filtration, temperature distribution and profile, etc. onto user-adjustable and selectable apps or web pages that allow

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the user to immediately set up the entertainment, comfort, work, etc. environment or select from a suite/set of such environments which can be different for any number of users. The present invention can also measure, determine, calculate, expand upon, track, provide analytics, etc. of power consumption, energy-efficiency, power factor, energy costs, etc. by for example, using an energy/power monitoring device or devices to measure either or both the AC and/or DC input power, etc.

[0121] A microphone or microphones are used in some embodiments to receive and recognize voice commands to control temperature, entertainment, heating, cooling, lighting, including color temperature and color, etc., opening and closing vents, setting alarms, monitoring, etc.

[0122] Embodiments of the present invention can use RFID, other RF signals including but not limited to cell phones, smart phones, tablets, wireless devices in general to track, monitor, log, etc. one or more persons, animals, or objects location, duration, movements, etc. Such tracking, monitoring, logging information can be used in many ways and for many purposes and applications with the present invention including, but not limited to, deciding how to allocate resources, how to set the solar shades/curtains/drapes/blinds/shutters/etc. (including position, angle, open, closed, partially closed or open, etc.), how to distribute light/energy/power among the various components of the present invention, to send alerts if persons, animals, objects spend too long in certain locations or enter locations that they should not be in, etc. One example is if a person is detected as being in a location such as a bathroom for too long of a period, an alert could be sent out and broadcast to select devices and persons including a situation where an elderly person is in the bathroom for a long period of time.

[0123] The present invention can also interact with, incorporate and work with medical monitoring, control, sensing and detection devices, equipment and instrumentation and take appropriate actions and broadcast alerts (including to all or a subset of family members, friends, co-workers, emergency services, medical personnel, others, etc.) when a medical emergency is detected such as the onset of a heart attack, a person suddenly falling down, irregular and abnormal monitoring signals, etc. This can be accomplished using either or both wearable or non-wearable devices including wrist, head, ankle, other parts of the body, head, appendages, watches, etc.

[0124] The present invention can also work with conventional, non-programmable, or non-remotely programmable fixed location thermostats. As an example such thermostats could be

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set to a lower temperature in the winter time and the mobile thermostats could enhance and increase the temperature or temperatures in desired locations based on but not limited to, time of day or night, location, proximity to humans and animals, plants, fish, etc., motion or heat detected from living creatures including but not limited to humans and/or animals, voice commands, voice recognition, gesturing, alarms, remotely sent commands, outside temperature, distance and expected time of arrival, etc. In some embodiments of the present invention, the conventional, non-programmable, or non-remotely programmable fixed location thermostats could be augmented by/with a wired, wired and/or powerline controller located at and connected electrically to the furnace(s), central air conditioner(s), humidifier, dehumidifier, HVAC system(s), combinations of these, etc. which is able to either work with or take control from the existing conventional, non-programmable, or non-remotely programmable fixed location thermostats to control, set, monitor, etc. the temperature, humidity, air flow, etc. Embodiments of such a wired, wireless and/or powerline controller can be in parallel with or in series with or be implemented to take over control and block control of the conventional, non-programmable, or non-remotely programmable fixed location thermostats. As an example this can be accomplished by connecting the wired, wireless and/or powerline controller to the standard wiring for and between the conventional, non-programmable, or non-remotely programmable fixed location thermostats., for example, the furnace(s), air conditioners, central air conditioners, HVAC, humidifier(s), dehumidifier(s), combinations of these, etc. and having the wired, wireless, and/or powerline including combinations of these controller directly wired into the standard wiring for the furnace(s), air conditioners, central air conditioners, HVAC, humidifier(s), dehumidifier(s), combinations of these, etc.

[0125] The present invention can coordinate with other storage/charging systems including wall mount, desk furniture (which may also have, for example, solar cells attached to, for example, but not limited to sofas, chairs, seats, tables of any type, desks, shelves, ottomans, love seats, beds, head boards, dressers, pianos, foot boards, end tables, bookshelves, floors, walls, ceilings, etc. so as to be able to optimize/maximize the energy storage and usage. For example if the storage devices/units (e.g. batteries) that are being charged by the solar cell shades reaches full capacity, the present invention can open or partially open the solar cell shades and/or redirect the solar energy to other sources of energy harvesting including solar heat or solar cells so as to increase and distribute the energy storage and/or usage by allowing light to power and continue to power and provide energy and/or to use the excess energy to

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power heaters, fans, coolers, air conditioners, televisions, DVD, DVR and/or Blu-ray players and recorders, washers, dryers, stoves, furnaces, lighting including solid state lighting, combinations of these, etc.

[0126] The one or more main thermostat(s) may be replaced with a wireless or wired transceiver or receiver and/or transmitter that uses very little energy and may or may not have a display and connected and interfaced either wirelessly or wired (or both) to a remote sensor or sensor which could, for example, be a smart phone, tablet, computer, sensor (which may or may not have a display), etc. to effectively relocate either temporarily or permanently the effective location of the temperature setting element of the thermostat(s). Any or all (or a subset) of the thermostat(s), "mobile thermostat(s)", etc. may also receive power or be power assisted from sources such as solar cells/photovoltaic cells and elements, RF, vibrational, mechanical, acoustical, inductively coupled, etc. In addition, embodiments of the present invention may employ wireless power transfer including, but not limited to, inductively coupled, resonant coupled, etc. energy/power transfer including from the solar cell shades to batteries, cell phones, tablets, smart phones, computers, lights, fans, heaters, coolers, air conditioners, phones, stereos, televisions, DVD, DVR, Blu-ray, other forms of media and entertainment, etc.

[0127] The present invention can be used to monitor any and all features, parameters, conditions, mood, settings, environment, electrical, optical, temperature, etc. information and store any and all information including color settings, color + white settings, combinations, color settings, color plus white settings with other temperature, humidity, moisture, audio, visual, sensory, vibration, mechanical, electrical, optical information, data, parameters, etc. Such storage can be of any type including, but not limited to local, mobile based device, cellular phone based, tablet based, remote control based, web based, cloud based, etc. Such stored information can be shared and transferred to others including, but not limited to, other mobile based device, cellular phone based, tablet based, remote control based, web based, cloud based, etc.

[0128] The power source for the present invention can be any suitable power source including but not limited to linear regulators and/or switching power supplies and regulators, transformers, including, but not limited to, forward converters, flyback converters, buck-boost, buck, boost, boost-buck, cuk, inverters, convertors, chargers, distribution etc. The present invention is not limited to the choices discussed above and any suitable circuit, topology, design, implementation, method, approach, etc. may be used with the present

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invention. Other power handling circuits can be incorporated in the home automation system, including those disclosed in US Patent Application 13/674,072, filed November 11, 2012 for a "Dimmable LED Driver with Multiple Power Sources", and in US Patent Application 13/301,457, filed November 21, 2011 for a "Fluorescent Replacement", which are incorporated herein by reference for all purposes.

[0129] The types of choices, selections, options, etc. for the present invention can be displayed automatically, manually, or by any other method, way, approach, implementation, etc. For example, these can be selected via physical commands, methods, and ways, such as, but not limited to, touching, typing, moving, speaking, tones, including tone of voice, using a mouse or cursor, pen, etc., vibration, light, etc.

[0130] The present invention can also use applications (Apps) either specifically or generally designed for the particular mobile device such as an iPhone, Android phone, Android tablet, iPad, iPod, etc. The present invention can also allow manual and/or automatic firmware and software upgrades to, for example, the mobile device applications, if any, and the controller that interfaces with solar shades/drapes/shutters/curtains/blinds, HVAC and also the lighting sources, internal controllers. Embodiments of the present invention can be also monitor, log, store, etc. the states and conditions system including but not limited to the dimming level including the dimming level and/or power level reduction or increase of heaters, fans, blowers, coolers, etc., the color combinations/selections/levels/ etc., the on-off status and state, the power level, the efficiency, the power factor, the input and output current, voltage and power, etc.

[0131] Turning to Fig. 3, a home automation system with mobile sensors is depicted in block diagram form in accordance with some embodiments of the invention. A remote control 100 of any type can transmit commands to (and, in some embodiments, receive status information back from) an interpreter 102, which interprets commands from the remote control 100 and which forwards the commands to other appropriate elements of the home automation system in whatever suitable format and transmission medium is used by the destination, such as, but not limited to, IR or RF output commands. In some cases, the interpreter 102 can also receive RF input from other devices, for example to control the interpreter 102 or to provide status information to be forwarded to the remote 100. Remotes (e.g., 104) can also transmit commands to (and, in some embodiments, receive status information back from) a super interpreter 106, which interprets commands from the remote control 104 and which forwards the commands to other appropriate elements of the home

automation system in whatever suitable format and transmission medium is used by the destination, such as, but not limited to, IR or RF output commands, WiFi/Bluetooth or other format output commands. In some cases, the super interpreter 106 can also receive RF input from other devices or information or control signals from other sources, for example to control the interpreter 106 or to provide status information to be forwarded to the remote 104. In some cases, the super interpreter 106 can interact with and control other interpreters (e.g., 102) in the system.

[0132] A laptop or other computer 110 can interact with the home automation system with any wired or wireless connection, including but not limited to a WiFi or Bluetooth connection, in order to control one or more devices in the system or to receive and display status information. Similarly, a phone 114 and/or tablet 118 can interact with the home automation system with any wired or wireless connection, including but not limited to a WiFi or Bluetooth connection, in order to control one or more devices in the system or to receive and display status information. The home automation system can include one or more input devices such as, but not limited to, light sensor(s) 122, temperature sensor(s) 126, motion sensor(s) 130, etc., each of which can be connected to other elements of the system by RF links, IR links, WiFi or Bluetooth, or any other wired or wireless connections. Such information of all types including but not limited to control codes, preferred settings, scheduling and sequencing, time of day and date, other information discussed herein, etc. can be stored, for example in any or all or a subset of the system, modules, supermodules, subsystems, elements, implementation, embodiments, etc. of the present invention.

[0133] One or more room modules (e.g., 112, 116, 120) can be provided and placed in rooms having devices to be controlled, such as, but not limited to, heating or cooling devices, lighting systems, entertainment systems or audiovisual equipment such as televisions, receivers, speakers, media players, audio players, etc., and can be connected to other elements of the system by RF links, IR links, WiFi or Bluetooth, or any other wired or wireless connections. Room super modules (e.g., 124) can include all of the functionality of room modules (e.g., 112, 116, 120) and can also coordinate or control other modules (e.g., 112, 116, 120) to coordinate including but not limited to scheduling and sequencing the control of heating or cooling devices, lighting systems, entertainment systems or audiovisual equipment such as televisions, receivers, speakers, media players, audio players, etc. across multiple rooms or throughout a house or other building. Power can be provided to elements in the system from any of a number of sources, including wall power, battery power, or solar

power (e.g., in a room super module with solar cell 128), including solar power from solar cells mounted directly on the elements or drawn from solar curtains/blinds/shades etc. or from storage devices charged by solar curtains/blinds/shades etc.

[0134] A wireless output switch controller 132 can be included in the system to enable and disable one or more of the wireless output devices, such as, but not limited to, wireless emitters in one or more of interpreter 102, super interpreter 106, room modules 112, 116, 120, 124, 128, etc.

[0135] Turning now to Fig. 4, a block diagram depicts wireless/wired connections between components of a home automation system with mobile sensors in accordance with some embodiments of the invention. One or more heaters (e.g., 146, 152), coolers or HVAC equipment can be controlled by switched wireless controllers or interpreters (e.g., 150), which can include multiple wireless emitters or output devices, each of which can be independently enabled or disabled based upon the devices being controlled. Other elements (e.g., 142) of the home automation system such as, but not limited to, lighting systems, entertainment systems or audiovisual equipment such as televisions, receivers, speakers, media players, audio players, communications systems, etc. can also be controlled by wireless controllers or interpreters (e.g., 150). Power monitors 140, 144, 154 can monitor and/or control the power provided to the heaters (e.g., 146, 152) and/or other elements (e.g., 142) of the system, receiving control commands and/or sending status or other monitoring information to one or more central wireless transceivers 156. One or more remote controls, smart phones, tablets, computers, laptops etc. (e.g., 158) can also interface with the system, for example by wireless connection to central wireless transceivers 156 and/or by optional wireless RF or IR links to interpreters (e.g., 150).

[0136] Turning now to Figs. 5-7, an IR sensor 170 and/or transmitter suitable for use in some embodiments of a home automation system is depicted in perspective, top, and side views in accordance with some embodiments of the invention. The number of IR LEDs in the IR sensor 170 can be one or more. The IR sensor 170 can include multiple IR sensors and/or switched emitters 172, 174, 176, 178, 180, 182, to provide the desired direction(s) and sensitivity of coverage, and to enable and disable commands to particular electronic devices by switching on or off the IR LEDs, thereby allowing or blocking commands in the IR signals from the IR LEDs. The IR sensor 170 can consist of IR sensor arrays and can have any suitable shape, such as but not limited to the box of Figs. 5-7 or the circular shape of the IR sensor 190 of Figs. 8-10. In Figs. 8-10, an IR sensor 190 and/or transmitter suitable for

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use in some embodiments of a home automation system is depicted in side, perspective, and top views in accordance with some embodiments of the invention. The IR sensor 190 can include multiple IR sensors and/or emitters 192, 194, 196, 198, 200, 202, 204, 206, 208, 210, 212 to provide the desired direction(s) and sensitivity of coverage and movement, rotation, angle(s), tilt(s), etc. Indicators such as LED lights can also be provided on IR sensors to indicate when commands are received and/or transmitted. The IR sensors (e.g., 170, 190) may include a solid state light (SSL) (e.g., 184, 212) including OLEDs, LEDs, SSLs and/or QD lights that could be room, task, general, etc. white light, white changing, color changing, etc., combinations of these, etc. The IR sensors 170,190 enable IR controlled only heater(s), air conditioner(s), fan(s), all other device, units, HVAC, entertainment, TVs, discussed herein, etc. units to be included in the home automation system, where such devices can only be used with remote controls typically which are hand held and can be made to be part of a simple to sophisticated wireless connected system using the present invention.

[0137] Turning to Fig. 11, an example home floorplan illustrates usage of an example embodiment of a home automation system in accordance with some embodiments of the invention. However, it is important to note that the floorplan and the usage of elements of the home automation system are merely non-limiting examples. An IR interpreter 220 is used to transmit commands to a television 222 in a bedroom 224. Another IR interpreter 226 is placed in a multimedia room 234 to control a receiver 230 and speakers 228, 232. An IR interpreter 236 is placed in a living room 242 to control a remote heater 238 and television 240. An IR interpreter 244 is placed in a kitchen 248 to interface with/receive settings from a thermostat 246, whether fixed/hardwired in place or remote, such as a temperature measurement device and/or temperature setting control interface in a smart phone or other remote control device. An IR interpreter 250 is placed in a bedroom 254 to control a television 252. Each of the IR interpreters can have multiple switched emitters which can be enabled and disabled individually or in groups. Notably, other devices can be controlled in any or all rooms, and other control devices such as, but not limited to, a central wireless transceiver and/or super interpreter and/or main console and/or room super module can be included to coordinate status and control of any or all of the devices including the lighting and temperatures in the system.

[0138] Turning to Fig. 12, a diagram depicts WiFi connections in an example embodiment of a home automation system in accordance with some embodiments of the invention. A server/control unit 284 can be connected by WiFi or other connections to remote devices 288,

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290, 292 such as, but not limited to, heaters, coolers or HVAC equipment, lighting systems, entertainment systems or audiovisual equipment such as, but not limited to, televisions, receivers, speakers, media players, audio players, communications systems, power supplies and/or power controls/monitors, etc. Handheld devices, mobile thermostats, remote controls, etc. (e.g., 280) can be connected to the server/control unit 284 by wired/wireless connections or combinations thereof, for example through a home/office WiFi Internet router 282. For example, in some embodiments control unit 284 comprises a switched wireless controller, such as, but not limited to, an IR relay with multiple IR emitters that can be enabled and disabled individually or in groups.

[0139] Turning to Fig. 13, a diagram depicts Bluetooth connections in an example embodiment of a home automation system in accordance with some embodiments of the invention. A handheld device, mobile thermostat, remote control, etc. (e.g., 294) can be connected by wireless connections such as, but not limited to, Bluetooth connections to remote devices (e.g., 296, 298, 300) such as, but not limited to, heaters, coolers or HVAC equipment, lighting systems, entertainment systems or audiovisual equipment such as, but not limited to, televisions, receivers, speakers, media players, audio players, communications systems, power supplies and/or power controls/monitors, etc. Such a system can be combined with a switched wireless controller such as, but not limited to, an IR relay or converter with switched emitters.

[0140] Turning to Fig. 14, a switchable wireless controller 310 is configured to selectably transmit wireless control signals to four televisions 312, 314, 316, 318 in accordance with some embodiments of the invention. The switchable wireless controller 310 includes wireless transmitters 320, 322, 324, 326, such as, but not limited to, IR emitters, which can each be focused on one of the four televisions 312, 314, 316, 318 so that signals from each of the wireless transmitters 320, 322, 324, 326 reaches just a unique one of the four televisions 312, 314, 316, 318. As depicted in Fig. 14, all four wireless transmitters 320, 322, 324, 326 are enabled and transmitting commands to the four televisions 312, 314, 316, 318. Each of the wireless transmitters 320, 322, 324, 326 can be disabled to conserve power or to block commands from being transmitted to their corresponding target device. For example, in Fig. 15, emitter 324 has been disabled and commands are not transmitted to television 316. Although in this example the four wireless transmitters 320, 322, 324, 326 are directional and each of the four televisions 312, 314, 316, 318 can be configured to receive and respond to the same types of commands, e.g., the same IR codes, the switchable wireless controller 310

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is not limited to this embodiment. In some other embodiments, each electronic device can be independently addressable using different codes, addresses, protocols, etc., and the enabling and disabling of transmitters in the switchable wireless controller 310 can comprise disabling output drivers or other circuit blocks as well as blocking current to the output transmitter or emitter, in order to reduce power consumption.

[0141] The switchable wireless controller can be configured with any number of receivers and/or transmitters, with any protocol or combination of protocols. For example, as depicted in Fig. 16, another example embodiment includes a switchable wireless controller 330 configured to transmit wireless control signals to three televisions 323, 334, 338 in accordance with some embodiments of the invention, using three IR emitters 340, 342, 344.

[0142] Turning to Fig. 17, in some other embodiments, a switchable wireless controller 370 is connected to and powered by a solid state fluorescent lamp replacement 350, which generates power for the switchable wireless controller 370 and or other devices using an internal power supply, which is powered from a fluorescent ballast or an AC line in the fluorescent light fixture. The solid state fluorescent lamp replacement (FLR) 350 includes, for example but not limited to, connector pins (e.g., 356, 358) provided at each end 352, 354 of the FLR for connection to tombstone connectors in the fluorescent lamp fixture. Power is drawn from a ballast or AC line in the fluorescent lamp fixture and is rectified and converted or regulated to power solid state lights such as, but not limited to, LEDs (e.g., 360, 362, 364, 366) and, can also be provided through a tether 372 or wirelessly to the switchable wireless controller 370. Such a solid state fluorescent lamp replacement 350 and power supply for external devices can be configured, for example but not limited to, as disclosed in PCT Patent Application PCT/US2016/052560, filed September 19, 2016 for "Solid State Lighting Systems", which is incorporated herein by reference for all purposes. The switchable wireless controller 370 can include multiple wireless transmitters, such as, but not limited to, IR emitters, which can be enabled and disabled individually or in groups. The switchable wireless controller 370 can also include wired or wireless receivers, such as, but not limited to, IR receiver(s), RF receivers, etc., to receive signals or commands to be relayed and optionally format converted. Other devices can also be powered by the FLR 350, such as, but not limited to, IR with Motion, Temperature, Daylight Harvester, Color, etc. sensors, etc., which can be provided in the same housing as the switchable wireless controller 370 or externally.

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[0143] As depicted in Fig. 18, a switchable wireless controller 384 can also be provided internally in a solid state fluorescent lamp replacement 380. The fluorescent tube replacement 380 can have any form factor to replace a fluorescent or HID lamp and can include power sources, converter circuits, heater emulation circuits, feedback circuits, dimming circuits, user interface circuits, sensor control and integration circuits, LED and/or other light sources, etc. Wireless controller switches 384 with multiple IR emitters as well as sensor(s) of any number and type can be directly integrated into the tube replacements 380 at ends near end caps 381 or at any other location, such as daylight harvesters, color sensors, motion sensors, light sensors, temperature sensors, combination sensors, IOT interfaces, IR receivers and/or transmitters to interface with and/or control other devices, cameras, photosensors, etc. The sensors can include multiple sensors of one type or of multiple types. Bi-pins 382, 383 can be provided as needed to connect to the tombstone fixture or other lamp fixture interfaces.

[0144] Turning to Fig. 19, a group of solid state fluorescent tube replacements 400, 404, 408, 412 are depicted which power switchable wireless controllers 402, 406, 410, 414 which are wirelessly interconnected and which receive wireless commands from a remote control in accordance with some embodiments of the invention. Each switchable wireless controller 402, 406, 410, 414 can have multiple wireless transmitters such as, but not limited to, IR emitters (represented by outgoing arrows), each of which can be switchably enabled and disabled individually or in groups. Each switchable wireless controller 402, 406, 410, 414 can have wired and/or wireless receivers as well, allowing the switchable wireless controllers 402, 406, 410, 414 to be interconnected to extend the range and/or the number of targets reached by IR transmitters. The switchable wireless controllers 402, 406, 410, 414 can also comprise converters, for example to convert incoming Bluetooth signals to outgoing IR signals. One or more remotes 416 can communicate with the switchable wireless controllers 402, 406, 410, 414, generating commands to be converted to IR or other outgoing signals to control other electronic devices. Such a remote 416 can comprise any device for generating control signals, such as, but not limited to, remote controls, smart phones, tablets, personal devices, computers, etc.

[0145] The system network can be comprised of wireless signals and command data that can be transmitted and received via a server or main control unit which can be connected to a wireless network where it can be utilized and controlled by smart phones, tablets, personal device, computers, etc. These commands and communications can be controlled and

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managed through software applications designed on platforms like, but not limited to, Android, iOS, C++, and Java using a graphical user interface (GUI). This system can communicate commands to devices that control infrared devices such as, heaters, air-conditioners, televisions, personal fans, air purifiers, DVD units, DVR units, cable boxes, etc. These devices can also capture commands from remote controls that use infrared LEDs to control their counterparts. An example IR interpreter 420 that can capture commands from IR remote controls, interpret if needed, and forward in any suitable format including in IR form, is depicted in side, front perspective and rear perspective views in Figs. 20-22 in accordance with some embodiments of the invention. An example IR interpreter 420 can include, for example, an infrared LED 422, phototransistor 422, transmit (TX) indicator 424, and power indicator 426. The information can be stored anywhere and everywhere including but not limited to the supermodules, the modules, smart phones, tablets, laptops, servers, cloud-based and web-based, etc. for certain embodiments of the present invention.

[0146] Fig. 23 depicts a group of solid state fluorescent tube replacements 452, 472, 492, 512 powering external sensor units 450, 470, 490, 510 with switchable wireless controllers which are wirelessly interconnected and which can receive wireless commands from a remote control in accordance with some embodiments of the invention. Dimming control signals 454, 474, 494, 514 can be provided from sensor units 450, 470, 490, 510 to their associated fluorescent tube replacements 452, 472, 492, 512, based on any suitable signal or combination of signals, such as, for example but not limited to, the output of motion sensors, light sensors, temperature sensors, dimming commands from remote controls or remote processing devices, which can be received directly by sensor units 450, 470, 490, 510 or can be relayed through sensor units 450, 470, 490, 510 by IR signals or other wired or wireless signals, etc. Power 456, 476, 496, 516 can be provided from the fluorescent tube replacements 452, 472, 492, 512 to the sensor units 450, 470, 490, 510 in any suitable manner, including wired or wireless power transmission, at any suitable voltage and/or current level(s).

[0147] Wired and/or wireless signals or connections can also be provided between sensor units 450, 470, 490, 510 to link them. For example, common wires 459, 478, 498 can provide a common ground or reference between the sensor units 450, 470, 490, 510. Motion detected signals 460, 480, 500, which in some cases comprise binary signals but which can also comprise analog signals or encoded signals, can also be provided between sensor units 450, 470, 490, 510 so that detected motion can be tracked along a path or beyond the range of

a single sensor unit (e.g., 470). Such tracked motion can be used for any suitable purpose, such as controlling systems, generating alerts, turning lights on in fluorescent tube replacements 452, 472, 492, 512, controlling dimming level, color, guiding movement along a path using the fluorescent tube replacements 452, 472, 492, 512, interfacing with and/or controlling security systems, etc. Dimming levels can also be communicated between sensor units 450, 470, 490, 510 by communications links 462, 482, 502, which can comprise , for example but not limited to, PWM or other digital or analog control signals, digital bus, analog bus, optical emitters, etc. Transceivers can be provided in one or more of the sensor units 450, 470, 490, 510 to enable communication with remote devices 520 such as, but not limited to, PC's, mobile phones, tablets, portable computing devices, remote controls, etc., using any suitable communications technology whether currently known or developed in the future. In some embodiments, one daylight harvester (DLH) or one Motion + DLH is included in a sensor unit (e.g., 510) of the system, that also has a (one) wireless device to communicate directly (e.g. Bluetooth, BLE, WiFi) or indirectly (ISM, Zigbee, Z-Wave, 6LoWPAN, Thread, near field communications (NFC), RFID, etc. with gateway/bridge) with the smart phone/tablet 520. Other dimmers or similar devices can also be included.etc. with gateway/bridge) with the smart phone/tablet 520. Other dimmers or similar devices can also be included. Such a daylight harvester can be any circuit/sensor combination configured to sense ambient light and to dim an associated solid state light when the ambient light is bright enough. This energy management technique reduces lighting from the solid state light (for example, in the fluorescent lamp replacement) when ambient light (whether natural or artificial or a combination) is present. In some embodiments, a desired light level for the space is selected, and the daylight harvester adjusts the light level from the solid state light to reach the desired light level. When ambient light is available from sources other than the solid state light, for example but not limited to daylight from a window, the daylight harvester will be able to reduce the electrical current to the solid state light, thereby dimming the solid state light to save power, while keeping the total light in the area (the ambient plus the light from the solid state light) at the selected level.

[0148] Fig. 24 depicts a non-limiting example circuit for generating a dimming control signal based on a motion detected signal and a pulse width modulated (PWM) signal in accordance with some embodiments of the invention. Such a circuit can be used, for example, in a fluorescent tube replacements 452 or other lighting sources including but not limited to Edison socket E26 and E27 lamps such as A-lamps, PAR lamps, R-lamps, MR-

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lamps, HID lamps, etc., combinations of these, etc. to dim LEDs, generating a dimming control signal 546 by, as an example, but not limited to, combining (e.g., in AND gate 544) a motion detected signal 540 from the sensor unit 450 with a PWM signal 542 used to control current to the light in the fluorescent tube replacements 452.

[0149] Fig. 25 depicts a non-limiting example circuit for combining multiple motion detected signals to generate a global motion detected signal in accordance with some embodiments of the invention. In this example circuit, multiple motion detected signals 550, 554, 560 are combined through diodes 552, 556, 562 to generate a global or combined motion detected signal 564 (e.g., if '1' or high all providers are on; if '0' all lamps are off) or individual Motion Detected Signal (only ones with Motion Detected are high). Can use positive logic 'Motion Detected' as shown in Fig. 24 with an AND gate. There are many ways to do the 'Motion Detected' signal, one of which is illustrated in Fig. 25. In other embodiments, an OR gate is used to make the 'decision'. In other embodiments tri-state logic, microcontrollers, microprocessors, FPGAs, digital signal processors, combinations of these, etc., could be used.

[0150] The commands for these various infrared controlled devices can be stored on, for example but not limited to, flash micro-chips, for example, inside the remote devices that are wireless extensions of the main control unit or server. The main control unit or server can have capabilities of handling Internet Protocol (IP), Transmission Control Protocol (TCP), and User Datagram Protocol (UDP) network information from the user's smart phone, tablet, personal device, computer, etc. This main control unit or server then outputs commands or data through a wireless protocol to the remote units which will then respond to the commands sent by transmitting infrared light to the devices or perform tasks such as switching a device on/off or other various tasks. Another way of controlling the remote devices in a wireless manner is using the Bluetooth protocol. This will allow the user to connect to the remote devices directly from the smart phone, tablet, personal device, computer, etc., without having to connect to the main control unit or server. It is also possible to connect the server to the remote devices via the power lines that already exist in the home or business.

[0151] These remote devices can interact with a user without using a main control unit or server. The remote device can sense when a user enters a room by using Bluetooth to recognize the user by the Bluetooth unique universal identifier (UUID) and adjust the shades, curtains, drapes, blinds, heaters, air-conditioners, televisions, personal fans, air purifiers, DVD units, DVR units, Blue-ray, cable boxes, etc., to the user's liking based on personal

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settings on their device containing that contains a Bluetooth radio. In addition RFID can also be used in place of or in conjunction with, coupled, etc. with the Bluetooth, WiFi, etc.

[0152] These remote devices can transmit information back to the user. Information such as battery voltage, current usage, power, state, power level, efficiency, temperature, duration, humidity, input current, input voltage, input power, output current, output voltage, output power, etc. They have the ability to transmit and receive data in order to carry out their programmed functions. This data will be presented on the user's device through, for example, a GUI and managed by the software application running on the user's device. These remote devices allow the user to control a multitude of devices, as mentioned previously, in their home or business. The software applications also allow the user the ability to program automated functions into their remote devices to, for example, control and automate the lighting or heater/air-conditioner when the user is away from the home or business and to combine the functions of more than one remote control on to customized remote pages where, for example, one selection can turn on (or off) multiple devices at essentially the same time or in sequence including, for example, but not limited to, heater(s), lighting, television(s), satellite receivers, cable receivers, stereos, radios, CD players and recorders, other devices, units, etc. discussed herein, other audio-visual devices, units, appliances, etc.. Having the device connected to the Internet through an Internet router, the user can control their remote devices on the wide area network (WAN) from outside their home or business network when the user is away. In embodiments of the present invention, alarms, proximity, global positioning system (GPS) information, location, signals, etc. can be used. The present invention can be present to turn on or off or dim or increase lighting, heating, cooling, temperature, air flow, other appliances, etc. home entertainment including but not limited to satellite receivers, DVD players and/or recorders, DVRs, cable boxes, stereos, TVs, etc. In some embodiments of the present invention light panels may be included and inserted on the interior facing side of the drapes, curtains, shades, blinds, etc. Customized smart phone, tablet pages that allow multiple device settings to be grouped together for entertainment including, for example, but not limited to entertainment and HVAC settings such as television, DVD, DVR, cable, heaters, fans, room and other lights including but not limited to, air conditioners, etc. on the same web page/screen, etc.

[0153] The present invention can relay information about temperature, light intensity and quality to HVAC installations that use, for example, heat pumps and compressor type AC units to intelligently control the percentage use of the two or more units working in parallel.

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For example, heat pumps work efficiently only in a limited temperature range and need to be supplemented outside this range. The present invention can control and instruct multiple HVAC components to work independently or in synchrony to maximize efficiency and reduce energy usage.

[0154] The present invention will be capable of interfacing to commercial and non-commercial systems in which energy may be produced and sold back to the electrical grid including residential or commercial/industrial energy systems comprising of photovoltaic solar cell installations, fuel cell energy storage, wind turbines, and any other energy system(s), renewable or otherwise, that require analyzing for home consumption as well as when the energy is provided to the grid. The invention is also capable of itself providing energy that may be sold back to the community electrical grid.

[0155] The afore mentioned appliances and devices can also be controlled or triggered by a motion sensor or proximity based sensor using the present invention on the remote device. For example, with the present invention, when an individual walks into a room, the motion sensor can turn on the heater, lights, open/close blinds, etc. This can be done by sensing motion or reading a RFID tag or ID that would be on the person or on their phone or personal device. Using a RFID tag will help make the room appliance settings personalized to the individual upon entering a room and/or building. The remote sensing devices such as an RFID reader can log when an individual is in a room to a computer or record the frequency and duration the RFID tag or ID entered/exited the room and/or building. Accelerometers can sense if the individual or person is in a laying, sitting, or standing position. This application can be applied in a home, business, hospital, care taking facility, etc., for monitoring individuals. The remote device can, for example, alert the server, main controller, or personal devices such as phones, computers, tablets, machines, appliances, health practitioner, etc., if an individual suddenly fell or was in a laying or sitting or other position for too long of a period of time.

[0156] Embodiments of the remote device can detect water, moisture, water leaks, flooding, etc., to turn on a pump or alert emergency services, phones, tablets, computers, etc., to prevent damage to homes, businesses, or other buildings/structures. It can be used to detect moisture in lawns at homes, businesses, golf courses, schools, etc., and water facilities when moisture is not detected and to prevent watering lawns and facilities when rain is present. These remote devices can also be used to sense humidity levels in rooms to maintain the humidity levels and keep them constant. They can also track data about the humidity levels

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and when they change. This data can be transmitted to the server or main control unit or to other devices such as phones, tablets, computers, appliances, machines, etc. It can also be used in wells to monitor ground water levels wirelessly and transmit data back to computers or to users for monitoring. Large crop farmers can use the remote devices for watering crops with the correct amount of water by sensing the amount of moisture or water in the soil. It can also use this data to automatically control the amount of water that is distributed to the crops and soil and water parts of the crop that are drier than others.

[0157] The remote device can also detect temperature to prevent fires or fire damage. They can alert emergency services, individuals, computers, phones, tablets, machines, appliances, etc., when there is a fire or smoke present in the building or structure. It can trigger the sprinkler or fire suppressant system to put fires out in a specific room or area to prevent flooding and water damage to the rest of the building and structure. They can be used to detect smoke, chemicals, and/or gases to alert emergency services or open ventilation systems to clear warehouses, labs, hospitals, homes, businesses, etc., or to trigger systems that prevent smoke, chemicals, and/or gases from becoming too concentrated or dangerous or to alert systems, machines, phones, tablets, computers, etc., that smoke, chemicals, and/or gases are present.

[0158] The remote device can be used to monitor voltage, current, and power in batteries that store power from solar panels. They can log this information and transmit it to devices that can display this data on a GUI for a user to monitor the status of the battery and solar panel or other ways to view the information including by e-mail, text, numbers, alphanumeric characters, etc. They can also connect to a DC/AC inverter to monitor the power output to devices and switch them on and off according to the amount of power stored into the battery that is being charged from the solar panels. This remote device can control the appliances or devices that are connected to it via AC connection. For example, a heater can be plugged into the DC/AC inverter and the device can control the when the user decides. This heater can be powered from the battery that was charged from the solar panel and also from the AC power lines which can be switch selectable including user or utility selectable. The user can control the heater, monitor the battery or batteries or other storage source(s) power, current, voltage level(s) from the solar panel, and customize on and off times based on month, day, and time data supplied by the user, utilities and/or other sources. This control system is not limited to a heating, cooling, flowing, etc. or other appliance(s).

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[0159] The user can schedule events and/or tasks for heaters, fans, coolers, air conditioners, central air, televisions, DVD, DVR, Blu-ray, cable and satellite boxes and service providers, other appliances and/or devices to turn on/off and specific times using software applications on their phone, tablet, computer, personal device(s), etc., by specifying the month, day, hour, and minute when a device can turn on/off or perform any other varying task. For example, if the user is not present in a home, residence, apartment, condo, building or structure the lights can be scheduled to turn on to imitate the idea that the building is occupied or to turn them off to save the energy cost on the power bill. Scheduling and tasks can be prioritized and sequenced. Embodiments of the present invention also allows for priorities to be adjusted, reevaluated, be conditional, etc.

The remote device can also be controlled using a personal electronic device for use by mentally or physically impaired individuals. It will allow them the ability to control devices such as, fans, heaters, air-conditioners, lights, televisions, audio/visual players, home appliances, etc., without having to physically turn them on or change their settings. These devices can also be controlled when the individual is not present in the room or building remotely or scheduled and/or sequenced events and/or tasks can be set on the users electronic device and other parts, components, modules, submodules, etc. which will trigger specific events at the designated times. If the individual is not able to program specific scheduled and/or sequenced events, another user can specify these events for them. This way the impaired individual will have appliances or devices and, for example, temperature, humidity, lighting, color temperature, etc. controlled automatically. For example, at a specific time in the evening the blinds, drapes, shades, curtains, shutters, etc. will close and the lights would come on for the individual who is unable to do those things alone.

[0160] The remote device can also be used to monitor properties, homes, businesses, etc., for security purposes. Motion sensors can be used to detect motion or magnetic sensors to detect doors or windows opening and closing. The motion and/or proximity detectors and sensors can be used to collectively determine the path of a person, animal, other entities, including an intruder. For example, either external (i.e., outdoors) or internal (i.e., indoors) motion and/or proximity detectors and/or sensors may be used to collectively determine, evaluate, decide, respond to, alarm, turn on lights, turn on alarms, make noise, voice emulate words, provide recorded messages, turn on/off lights, strobe lights, sequence lights or other devices, appliances, HVAC, etc. These devices can alert phones, tablets, computers, emergency services, etc., when these devices sensors are triggered. They can also turn on

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lights or trigger other devices in and around properties, homes, businesses, etc., when motion is detected or doors or windows are opened. The scheduling and sequencing can range from simple to complex, from one command for one, for example, heater, cooler, air conditioner, HVAC, TVs, DVDs, DVRs, Blu-ray, cable and/or satellite providers interface boxes, other devices and appliances, etc. The sequencing and scheduling can also be dependent on existing, future, alternative, etc. events, conditions, scenarios, etc.

[0161] Lighting may be controlled, dimmed, selected, monitored by wireless (including but not limited to Bluetooth, WiFi, ISM, IEEE 801, 2.4 GHz, etc.) or wired (DMX, DALI, RS 232, RS 485, serial, SPI, U2C, USB, etc.) means by the home automation system.

[0162] Smart T8, T5, T12, CFL, other fluorescent lamps types, etc., E26, E27, A-lamp, MR-16, GU-10, PAR 30, PAR 38, R 30, 2 x 2, 2 x 4, 2 ft. x 2 ft., 2 ft. x 4 ft., 1 ft. x 3 ft., 3 ft. x 1 ft., ½ ft. x 2 ft., ½ ft. by 4 ft., etc. panels, smaller, larger custom, other sizes, sizes to fit into existing luminaires and fixtures, etc., down light, can light, under cabinet, over cabinet, sconce, troffer, pendant fixtures, chandelier fixtures, under cabinet, over cabinet, track lighting, etc. Lighting panels used or powered in the invention can include waveguided, edge emitting, edge lit, back lit, direct lit, directly lit, surface lit, surface emitter, and edge emitter, combinations of these, etc. LED lighting and lighting panels, etc. and combinations of these. The lighting panels can be white, RGB, RGBW, RGBA, RGBAW, etc., combinations of these, etc.

[0163] The present invention can use a ballast as a power supply including but not limited to fluorescent lamp ballasts, high intensity discharge (HID) lamp ballasts, sodium lamp ballasts, etc. in which the power from the output of the ballast(s) can be used as a power source such as an AC or DC power source including where the power from multiple outputs of a single ballast or plurality of ballasts are combined. Embodiments of the present invention can use power combining with or without isolation of any type or form including but not limited to capacitors, transformers, inductors, diodes, resistors, transistors including but not limited to other components and devices and active devices including switches, transistors, triacs, thyristors, silicon controlled rectifiers (SCRs), synchronized transistors, integrated circuits (ICs), application specific integrated circuits (ASICs) of any type, any material, any material compositions including but not limited to heterojunctions, heteromaterials, etc. to provide and perform power combining of one or more ballast outputs. The power combined outputs can be single stage, two stage, multiple stage, etc. including, but not limited to, push-pull, forward converters, flyback, buck, buck-boost, boost-buck,

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boost, Cuk, SEPIC, half-bridge, full-bridge, voltage mode, current mode, current fed, voltage fed, etc.

[0164] In some embodiments of the present invention, the current/power of one or more lamp outputs may be combined in any number of ways including multiple ways of providing power to individual direct fluorescent lamp replacements including the example embodiment of the present invention using power combiners, power combining, etc.

[0165] Embodiments of the present invention can work with instant start, programmed start, and/or rapid start compatible. An IC or ICs can be or can include, contain, be part of, etc., a microcontroller, a microprocessor, a field programmable gate array (FPGA), an ASIC, multiple chips including being assembled and packaged together or separately that perform these functions that may also include one or more wireless and/or wired interfaces to communicate and control, monitor, dim, etc. the present devices. In some embodiments of the present invention, for example, the fluorescent lamps comprise one or more panel lights that can fit into, be interfaced with, be connected to, be retrofitted, etc. using the existing ballast, connections, fixtures, etc.

[0166] Embodiments of the present invention can be used with different fixtures and can allow additional features not currently possible including having colors such as RGB, RGBA, other color combinations, one or more colors, white plus colors, full spectrum, form factor change other than T8, T12, other fluorescent lamp shapes, etc. including changing to, for example but not limited to, approximately 2 ft. x 2 ft., 3 ft. x 2 ft., 3 ft. x 3 ft., 2 ft. x 4 ft., 3 ft. x 4 ft., etc.

[0167] In some embodiments of the present invention, a buck, buck-boost, boost-buck, and/or boost switching topology is used to provide power for the present invention. As an example, a buck circuit can be used to provide AC to DC regulated power to the present invention. An example of an efficient way of providing such power is to for example have the buck circuit be controlled based on the lowest and strictest required regulation voltage that typically is used for the control circuits such as, for example, the integrated circuits which could, for example, consist of but is not limited to a microcontroller, microprocessor, FPGA, DSP, CLD, etc., one or more of these or each of these, wireless or wired ICs, interfaces, devices, protocols, etc. including but not limited to, WiFi, Bluetooth, IEEE 801, ISM frequencies, other bands and frequencies, I2C, RS232, RS485, DMX, DALI, SPI, USB, serial, etc., combinations of these including one or more of the same or different ones, etc. that is used with one or more windings (as discussed in U.S. Patent Application 13/674,072,

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filed 6/2/2013 for a "Dimmable LED Driver with Multiple Power Sources" which is incorporated herein by reference for all purposes) on the buck inductor to provide multiple outputs including, for example, but not limited to, typically 3 V to 5 V for the control electronics, 5 V to 15 V to 20 V for the power devices including the gate drive for the power transistors including FETs and in some embodiments bipolar junction transistors (BJTs) and Darlingtons and IGBTs. In addition to these windings, a winding or windings for, for example, can also be used to provide power to the LEDs and/or OLEDs as well as power for other needs and applications including fans, motors, USB, battery chargers, etc. Linear regulation, linear regulators, switching regulators, voltage regulators, current regulation, current regulators, shunt, regulation, shunt regulators, combinations of these, etc. may be used.

[0168] In some embodiments of the present invention persons and, for example, animals experiencing or suffering from seasonal affective disorder and, for example, circadian rhythm and sleep disorders, etc. can also reap additional benefits that the present invention can have for these people and, for example animals, birds, other living creatures including people who sleep patterns are shifted, for example, at such as night shift workers, who often must sleep during the day and be awake at night or people recovering from jet lag, a change in time zones, countries, locations, daylight shifts, etc. that need to regulate their circadian rhythms and sleep patterns to that different from local day and night time.

[0169] Wearable fitness and/or monitoring devices can be interfaced with the system, including but not limited to Bluetooth wearable devices such as those from including but not limited to Fit, Timex, Doppel, iFit, Nike, Fitbit, Apple, Wearable Technologies, Android Wear. Apple Watch, Moto 360, Microsoft Watch, watches and wearables from Samsung, Verizon, LG, Google Glass, Joy, New Balance, Casio, others including but not limited to those in heads-up displays, virtual reality (VR) displays, headsets, and technologies, fitness wearables, hybrid wearables, wearable and wireless biometrics including heart beat/rate (ECG and HRV), brainwaves (EEG and REM/sleep/etc.), muscle (EMG). etc., combinations of these, etc. with Apple, Google, Android, Microsoft or any other operating system(s) (OS). For example, such devices can provide information about a person's condition that can be interpreted by the automation system to control lights, temperature, etc. in response. As a further example, lighting can be dimmed when a device detects that a person has fallen asleep, temperature can be increased when a device detects that a person is cold, etc.

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[0170] As an example, the present invention could be set/programmed to close for example but not limited to window coverings including solar-collecting window coverings including but not limited to solar shades, drapes, curtains, blinds, shutters, panels, etc. at a certain time of, in this example, evening or night, turn on certain lights of either certain wavelengths, color, color temperature, etc. set the temperature, humidity, then later turn off the lights either quickly or gently dim the lights down or completely off as the individual case may be, and either concurrently, nearly simultaneously, or sequentially including later sequentially turn of the radio and/or television and/or other entertainment or electronic, etc. devices, units, systems, etc. and adjust the temperature, humidity, etc. for the remainder of the night and, in the morning, either provide direct natural sunlight by raising the solar shades, drapes, curtains, blinds, shutters, panels, etc. at a certain time of the morning or turning on artificial lighting such as solid state lighting, fluorescent lighting, incandescent lighting, combinations of these, etc. along with setting temperatures in the same as well as optionally other locations which in some embodiments of the present invention are set by motion and proximity detectors and sensors, RFID, Bluetooth signal detection and strength, other RF, wireless, optical, infrared detection and sensing, etc., turning on televisions to a prescribed/set channel or AV source, turning on radios, alarms, strobes, etc. for a more abrupt and immediate wakeup or gently and slowly in continuous or step fashion turning on lighting of an appropriate wavelength, range of wavelengths, color, range of colors, color temperature, range of color temperatures, etc. Throughout the day additional coordination, sequencing, scheduling could take place, etc. some or all of which may be preprogrammed, automatic, or otherwise scheduled and some or, for that matter, all of which may be event based to trigger sequences of temperature and environment new settings including setting temperatures in one or more (certain) locations as well as humidity, lighting, entertainment choices, etc. The cycle could repeat itself exactly as the evening or night before or could be changed to be very different, slightly different, etc. based on a number of factors and inputs including but not limited to day of the week and/or date of the month/year, weather conditions, external or internal variables or parameters, work habits, conditions, requirements, etc., change in occupancy, visitors, friends and/or family visiting, health conditions, etc.

[0171] In another example, a person who works the late (graveyard) night shift may need to sleep in the morning. For such an example, the particulars may depend on the individual, however one scenario would be for the solar curtains, solar drapes, solar panels, solar blinds, solar shades, solar shutters, etc. to close at night and remain closed collecting whatever

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nighttime ambient light can be collected and then continue to collect solar light and day light from the Sun in the morning and until the person awakes in the afternoon or, for example, early evening. When the person returns home form the late night shift, the lighting in the house can be set to an intensity, level, color/wavelength range that is suitable and conducive with inducing and supporting sleep. The temperature and optionally other parameters such as humidity can be set to a comfortable and desirable level that is tailored for one or more personal comfort zones as well as appropriate background sounds including radios, CD players other sources of sound, music, voice, talk, etc. as well as, in some cases, television set to local stations, cable or satellite networks, etc. as well as, for example, heating up a favorite drink, snack and/or meal including in a totally automated, sequenced and scheduled fashion or partially or totally manually set and/or event detected and driven including, for example the person approaching (or leaving) the house, apartment, dwelling, location, residence, worksite, etc. All or some of these can and are powered by the energy stored via the solar shades, solar curtains, solar panels, solar shutters, solar blinds, solar panels, etc. which can also power the sources of the scheduling, detection and sensing, decision making, etc.

[0172] Using temperature sensors, this invention can relay information about rooms or parts of buildings with temperatures too extreme for people or animals to habitat, for example, when there is a fire present. This invention can alert individuals, set off alarms, alert personal devices, computers, emergency services, etc. It can also be used to sense when there is excessive moisture or water in a room or building to transmit alarms or alert users. For example, when a basement pipe breaks in the winter due to freezing, the sensor could sense changes in humidity and or sense water on the floor and alert the home owners or initialize a pump or other device. Another example, it can be used in large crop farming to detect rain fall, moisture in the soil, water table levels in a well, irrigation control and relay information about these sensors data wirelessly to a WiFi network and then to a user's smart-phone, tablet, computer, or other device to record data or control devices accordingly.

[0173] This invention can be used with motion sensors to trigger lights to illuminate rooms, buildings, the exterior of homes or businesses for security or other purposes. Motion sensors could trigger alarms or notifications on a user's smart-phone, tablet, or computer when there is movement in specific areas. The motion sensors could be used to open/close blinds or shutters when an individual enters a room in the morning/night to let light in or restrict light in specific rooms.

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[0174] This invention can also aid in the case where individuals with disabilities that cannot perform basic tasks such as turning on appliances, televisions, audio and video players, opening blinds, switching lights, or operating heating and air-conditioning equipment, by giving them the ability to do this from touch screen devices or computers. This will help when individuals whom are not very mobile. With this invention it will be possible to control many devices in the home or building with a mobile electronic device or by setting up scheduled events within the software application running on the personal device. For individuals that have a difficult time operating a personal electronic device, the scheduling will help the individual operate appliances and electronics in the room or building without actually having to do it themselves. In the situation where there is not a smart-phone, tablet, computer or other personal device available, a custom remote can be used that will interact with the entire invention system that will allow the user to carry out the afore mentioned tasks remotely.

[0175] The invention can eliminate the need for multiple infrared remote controls for entertainment systems in homes and businesses by possessing the same commands as the devices in its flash memory. For example, the user can open up a software application on their smart-phone or tablet and operate every device within one application. This will eliminate the need for batteries and for the remote controls themselves in many cases. Again, the present invention allows for storage of commands and information in numerous locations including in multiple smart-phones, iPods, tablets, laptops, computers, servers, cloud and web-based storage as well as within the controllers, modules, supermodules and other components of the present invention.

[0176] The above examples are merely intended to provide simple descriptions of a small subset of the present invention and are in no way or form intended to be limiting in any manner. Any practical number of different and diverse events to a very large number can be evaluated, coordinated, scheduled, sequenced, executed, re-evaluated, adjusted, monitored, controlled, feedback, interpreted, etc. using the present invention including using the present invention with existing, relatively 'dumb' heaters, coolers, air conditioners, central air conditioners, humidifiers, dehumidifiers, appliances, entertainment centers including televisions, radios, stereos, cable TV, satellite TV, DVD, DVR, VHS, Blu-ray, other formats, CD, MP3 players, etc., appliances, combinations of these, etc.

[0177] Ballasts can be used as power sources and supplies with multiple uses, applications, voltages, power, current and voltage control, etc.

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[0178] The present invention can be used to provide, control, dimming, on/off, monitoring, logging, decision making, etc. of providing power including wall power including in a single or dual wall plug or higher count in a single gang, two gang, multiple gang box size or as a plug-in extender, etc. The present invention can be wired, wireless, etc. The present invention can be mounted/installed in, for example but not limited to, in a standard wall outlet box, a wall dimmer, an on/off switch, a light socket, including but not limited to an A-lamp socket, a E26 socket, etc. The present invention can monitor, store, log, etc., electrical parameters including, but not limited to, current, voltage, power, power factor, apparent power, real power, AC current, DC current, AC voltage, DC voltage, etc. The present invention can select between dimming, dimming with on/off and on/off only by automatic, manual including switch(es), remote control, detection and analysis, etc. The present invention can, for example, measure the AC input voltage and produce a scaled version of the AC input voltage, measure the AC input current and produce a scaled version of the AC input current, measure any DC offsets to the input current, voltage, power, etc. measure the output current, voltage, power, etc. One embodiment for measuring the AC input voltage involves the use of high resistance resistors and one or more op amps. Such embodiments can involve level shifting if needed. Measuring either the input current or voltage or both can be accomplished by the use of op amps; for example, the current can be measured by measuring the voltage across a relatively low value resistance and then applied, and voltage shifted if needed, using an op amp or op amps. In some embodiments of the present invention, various wireless approaches can be used that for example, but are not limited to, involve WiFi and Bluetooth such that devices including but not limited to smart phones, iPhones, iPods, iPads, tablets, computers, laptops, etc. along with direct communication including, but not limited to, wireless remote controls, voice control, voice recognition, etc. via Bluetooth, ISM, other wireless frequencies, etc. For example, a microphone that can communicate via Bluetooth and/or ISM or other wireless frequencies can be used to communicate with the present invention.

[0179] The present invention can be used to provide assisted care or monitoring in general including using voice commands, voice recognition, image recognition, pattern recognition, wearable device(s) information, wired and wireless panic buttons, proximity sensors, motion sensors, sound sensors, etc. The present invention can take, use, analyze, make decisions, etc. based on data, signals, information, etc., from one or more sensors and detectors including, but not limited to wired and wireless signals, feedback, information, etc. from one or more

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devices including with wearable devices and other sensors that can detect, for example, but not limited to, heart rate, blood pressure, phase of the circadian rhythm cycle, EEG, EKG, oxygen level, brain waves, muscle movement, body temperature, pulse rate, mood, emotional state, location, GPS, elevation, sound, mechanical, movement, time duration, vibration, sound, pressure, accelerometer(s), sound spectrum, ultrasound, sonar, etc. Such signals, input, feedback, information, etc. can be used to, for example, to set the level, spectrum and intensity, emulated sunlight spectrum, white temperature, lighting sensors, duration and intensity of treatment, etc. In addition, infrared detectors and sensors, motion sensors, proximity sensors, RFID, cell phones, smart phones, tablets, etc. Smart phones, tablets, laptops, computers, dedicated control and/or interface units, etc. may be used to, for example, but not limited to, transmit and/or process the information via APPs or can use APPs to display, store, log, analyze, etc. data, results, performance, control, provide feedback, etc. The present invention can incorporate and use open platforms including but not limited to Google Fit, Apple HealthKit, etc. Telephone-based, Web-based, Cloud-based, etc., Cell phone based, combinations of these, etc. can be used to transmit, receive, communicate, recognize, alert, warn, contact, control, monitor, etc. In some embodiments of the present invention, various wireless approaches can be used that for example, but are not limited to, involve WiFi and Bluetooth such that devices including but not limited to smart phones, ipods, ipads, tablets, computers, laptops, etc. along with direct communication including, but not limited to, wireless remote controls, voice control, voice recognition, etc. via Bluetooth, ISM, other wireless frequencies, etc. For example, a microphone that can communicate via Bluetooth and/or ISM or other wireless frequencies can be used to communicate with the present invention. The present invention can take a number of actions including flashing lights, contacting specified people, agencies, groups, services, departments, entities, individuals, etc. via web, mobile, smart, etc., cellular phones, tablets, other mobile devices, etc., land line, conventional phones, e-mails, text messages, cellular services, etc. In embodiments of the present invention, the absence of a signal, information, and/or response including but not limited to physiological including but not limited to blood pressure, heart rate, oxygen levels, insulin levels, temperature, other physiological monitors, sensors, etc., motion, proximity, temperature, humidity, room occupancy, room temperature, electrical power usage, lack of electrical power usage, water flow, water usage, gas usage, carbon monoxide and other gas sensing, lights and other appliances turned off or turned on (state of

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usage, time of usage, duration of usage), voice recognition, voice commands, sounds, movements, breakage, noise(s), patterns, etc.

[0180] The present invention can use linear regulation, switching regulation including but not limited to buck, buck-boost, boost-buck, boost, etc., transformer(s) with one or more secondaries, flyback(s) with one or more secondaries, switched capacitors, etc. The RS interface provides an appropriate emulation circuit or circuits for the heater/cathode connections of, for example, rapid start ballasts.

[0181] The present invention provides a direct replacement for fluorescent tubes used in ballasts and permits dimming even/including if the ballast is not designed to support dimming.

[0182] Both wireless and wired control, dimming and monitoring can be accomplished with the present invention. For example wired dimming using 0 to 10 V can be used or ISM, WiFi, Bluetooth, etc.

[0183] Use 0 to 10V other analog, DMX, DALI, RS232, RS422, RS485, USB, and other serial and/or parallel interfaces to communicate with the present invention. Use a connector or connectors to do so. Many embodiments will use an isolated interface.

[0184] Use, for example, but not limited to, a buck or boost or flyback or forward converter circuit that can be powered by AC lines (including universal voltage 80 to 305 VAC, 100 VAC, 120 VAC, 200 VAC, 220 VAC, 240 VAC, 277 VAC, 347 VAC, 480 VAC, etc. at, for example but not limited to, nominally 50/60 Hz) via, for example, but not limited to an EMI line filter that contains, for example, but not limited to inductors and which also can be powered by an electronic ballast that contains capacitors which limit/block/attenuate/etc. the 50/60 Hz line voltage and bypass (or put in parallel with, etc.) the EMI filter.

[0185] The present invention can be dimmable when powered on the AC lines or from the ballast.

[0186] The present invention can work with dimmable ballasts of any type including but not limited to 0 to 10 V, DALI, TRIAC, and powerline control (PLC), etc., instant-start ballasts, rapid start ballasts, programmed start ballasts, programmable start ballasts, pre-start ballasts, magnetic ballasts, and essentially any type of ballast. Embodiments and implementations of the present invention can use, for example, a 0 to 10 V or a similar type of wired analog or digital protocol to wireless adaptor where the wireless could be but is not limited to, Zigbee, Bluetooth, WiFi, BTLE, BLE, 6LoWPAN, Thread, Z-Wave, NFC, ISM, sub-GHz, THz, RF, etc., IR, IrAD, RFID, IR transmitters, IR receivers, IR transceivers, etc.,

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combinations of these, others discussed herein or essentially of any type including any wavelength/frequency including but not limited to optical, IR, UV, RF, and, in general, the entire EM spectrum. Figs. 26-31 depict non-limiting examples of such implementations of the present invention, wherein wired to wireless adapters of various example protocols transmit wireless controls signals to a wireless receiver to control one or more lamps, lights, or other 0 to 10V controlled devices in accordance with some embodiments of the invention. Note that one or more of the embodiments depicted in Figs. control protocols including but not limited to 0 to 10V, 0 to 3 V, 0 to 5 V, etc. including both sourcing and sinking interfaces, protocols, etc. controlled devices in accordance with some embodiments of the invention. In some embodiments of the present invention, the 0 to 10 V analog signal can come from a power unit or power pack that is powered by AC voltage (typically 50 or 60 Hz in the range of 47 to 63 Hz and in the range of less than 100 VAC to 277 VAC to 347 VAC to 480 VAC or higher). For example, in Fig. 26, a power unit that can provide a dimming 0 to 10 V from any source such as a wireless and/or wired and/or powerline analog or digital signal and convert that signal into an analog 0 to 10 V signal protocol that can then be read into a converter including for example a digital to analog converter which, for example, but not limited to, could take the 0 to 10 V signal directly or a scaled (e.g. voltage divided) value of the 0 to 10 V signal and then convert and transmit that signal with, for example, but not limited to, a circuit, integrated circuit, microcontroller, microprocessor, FPGA, DSP, etc., combinations of these, other analog and/or digital circuits, systems, etc. and transmit by for example, wirelessly using one or more of any wavelength/frequency in the electromagnetic (EM) spectrum including infrared (IR), visible (VIS), ultraviolet (UV), RF, millimeter, sub-millimeter, sub-GHz, sub-MHz, sub-kHz, sub-Hz, sub-THz, far IR, near IR, sound, sound waves, ultra-sound waves, sound waves of any frequency/wavelength, combinations of these etc. including for example, but not limited to ZigBee, Bluetooth, IEEE 802, 801, 804, etc., Thread, 6LoWPAN, LoRa, spread spectrum, 2.4 GHz, WiFi, ISM, RF, NFC, RFID, IR, infrared, IrDA, infrared modulated control (i.e., 30 to 56 kHz), RFID, Z-Wave, etc. using any modulation scheme and/or encryption scheme including but not limited to software and/or hardware secure encryption including but not limited to AES and/or SSL, public-private keys, etc. to, for example, but not limited to a one or more receivers and/or transceivers that can receive that wireless information and set the value of the lamp, light, fixture, load, etc. accordingly. In some embodiments the analog to wireless signal or signals may be replaced or augmented with a digital signal or signals of any type and any modulation and encryption

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including but not limited to UART, Serial, RS232, USB, RS485, CAN, DMX, DMX512, DALI, SPI, I2C, other discussed herein, other forms of serial interfaces, PWM, amplitude modulation (AM), frequency modulation (FM), phase modulation (PM), phase shift keying (PSK), frequency shift key (FSK), quadrature amplitude modulation (QAM), etc. combinations of these, etc.

[0187] Embodiments and implementations of the present invention can also respond, take action, etc. to Demand Response (DR) including but not limited to automatic demand response (ADR) signals and events for load shedding/load reduction, etc. including but not limited to sending wireless signals of any EM and or sound frequency/wavelength including but not limited to including infrared (IR), visible (VIS), ultraviolet (UV), RF, millimeter, sub-millimeter, sub-GHz, sub-MHz, sub-kHz, sub-Hz, sub-THz, far IR, near IR, sound, sound waves, ultra-sound waves, sound waves of any frequency/wavelength, combinations of these etc. including for example, but not limited to those discussed herein. Note that one or more of the embodiments depicted in Figs. 26-29 can be combined in a single embodiment. Demand Response circuits and functionality can be included in any of the embodiments disclosed herein or in variations thereof.

[0188] Fig. 26 illustrates a 0 to 10 V or a similar type of wired analog or digital protocol to wireless adaptor 602 which receives a dimming control signal from a 0 to 10V Signal source such as a Controller or Power Pack and/or energy management system (EMS), building automation system (BAS), including BACNET, LonNET, emergency management system (EMS) etc. 600 which may or may not be powered by the AC mains (in some embodiments solar, wind, geothermal and/or other power/energy sources may power the controller, EMS, BAS, and or power pack(s), etc., Controller Power Pack, Etc. 600 and converts it to a wireless signal. The wireless signal is transmitted to a wireless receiver 604 to control one or more lamps, lights, or other 0 to 10V controlled devices 606. In some embodiments, the 0 to 10V Signal source can be located remotely from the wireless adaptor 602, for example such that a lighting controller generating a 0 to 10V can be tethered to the wireless adaptor 602 by wire but still be remote, such as across a room or in another room or down a hall, etc. Such an arrangement can be also be applied to other embodiments disclosed herein or to variations thereof.

[0189] Fig. 27 illustrates a wired to wireless adaptor 612 which receives a control signal from a powerline controller, Controller Power Pack, etc. 610 and converts it to a wireless

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signal. The wireless signal is transmitted to a wireless receiver 614 to control one or more lamps, lights, or other 0 to 10V controlled devices 616.

[0190] Fig. 28 illustrates a wired to wireless adaptor 622 which receives a control signal from a wired analog signal source, Controller Power Pack, etc. 620 and converts it to a wireless signal. The wireless signal is transmitted to a wireless receiver 624 to control one or more lamps, lights, or other 0 to 10V controlled devices 626.

[0191] Fig. 29 illustrates a wired to wireless adaptor 632 which receives a control signal from a wired digital signal source, Controller Power Pack, etc. 630 and converts it to a wireless signal. The wireless signal is transmitted to a wireless receiver 634 to control one or more lamps, lights, or other 0 to 10V controlled devices 636.

[0192] Fig. 30 illustrates a wired to wireless adaptor 644 which receives a control signal (e.g., 0 to 10V control signal or other type of control signal, etc.) from a wired analog signal source, Controller Power Pack, etc. 642 and converts it to a wireless signal. The wireless signal is transmitted to a wireless receiver 646 to control one or more lamps, lights, or other 0 to 10V controlled devices 646. Either or both the wired analog signal source 642 and wired to wireless adaptor 644 can be powered from an AC line 640 or for example, but not limited to another source of power/energy including battery or batteries, solar, heat, thermal, wind, RF, wireless power, other sources of energy/power including alternative ones.

[0193] Fig. 31 illustrates a wired to wireless adaptor 654 which receives a control signal (e.g., 0 to 10V control signal or other type of control signal, etc. including but not limited to those discussed herein).) from a wired analog signal source and/or in some embodiments for example but not limited to a digital signal source, a controller, Controller Power Pack, etc. 652 and converts it to a wireless or other wired signal or signals including but not limited to those discussed herein. signal. The wireless signal is transmitted to a wireless receiver 656 to control one or more lamps, lights, or other 0 to 10V controlled devices 656. Either or both the wired analog signal source 652 and wired to wireless adaptor 654 can be powered from an AC line 650 or by batteries or other energy sources including but not limited to those discussed herein. In some embodiments the wired to wireless adaptor 652 can include an optional relay or switch or switches to enable and disable power and/or control signals to light(s), lamp(s), lighting fixture(s), fixtures in general, load(s), heater(s), air conditioner(s), fan(s), furnace(s), other types of devices, entertainment, appliances, stoves, toasters, microwave ovens, ovens, dishwashers, washers, dryers, etc., other appliances, systems, etc. including but not limited to those discussed herein, etc. combinations of these, other devices,

etc. and combinations of those 658. Such a one or more relay and or switch(es) in 652 can be controlled by other means and signals that connect to analog and or digital circuits, state machines, and/or microcontroller(s), microprocessor(s), FPGA(s), DSP(s), etc. combinations of these, etc. that control/decide the one or more relay(s) and/or one or more switch(es). The wired to wireless adaptor 654 and/or other devices, sensors, including but not limited to IOT sensors and other IOT devices may be powered by the AC line, batteries, other energy sources including but not limited to those discussed herein, other devices, etc. As a non-limiting example a 0 to 10 V signal from a BAS, a power pack, a controller, a EMS, etc. of any kind and/or form, type, etc. that produces, for example, but not limited to a 0 to 10 V signal, voltage, etc. can be converted to one or more of a wireless RF and or IR signal of any type of modulation, protocol, encryption, interface, etc. that is transmitted to one or more receivers and/or transceivers, etc. to control and dim/trim/set/etc. one or more lamps, lights, lighting fixtures, loads including combinations of one or more of the loads including but not limited to heaters, appliances, fans, HVAC in general, etc. including but not limited to those discussed herein. In some embodiments the wired to wireless adaptor 652 can include an optional relay or switch to enable and disable power and/or control signals to the wired to wireless adaptor 654 or to other devices.

[0194] The present invention allows for full spectrum, including full visible spectrum lighting and control, dimming and/or monitoring including red, green, blue (RGB); red, green, blue, amber, (RGBA); red, green, blue, white (RGBW), red, green, blue, amber, white (RGBAW), additional or fewer colors/wavelengths, etc., combinations of these, etc.

[0195] The present invention can use small cards, memories, etc. that can consist of any type of semiconductor memory, magnetic memory, ferromagnetic memory, optical memory, etc., including but not limited to FLASH memory, non-volatile memory, EEPROM, EPROM, PROM, AND memory, OR memory, etc. Such memory can be used to provide programmable information including, for example, but not limited to, name to be used for the present invention, address, individual address, group address, location, properties, behavior, pre-programmed features, data logging, storage of audio and or video information, etc., communications, encryption, type, security, etc.

[0196] The present invention, in addition to providing analog and/or digital interfaces for control (including dimming and monitoring, logging, etc.) can also provide isolated (or non-isolated) power derived from, for example, but not limited to, the ballast itself. An example would be to take current/power from the ballast by rectifying the AC output from the ballast

and filtering as desired. Example embodiments which are not intended to be limiting in any way or form include using forward converters or flyback converters for isolated, using buck, boost, buck-boost, boost-buck, etc., linear regulators including current regulators, etc. In some embodiments of the present invention, a keep-alive circuit is used when the present invention is dimmed to very low levels or off. Non-isolated supplies can use isolated windings to provide isolation for example with buck-boost, buck, boost-buck, boost etc. topologies.

[0197] The present invention can work with all types of sensors and controls including ones that sense movement, proximity, light, solar light, solar energy, daylight, light spectrum(s), temperature, time of day, mechanical, electronic, electrical, sound, vibration, words, voice, voice commands, voice recognition, cell phones, smart phones, tablets, computers, servers, WiFi, Bluetooth, IEEE 802, ISM, USB, serial and/or parallel communications, RFID, entry cards, access cards, signal strength, etc. The present invention can also be used in simple and/or autonomous control and associated modes. Some implementations may require no external controller or a very simple, easy to use, intuitive one, etc. for the user to operate.

[0198] An example of an optical spectrum analyzer can consist of optical sensors and detectors that are wavelength/frequency/color specific and can be stacked either vertically (i.e., layered/stacked on top of each other) or horizontally (stacked side by side, etc.). Such detectors/sensors could be measured using current or voltage sensitive circuits that are fed or multiplexed to one or more analog to digital converters (ADCs) that can also be used to provide either analog or digital (or both) feedback/control/readout/etc. to/for the present invention. Such sensors/detectors can be arrayed or act separately/independently to control/feedback the intensity/color/wavelength/frequency levels, etc.

[0199] The present invention can also use wired and/or wireless interfaces including but not limited to serial interfaces including but not limited to those discussed herein to, for example, program/set/assign/etc., the address, name, identification, identifier, grouping, group, etc. Such setting/assignments/etc. can be also done/accomplished/performed by the user and be user-programmed, etc. An example serial port, for example, a USB port can be used for other purposes including direct communications with the present device, reprogramming the parts (or all) of the firmware/software of the present invention, charging other devices using the example USB port, etc. Such other devices could include but are not

limited to cell phones, smart phones, tablets, computers, batteries, other energy storage devices, other personal assistant devices, sensors and detectors, portable lighting, etc.

[0200] The present invention can be powered by a ballast in a number of ways including both magnetic and electronic ballasts including electronic ballasts that are instant-start, rapid start, programmable start, dimmable, etc. The ballast output(s) can be combined, connected, etc. as needed to achieve the needed/desired performance.

[0201] Some embodiments of the present invention can also be used to detect the presence (or absence) of a persons or persons including whether a person or persons are spending too much time or too little time in a particular location and, in some embodiments, automatically alert and provide alerts via, for example, but not limited to, e-mail, phone calls, web messages, text messages, etc.

[0202] The present invention can have current and/or voltage control or both including with automatic switchover from voltage to current control or current to voltage control. The setpoints, parameters, conditional statements, etc. be manually set, factory set, user set, remote control set using, for example, wired or wireless control, monitoring, communications, etc. The control can be local, fixed or remotely programmed and set. Wired control can include but is not limited to 0 to 10V, 1 to 8 V, 0 to 5 V, 0 to 3V, 0 to 10 V, etc., SPI, USB, powerline control, I2C, serial, SPC., etc. Wireless control can include but is not limited to ZigBee, Bluetooth, IEEE 802, WiFi, ISM, RF, NFC, RFID, IR, infrared, IrDA, infrared modulated control (i.e., 30 to 56 kHz), RFID, Z-Wave, etc.

[0203] In addition to the fans discussed herein, motorized track lighting and other lighting including but not limited to PAR, MR16, GU10, etc. may be used such that the motor(s) can be controlled locally and/or remotely. Such motors and related devices and components, etc. can also be used to tilt, move, extend, articulate, direct, swing out, etc. the lighting and, for example, the fans and other accessories, etc. Some embodiments of the present invention can also have DC to AC inverters that, for example, provide 50 or 60 Hz AC voltage (e.g., 120 V AC or 220 V AC) that can also be selected.

[0204] These examples of implementations of the present invention in which the fluorescent lamps have been replaced by embodiments and implementations of the present invention that, for example, consists of power supply or supplies that are powered by the ballast and provide conventional and new lighting designs, capabilities, form factors, etc. which can be both retrofitted into existing fixtures and luminaires as well, for example, into new construction, etc. The renderings are intended to be examples and in no way or form

should be considered to be limiting of the present invention. The present invention can be supported in a number of ways including being supported by the electrical bi-pin connectors of the fixture or luminaire, by inserting other supports and structures, by using magnets, by using screws, tape, double sided tape, etc. The structures may also be illuminated by lighting including, but not limited to, OLEDs and/or LEDs which could be, for example, white, RGB, RGBW, RGBAW, etc. along with and, for example, various other types of functions and applications including those that provide/require electrical energy, mechanical strength, energy harvesting, solar detection, solar energy, daylighting harvesting, motion sensing, infrared sensing, spectrum sensing/detection, proximity detection/sensing, other sensors and detectors, etc. Note in some embodiments of the present invention the ballast bi-pins may be connected to the support structure so as to provide a path including an electrically safe path that allows electrical connection between the ballast and the power supply and the lighting that is powered by the power supply. This permits a number of advantageous features and functions including replacement/interchangeability of the power supply and/or the lighting, safe connections, shock hazard protection, etc.

[0205] As examples, a center tapped transformer, non-center tapped transformers and, in general, any type of transformer may be used including ones that require full bridge rectifiers, synchronous rectifiers, silicon controlled rectifiers, etc. In other embodiments, flyback transformer(s) may be used. Additional primary, secondary and other windings may be added/included/used/etc. in and with the present invention. For example but not limited to, power is fed to the lighting or additional circuitry, including for example, current control and/or voltage control, etc. The present invention can have shock protection, over current protection, over voltage protection, over temperature protection, etc. The present invention can use/have more than one color or more colors than just white or any color temperature of white including but not limited to, red green blue, red green blue amber, red green blue amber white, etc. and can provide current control (or, in some embodiments, voltage control or both) by shunting excess current from reaching the primary of the transformer. In these embodiments the AC output of the ballast provides the input for the transformer. As the electronic ballast typically puts out high frequencies often higher than 30 kHz to 40 kHz, the transformer(s) can be compact in size, weight, form factor, etc. The transistors, switches, etc. are configured in a back to back configuration with common gates and sources.

[0206] Lighting which can be bars of mostly any size and shape including but not limited to relatively long and thin ones such as nominally 1 ft. x 4 ft. ½ ft. by 4 ft., 2 ft. by 4 ft., ½ ft.

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x 3 ft., ½ ft. x 3 ½ feet, etc. which can consist of lighting of one or more colors including virtually any color such as but not limited to, white, red, blue, green, amber, cyan, orange, violet, yellow, etc., other colors, combinations of these, etc. In some embodiments of the present invention, white light can be turned on to provide "Sun-like" illumination. In other embodiments of the present invention, the white light can be augmented with the color temperature set/controlled/modified by other colors including possible feedback with optical and/or spectral sensors/detectors/arrays/etc. In yet other embodiments of the present invention full spectrum Sun emulation can be accomplished by the proper selection of color light sources such as LEDs, OLEDs, quantum dots (QDs), combinations of these, etc. Embodiments of the present invention allow for protection against too much power to the various light source elements and colors to avoid, for example, degradation, damage and potential harm, etc.

[0207] The present invention does not only apply to fluorescent lamps and fixtures and luminaires of all types and kinds – the present invention also applies in general to all types of high intensity discharge (HID) lighting including but not limited to mercury vapor lamps, metal-halide (MH) lamps, ceramic MH lamps, sodium-vapor lamps, xenon short-arc lamps, other types of arc lamps, sodium-based and other element-based lighting, gas discharge, etc.

[0208] Embodiments of the present invention can also have lighting on the outside of, for example, the light bar, panel, etc. including direct lit, edge lit, back lit, etc. Some example embodiments can also include one or multiple LEDs, OLEDs, QDs including examples herein that can consist of one or more of white, red, green, blue, amber, yellow, orange, etc. In addition, such lighting can be used to convey information about the status of a situation including flashing lights which may convey emergency situations, warning, greetings, alerts, alarms, attention, directions including changing colors or displaying shapes such as arrows, etc. The arrows can be different colors and point in different directions depending on the reason for the arrow to be displayed. As an example, a red arrow can point in the direction of an exit in case of an emergency including a flashing arrow. In other embodiments, for example, the arrow could flash or turn on and alternate with emergency lighting that could be white full brightness or dimmed down or another color or colors or be color-changing.

[0209] In other embodiments of the present invention wind energy/power harvesting may also be used independently or combined with the solar shades, blinds, covers, drapes, curtains, panels, etc. to increase, augment, offset, combine, etc. additional energy harvesting. Embodiments of the present invention allows for sharing of the energy storage elements,

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components and systems as well as the energy consuming components, devices, systems, etc. including but not limited to heaters, coolers, air conditioners, humidifiers, dehumidifiers, entertainment units including but not limited to televisions, cable, VHS, DVD, DVR and Blu-ray players and recorders, CD players and recorders, computers and laptops, tablets, other entertainment and audio-visual components, parts, systems, units, etc.

[0210] The lighting for the present invention can be back lit, edge lit, side lit, direct lit, etc. and can be white or any color or combinations of colors or combinations of white and colors, etc. including but not limited to white, red, blue, green, amber, orange, yellow, cyan, etc. The arrangement(s) and choice of colors is/are merely for example purposes and is not intended to be limiting in any way or form.

[0211] In another example, the present invention may be used in a hospital or office to minimize the energy cost of occupied and non-occupied space. For example, many hospital rooms have the lights on at all times, as well as climate control and even music to ensure a room is ready for use. Using the present invention the occupancy of the room may be automatically detected resulting in the automatic activation of some or all lighting, climate control, audio, and other devices that contribute to ensuring the room is comfortable. Equipment for example but not limited to such as tablets for reading, TV's, and other devices may also be charged using the renewable energy provided by the solar shades/curtains to further curtail the cost associated with running the room. The system may also control lights in closets, hallways, and other areas that are generally useful only when occupied. The system may also alter the light quality during, for example, quiet hours, to comfortably indicate to the building occupants the time. By using different light colors/wavelengths and intensities many circumstances can be indicated without the need for using an intercom system, or other audible methods of conversation. The present invention can also be used to indicate an emergency by flashing or otherwise displaying a non-continuous or varied light output that is indicative of danger such as, for example, but not limited to, a red or orange or other color or colors. The use of light for indicating time allotments may also be used in, for example, a day-care setting in which the time for naps is indicated by a certain light color, etc. Not only will this simplify the use of scheduling certain events at certain times, but it will in some instances facilitate the event such as, for example, napping. In the same context the system can be used in relaxing environments such as at spas, massage clinics, psychology clinics, headache treatment centers, and many other establishments where light-sensitive conditions can be treated with the use of modulating light colors, intensities, and pulses. In

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addition, as mentioned elsewhere herein, the color/wavelength(s) range(s) can be used to regulate, control, sync up, reset, etc. circadian rhythms, treat SAD, stimulate or depress melatonin generation, etc. as the situation and circumstances arise within the settings, and locations, and types of environments mentioned and discussed herein including but not limited to hospitals, including, but not limited to neonatal units, intensive care, recovery, surgical, waiting, children, critical care, emergency, urgent care, elderly care, hospice, rooms, etc. as well as cancer treatment, sleep disorder treatment, dementia and Alzheimer treatment and care, libraries, student classrooms and other places of elementary, K12, high school, college and university educational facilities and locations, places of worship, office and business buildings and locations, etc.as well other locations, residences, businesses, temporary housing and shelter, etc.

[0212] In the case that smart phones, tablets, computers, or personal devices are not available, the user may use a remote that is created specifically for this system. This remote will allow them to control the system in the same way a smart phone or tablet running a software application would. This remote control will have the ability for the user to customize the buttons and functions of the remote to their preference. It could, for example, have a liquid crystal display (LCD) for readout and stats that will be readable by the user. This LCD screen will also display notifications or alerts for example, if there is a fire, flood, or if motion sensors are triggered, it will notify the user on the LCD screen. The remote could also alert the user with a vibration in the remote control. For example, if the user has the remote in a pocket or on a table the user can feel or hear the alerts or notifications. The remote can also alarm with a sound so the user knows that there is a notification or alert. This remote will connect to the system wirelessly so that it can be used in the building and not have to be in a line of sight to the server or main controller. The remote could also be worn as a necklace, bracelet, watch or on any other appropriate part of the body.

[0213] Units employing IR only communications such as space heaters, air conditioners, fans, etc. can be used with remote controls other than smart tablet/cell devices to ensure that the system is usable without additional components. The remote can vary from a simple IR transmitter to a sophisticated wireless transceiver capable of interfacing with the present invention and other automated devices. The remote may include microphone(s) and speaker(s) to employ voice activation/commands in conjunction with controlling a TV, computer monitor, lights, etc. Some embodiments of the present invention do not require a smart-phone or tablet approach to intelligently interface to the control system; other

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embodiments can use and accept input from both smart wireless devices such as phones, tablets, PDAs, iPod touches, computers, laptops along with devices that are designed to interface with the present invention. Other embodiments of the present invention can interface to other existing wired and wireless sensors, thermostats, heaters, fans, coolers, air conditioners, HVAC, humidifiers, dehumidifiers, television, entertainment systems and components, satellite receivers and remotes, cable box receivers and remotes, smoke and fire detectors and sensors, burglar alarm systems, garage door openers, etc., to be included in and expand upon the present invention including coordinating, scheduling, tasks, synchronizing, sequencing, responding, replying, etc.

[0214] The number of IR LEDs in the present invention can be more than one, and may vary as is needed or desired. The IR units may be used to monitor movement and light intensity throughout the system installation and may be used to detect motion/movement for use in triggering specific events such as movement, intrusion and location. This motion information may be used with artificial intelligence of various types and forms to determine what, if any, actions should be taken due to any number of specific events or sequence triggers such as but not limited to alerting the police or other security authorities of an intrusion, opening or closing the garage, turning outside/inside lights on, adjusting interior climate controls, activating a home theater room, etc. In some embodiments of the present invention, if motion is detected either inside or outside or both of the house, residence, business, apartment, condo, room, etc. and that motion is not accompanied by a proper form of identification including, but not limited to, electrical identification, visual identification, optical recognition, pattern recognition, vision recognition, etc., an alarm, warning, including audio warning, strobe lighting, flashing lights, color changing lights, lights being turned off, etc. may occur or select individuals including neighbors, family and friends and others may be notified by e-mail, web content, web alert, phone calls, text messages, video transmissions, etc. In some embodiments of the present invention, if smoke or fire is detected, the lights that are connected to the present invention may flash on and off, may change color, may dim and then go brighter, etc. as well as speakers issuing warnings and contacting friends and family, neighbors and others as well as, in some cases, 911 or the fire department, combinations of these, etc.

Radio frequency identification (RFID), Bluetooth or all types and forms including Bluetooth Low Energy (BLE) and similar such systems can be used with the present invention to turn on or off or dim embodiments and implementations of the present invention remotely.

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[0215] In some embodiments of the present invention, motion throughout a house or other area can be predicted or otherwise analyzed based on the input from multiple sensors such as, but not limited to, multiple motion detectors. For example, if signals are detected from multiple motion detectors, the sequence and timing of the signals from the motion detectors can be analyzed to determine not only movement but also path, speed etc. of a person, animal etc. Such information can be used for a number of applications, such as, but not limited to, predictive actuation of lighting or other devices, for example to turn on lights along the predicted path based on previously detected signals, or to distinguish false alarms from actual detected motion. When combined with identification devices such as RFID, mobile phone signals, or other identifiers carried by users authorized to be in the area, such path predictive analysis can also be used to determine unauthorized persons moving toward restricted or private areas, possibly triggering audible warnings against proceeding or other actions such as locking of doors, flashing of lights, triggering of alarm systems, etc., to prevent unwanted intrusion.

[0216] The automation system disclosed herein can be adapted to interface and interact with other systems, such as, but not limited to, other home automation systems, temperature control systems, lighting control systems, communication systems, entertainment systems, security systems, fire and protection systems, cable and satellite systems, etc.

[0217] This invention can be equipped with light-emitting diodes (LED), organic light-emitting diodes (OLED), QDs, or other types of lighting and/or LEDs. These LEDs can be dimmed, brightened, turned on/off, rotated, turned, moved, change color, etc., wirelessly through a network that is comprised of wireless signals and command data that is transmitted and received via a server or main control unit which can be connected to a wireless local area network (WLAN), where it can be utilized and controlled by smart phones, tablets, personal device, computers, etc. These commands and communications can be controlled and managed through software applications designed on platforms like Android, iOS, C++, and Java using a graphical user interface (GUI). This main control unit can be used to communicate data and commands to and from the lamps, lights, light fixtures, ballasts, desk lamps, etc. This system can also be able to communicate commands to these devices and can be remotely controlled from anywhere where there is a signal from the WLAN, for example, they can be dimmed, turned on and off, the color can be changed, etc. The main control unit or server can have capabilities of handling Internet Protocol (IP), Transmission Control Protocol (TCP), and User Datagram Protocol (UDP) network information from the user's

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smart phone, tablet, personal device, computer, etc. This main control unit or server can then output commands or data through a wireless protocol to the remote units which can then respond to the commands sent by carrying out tasks such as switching a device on/off or other various tasks. Another way of controlling the remote devices in a wireless manner is using the Bluetooth protocol. This allows the user to connect to the lamps, lights, light fixtures, ballasts, desk lamps, etc. directly from the smart phone, tablet, personal device, computer, etc., without having to connect to the main control unit or server. It is also possible to connect the server to the remote devices via the power lines that already exist in the home or business.

[0218] These lamps, lights, light fixtures, ballasts, desk lamps, etc., can interact with a user without using a main control unit or server. For example, the remote device can sense when a user enters a room by using Bluetooth by recognize the user's Bluetooth unique universal identifier (UUID) and adjust the lamps, lights, light fixtures, ballasts, desk lamps, etc., to the user's liking based on personal settings they set-up on their device, which contains a Bluetooth radio. For example, the lamps, lights, light fixtures, ballasts, desk lamps, etc., can dim to the preset dimming level set on a smart phone, tablet, personal device, etc. A desk lamp, for example, can move, due to the internal servos on the arms and change the brightness of the light to a desired position when a user enters a room or building. The Bluetooth can automatically connect to the lamp, light, light fixture, ballast, desk lamp, etc., and then the application on the personal device transmits the desired preset data to the lamp, light, light fixture, ballast, desk lamp, etc. This system is not limited to lamps, lights, light fixtures, ballasts, desk lamps, etc. The smart phone, tablet, personal device, etc., may connect to many lights at once and send the same command to all or it can send commands individually to many different lights. For example, if a user walked into a large warehouse or business, specific lights can be turned on automatically or manually by the user. The user can set-up the application to turn on lights only in the rooms the user is occupying, therefore, conserving energy by turning off the lights when the user leaves a room and turning on the lights in the room that the user is entering automatically by way of the software application that connects to the lights wirelessly. Another example, the lights can be programmed to turn on when a user enters their driveway or garage while in their vehicle. This way they can see where they are parking etc.

[0219] This invention can be equipped with motion sensors to detect motion in rooms, home/business exteriors, hospitals, schools, etc., to turn on lights or brighten lights for

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individuals passing by. These motion sensors can also aid in the exposure of intruders lurking outside and inside of buildings, homes, businesses, etc. Motion sensors can be used for security purposes on the exterior of a building for example. When motion is detected the blinds/shades can close as to not allow individuals to have a visible line of sight into the home, office, or building/structure through the windows. Lights can be triggered to turn on in a building when motion is detected outside to imitate the idea that the building is being occupied, for example. These motion detectors can also sense motion made by vehicles and animals.

[0220] These light movements can also be preprogrammed by the user to move, dim, turn on/off, etc, at scheduled times, days, months, and years, allowing the user to set the lights to turn on in the morning or flash repeatedly or, in other scenarios, slowly increase in light intensity to wake the user up, for example. The lights can also be set to change color/wavelength as part of waking up in the morning and preparing to and/or falling asleep at night or in the evening. The lights can be set up to turn on while the user is away from the home or business as to give the impression the building is occupied for security purposes, for example. The light can be scheduled to change direction at specific times during the day or week. For example, the lights can turn up the power and lumen intensity aimed for example at the ceiling in the evening to change the ambiance of the room. As another example, the lights could soften, dim and/or change color(s), etc. in the evening to provide different ambiances and mood shifts as well as health care benefits. The light(s) can be scheduled to turn on specific colors at specific times during the day, week, month, or year. For example, the light can turn on a blue, red, green, yellow, pink, orange, etc., LEDs, OLEDs, QDs, other SSLs, other lighting, etc. in the evening or day time or night time. The lights can be programmed to change through the different colors smoothly or the colors can be changed randomly automatically to the users' wants desires or to support healthy living and lighting.

[0221] The present invention can include voice recognition and can respond to vocal commands given to the light, temperature, humidity, environment, ambiance, etc. combinations of these in any sequence or schedule or dependency, etc. For example, the light can be dimmed, brightened, turned on/off, rotated, turned, moved, change color, etc., by voice commands from the user. The light can be across a room or on a desk, on a wall, in a fixture and respond to voice commands. These lights can vary from and include, but are not limited to, lamps, lights, light fixtures, ballasts, desk lamps, etc.

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[0222] These lamps, lights, light fixtures, ballasts, desk lamps, etc., can transmit information back to the user. Such information includes but is not limited to battery voltage, current usage, power, state, etc. They also have the ability to transmit and receive data in order to carry out their programmed functions. This data can be presented on the user's device through a GUI and managed by the software application running on the user's device. These remote devices allow the user to control a multitude of devices, as mentioned previously, in their home and/or business, etc. The software applications also allow the user the ability to program automated functions into their remote devices. For example, the system can control and automate the lighting when the user is away from the home or business. Having the device connected to the Internet through an Internet router, the user can be able to control their remote devices on the wide area network (WAN) from outside their home or business network when the user is away.

[0223] These lamps, lights, light fixtures, ballasts, desk lamps, etc., can transmit information back to the user. Such information includes but is not limited to battery voltage, current usage, power, state, etc. They also have the ability to transmit and receive data in order to carry out their programmed functions. This data can be presented on the user's device through a GUI and managed by the software application running on the user's device. These remote devices allow the user to control a multitude of devices, as mentioned previously, in their home and/or business, etc. The software applications also allow the user the ability to program automated functions into their remote devices. For example, the system can control and automate the lighting when the user is away from the home or business. Having the device connected to the Internet through an Internet router, the user can be able to control their remote devices on the wide area network (WAN) from outside their home or business network when the user is away.

[0224] This invention is not limited to one LED, OLED, etc. It can have various lights in/on one lamp, light, light fixture, ballast, desk lamp, etc. The user can have the ability to control the various lights on the fixture via a smart phone, tablet, personal device, etc. These auxiliary or alternative LEDs, OLED, QDs, can be in various places on the lights, fixtures, body, etc. They can be controlled independently from each other or altogether or in a diverse number of sequenced and scheduled events, etc. As an example, they all can be set according to a scheduled time to flash, turn on/off, dim, brighten, etc. These lights can be voice controlled as well.

[0225] This invention is part of a connected network therefore, when the solar powered battery is running low on power, it can communicate to the light that is being powered from the battery to dim if the light is on, in order to conserve power from the battery. Similarly, if the batter is running low on power and multiple devices are plugged into the battery, the light can dim to a lower level or send an alert notification to the user that the battery is getting too low to power some or all devices and that an alternative power source may be needed. The battery can also be set up to have priorities as far what to power from its source. The battery can cut off power to devices in a set priority or restrict current to those devices in order to provide power to the devices with a higher priority.

[0226] In some embodiments of the present invention wired/wireless interfaces can be designed to accept a 'daughter card or cards' that contain the desired wired and/or wireless interfaces which could include, but are not limited to, analog and/or digital interfaces such as 0 to 10 V, DALI, DMX, RS485, etc., with wireless including industrial, scientific and medical (ISM) radio bands/frequencies, Bluetooth, IEEE 802, WiFi, ZigBee, ZWave, NFC, RFID, etc. The LED and OLED power supplies/drivers/modules can also be Triac/Forward/Reverse phase angle or powerline control (PLC) dimmable (Note: phase angle/cut when dimming result in poor PF and high THD thus defeating the high PF requirement, whereas the other methods of dimming maintain high PF/low THD when dimmed) including forward/reverse phase angle dimming that are compatible with each other and can use the same wireless/wired platforms and interfaces -- all of which can be controlled/dimmed/monitored by smart phones, tablets, PDAs, laptops computers, servers, custom remote controls, etc.

[0227] Various embodiments of the present invention can include smart and intelligent power supplies for OLEDs and OLED panels that are fixed color (e.g., white, blue or amber), color changing, white changing, blue and amber, etc. and special purpose OLEDs for medical, cleanroom, office, industrial, warehouse, stores, markets, grocery stores, subways, trains, subway stations, light rail stations, train stations, airports, bus stations, architecture design, etc., combinations of these, etc.

[0228] Implementations and embodiments include being able to accept a large range of input voltage requirements, output power/current and number of individual independent channels needed for the various types of OLED panels including white and other fixed color, white-changing, color-changing and multi-color, multi-panel, etc. combinations of these, etc.

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[0229] Additional methods of intuitively and easily interacting with implementations and embodiments of the present invention include but are not limited to voice recognition and/or gesturing command control for the power/supplies, forward/reverse dimmer, and on/off elements of the present invention. In certain implementations of the present invention voice recognition control can be modular, field retrofit-compatible and installable, can seamlessly be integrated with the existing controls and can be readily adapted to and interfaced with the OLED power supplies/drivers.

[0230] Implementations of the smart/intelligent power supplies/drivers for white-changing and color-changing OLEDs can also be color-changing LED power supply/driver products such that they are compatible and use the same interfaces and devices (i.e., smart phones, tablets, computers, laptops, etc.) and be managed/controlled/monitored with the same interfaces, protocols, etc. OLED-based applications include both full and partial color-changing lights that can also be essentially any or mostly any 'shade' (color temperature) of white light (i.e., dual/multi-mode applications) including desk/task lamps, can lights, table lamps, wall, floor, ceiling, down lights, track lights, sconce lights, under-cabinet, desk, table, other portable lighting, sconces, etc.

[0231] The solid state lighting systems disclosed herein provide energy efficient, controllable and highly efficient lighting for a variety of applications. The lamps, lights, light fixtures, ballasts, desk lamps, etc., can have IR LED modules or arrays mounted or attached to them. These lamps, lights, light fixtures, ballasts, desk lamps, etc., can receive commands from the user that were outputted to IR devices in order to control them by turning them on/off, etc. Attaching the IR LEDs to the lamps, lights, light fixtures, ballasts, desk lamps, etc., can often give them a better point of view and access to the devices to be controlled in the room or building. For example, IR LEDs can be mounted into a screw in socket type light bulb fixture or any other type of mounted fixture with the LEDs pointing so as to surround the light, making it easier to transmit the IR to all areas of a room or building. These IR LEDs can also be installed into a ballast type light fixture. This has the same or similar effects as the previously mentioned IR array but in different types of configuration in the fixture (i.e., linear, angled, tilted, etc.). These IR LEDs can also be installed into a lamp or fixture that has servos, stepper motors, or other motors, which can allow the light or fixture to move. This allows the IR LEDs to be mobile as well in the case that the IR device is out of view from the LEDs. IR LEDs can be placed on the tops, sides, bottoms, etc., of the light fixtures to better send IR commands to their corresponding devices in the room. This helps transmission of

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information to televisions, heaters, air-conditioners, fans, etc. The IR LEDs are not for lighting purposes but for sending commands to IR controlled devices specifically.

[0232] In conclusion, embodiments of the present invention provide novel systems, devices, methods and arrangements for switched enabling and disabling of wireless controllers such as, but not limited to IR emitters in a wireless relay and/or format conversion device, among other applications. While detailed descriptions of one or more embodiments of the invention have been given above, various alternatives, modifications, and equivalents will be apparent to those skilled in the art without varying from the spirit of the invention. Therefore, the above description should not be taken as limiting the scope of embodiments of the invention which are encompassed by the appended claims.

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What is claimed is:

1. A wireless control system, comprising:

a plurality of wireless transmitters; and

a control circuit configured to transmit information from the plurality of wireless transmitters, wherein the control circuit is configured to selectably enable and disable each of the plurality of wireless transmitters.

2. The wireless control system of claim 1, further comprising a plurality of switches, each connected to one of the plurality of wireless transmitters, configured to enable and disable the associated one of the plurality of wireless transmitters.

3. The wireless control system of claim 1, further comprising a wireless receiver configured to receive information and to provide the information to the control circuit to be transmitted by selected ones of the plurality of wireless transmitters.

4. The wireless control system of claim 1, further comprising at least one fluorescent lamp replacement including a power output, wherein the control circuit and plurality of wireless transmitters are configured to draw power from the power output.

5. The wireless control system of claim 4, wherein the at least one fluorescent lamp replacement comprises a plurality of fluorescent lamp replacements, further comprising a different control circuit drawing power from the power output of each of the plurality of fluorescent lamp replacements, each different control circuit configured to transmit information from a different plurality of wireless transmitters.

6. The wireless control system of claim 5, wherein each of the control circuits are configured to communicate between each other wirelessly.

7. The wireless control system of claim 5, wherein at least one of the control circuits is configured to receive remote control commands from at least one remote device.

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8. The wireless control system of claim 5, wherein at least one of the control circuits comprises a daylight harvester.

9. The wireless control system of claim 5, further comprising a plurality of motion sensors, each associated with one of the control circuits.

10. The wireless control system of claim 9, further comprising a combining circuit configured to combine an output of each of the motion sensors to yield a global motion detected signal.

11. The wireless control system of claim 10, further comprising a dimming control circuit configured to dim at least one of the plurality of fluorescent lamp replacements based at least in part on the global motion detected signal.

12. The wireless control system of claim 9, further comprising a connection between each of the motion sensors configured to communicate motion detected signals between the control circuits.

13. The wireless control system of claim 12, wherein the connection comprises a binary motion detected signal.

14. The wireless control system of claim 5, further comprising a plurality of dimming control circuits, each connected to one of the plurality of fluorescent lamp replacements.

15. The wireless control system of claim 14, wherein the plurality of dimming control circuits are interconnected to communicate dimming levels.

16. The wireless control system of claim 15, wherein the plurality of dimming control circuits are interconnected by a dimming level bus.

17. The wireless control system of claim 1, further comprising at least one wireless receiver, wherein the control circuit is configure to receive commands with the at least one wireless receiver.

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18. The wireless control system of claim 17, wherein the information transmitted from the plurality of wireless transmitters is generated based on the received commands.

19. The wireless control system of claim 18, wherein the received commands are in a different communications protocol than the information transmitted from the plurality of wireless transmitters, further comprising a conversion circuit configured to convert the communications protocol of the received commands.

20. The wireless control system of claim 19, wherein the received commands comprise Bluetooth commands, and wherein the wireless transmitters comprise Infrared emitters.

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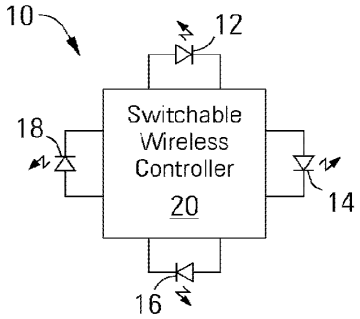

10
12
Switchable
Wireless
Controller
20
18
14
16

FIG. 1

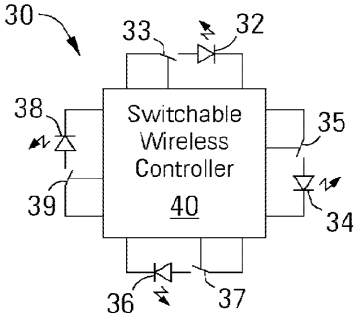

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Wireless
Controller
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37

FIG. 2

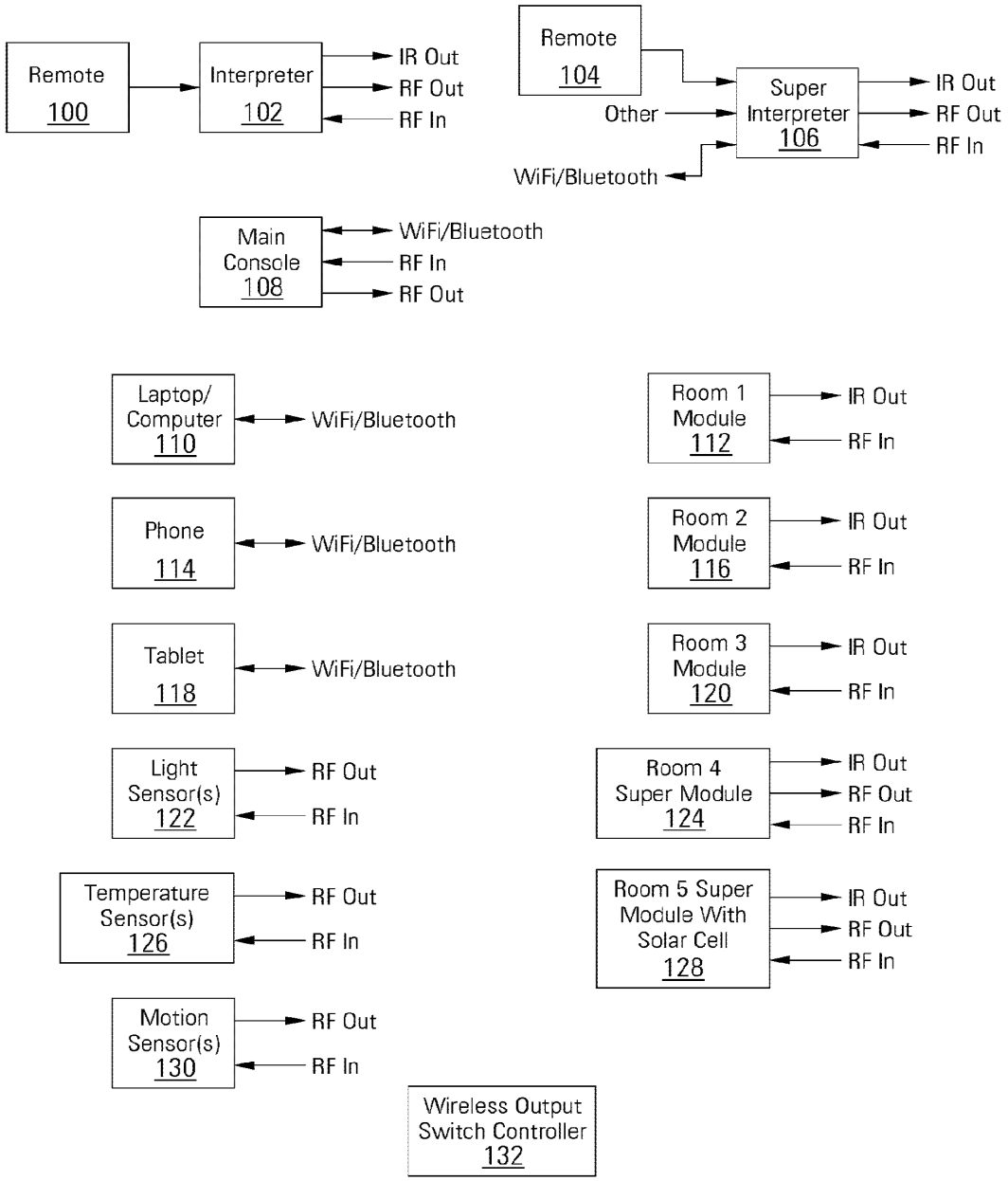

Remote
100
Interpreter
102
IR Out
RF Out
RF In
Remote
104
Other
WiFi/Bluetooth
Super
Interpreter
106
IR Out
RF Out
RF In
Main
Console
108
WiFi/Bluetooth
RF In
RF Out
Laptop/
Computer
110
WiFi/Bluetooth
Phone
114
WiFi/Bluetooth
Tablet
118
WiFi/Bluetooth
Light
Sensor(s)
122
RF Out
RF In
Temperature
Sensor(s)
126
RF Out
RF In
Motion
Sensor(s)
130
RF Out
RF In
Wireless Output
Switch Controller
132
Room 1
Module
112
IR Out
RF In
Room 2
Module
116
IR Out
RF In
Room 3
Module
120
IR Out
RF In
Room 4
Super Module
124
IR Out
RF Out
RF In
Room 5 Super
Module With
Solar Cell
128
IR Out
RF Out
RF In

FIG. 3

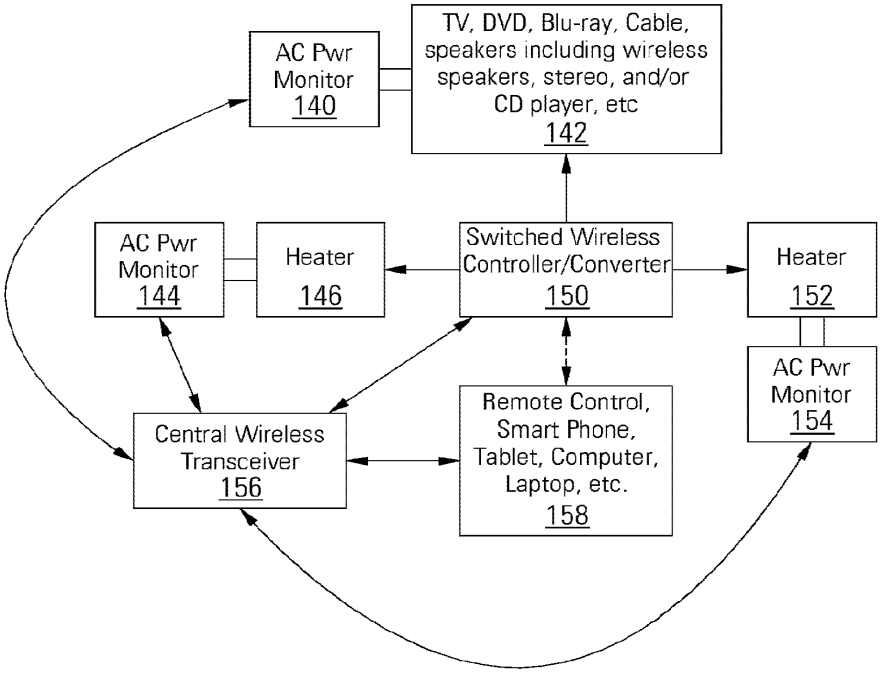

AC Pwr Monitor 140
TV, DVD, Blu-ray, Cable, speakers including wireless speakers, stereo, and/or CD player, etc 142
AC Pwr Monitor 144
Heater 146
Switched Wireless Controller/Converter 150
Heater 152
AC Pwr Monitor 154
Central Wireless Transceiver 156
Remote Control, Smart Phone, Tablet, Computer, Laptop, etc. 158

FIG. 4

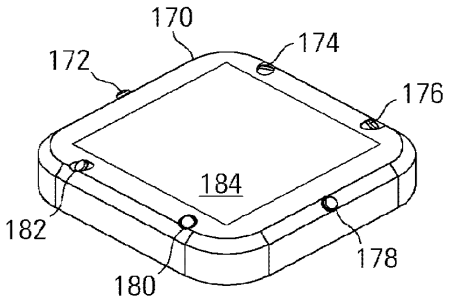


FIG. 5

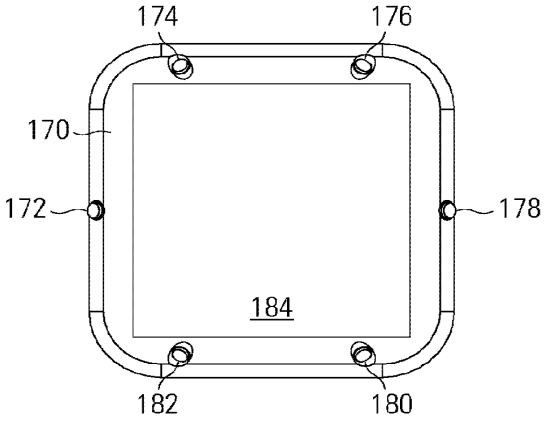


FIG. 6

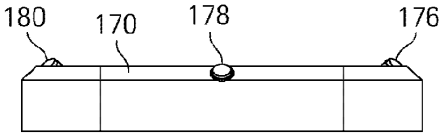


FIG. 7

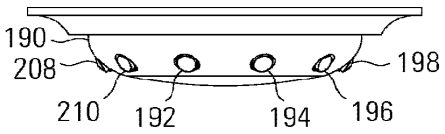


FIG. 8

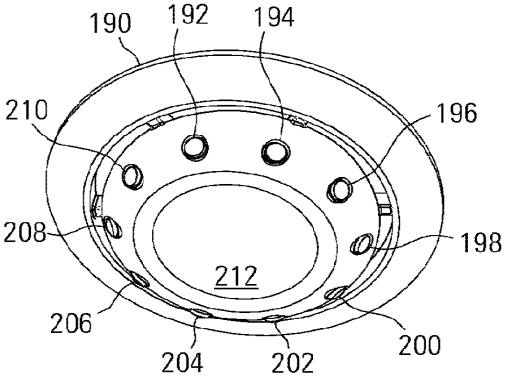


FIG. 9

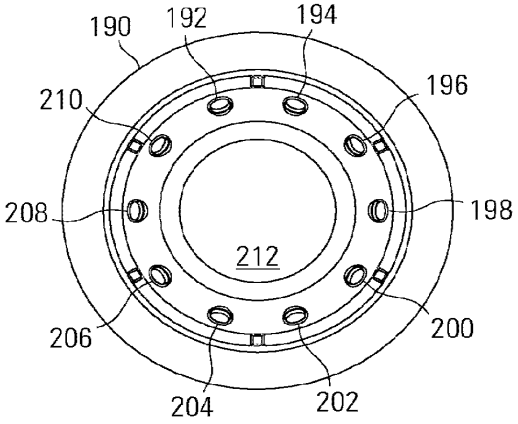


FIG. 10

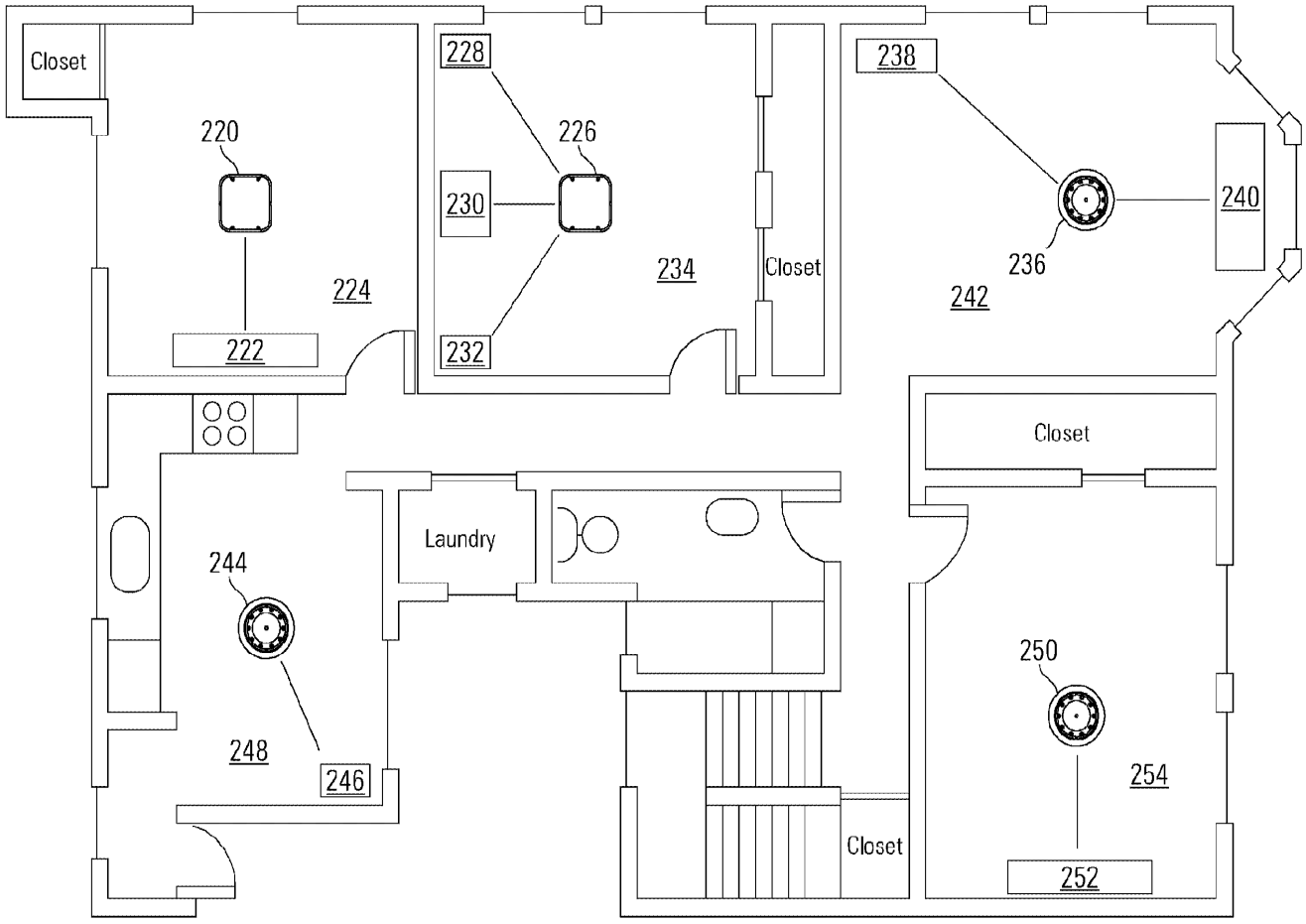

Closet
220
228
226
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234
Closet
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Closet
Laundry
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250
254
Closet
252

FIG. 11

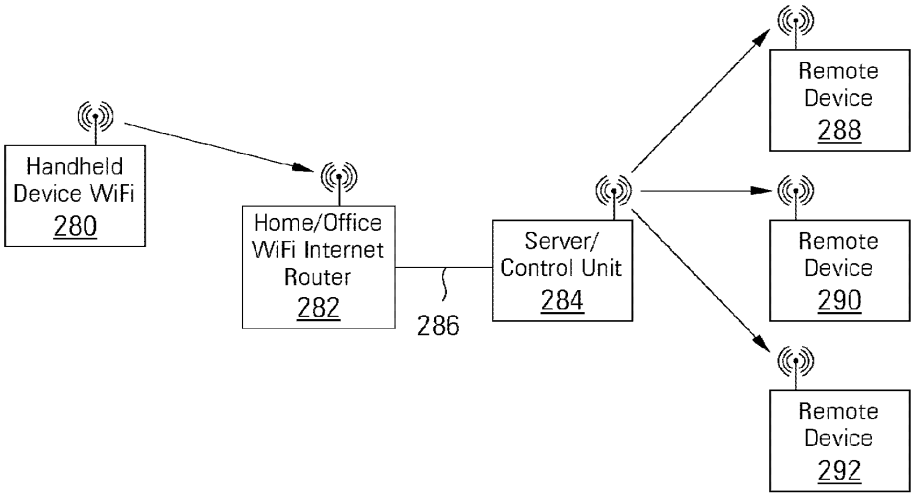

Handheld Device WiFi 280
Home/Office WiFi Internet Router 282
286
Server/ Control Unit 284
Remote Device 288
Remote Device 290
Remote Device 292

FIG. 12

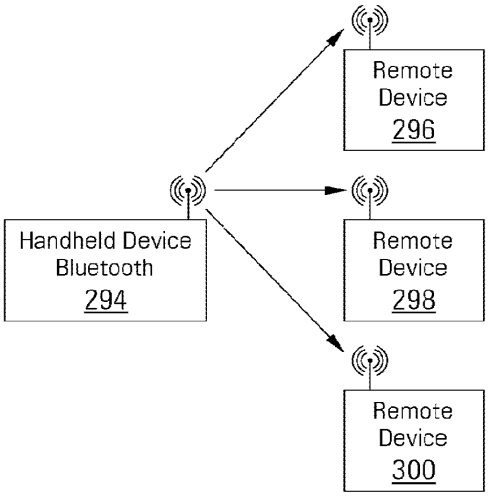

Handheld Device Bluetooth 294
Remote Device 296
Remote Device 298
Remote Device 300

FIG. 13

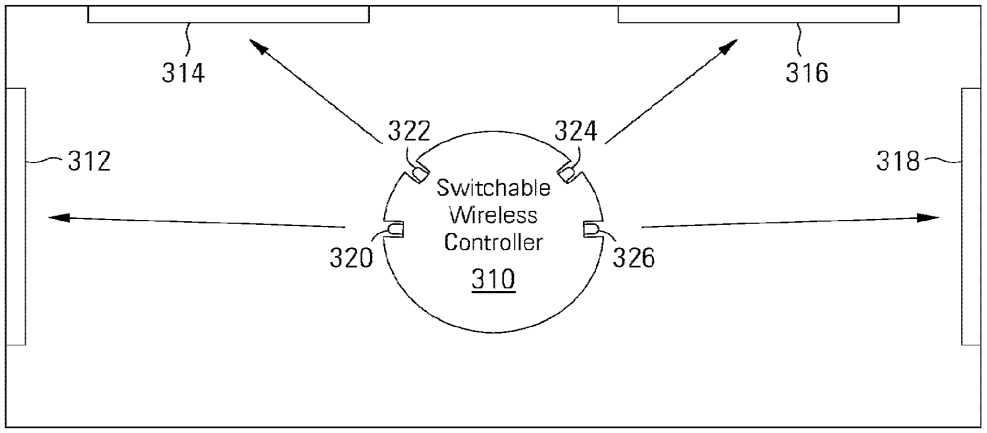

314
316
322
324
312
318
Switchable
Wireless
Controller
310
320
326

FIG. 14

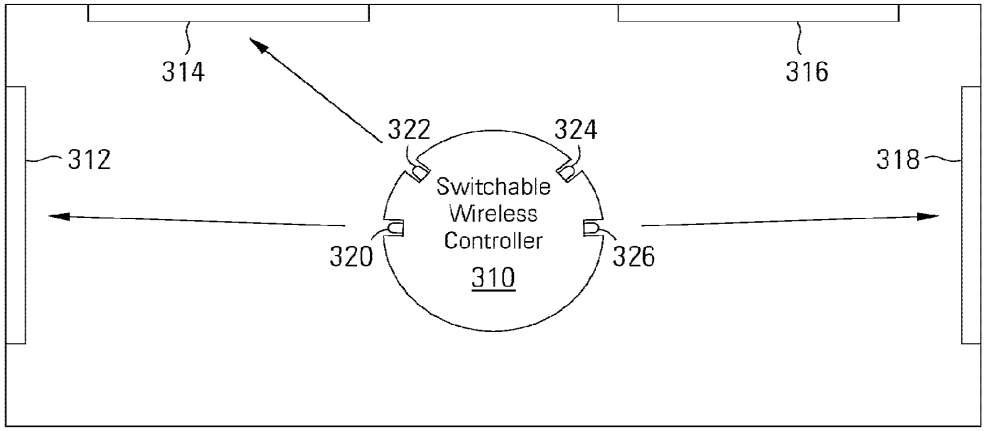

314
316
322
324
312
318
Switchable
Wireless
Controller
310
320
326

FIG. 15

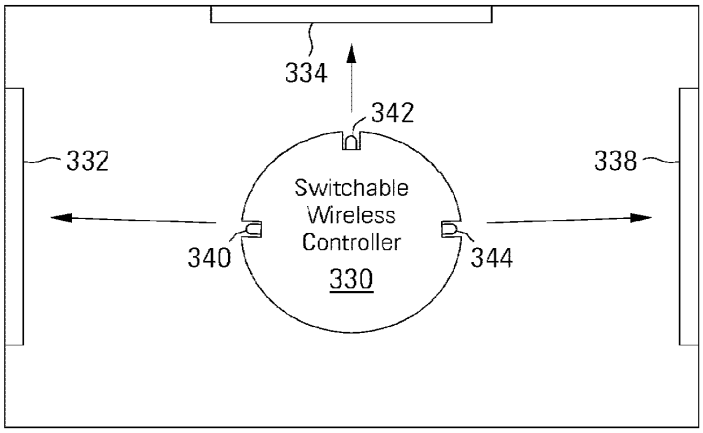

334
342
332
338
Switchable
Wireless
Controller
330
340
344

FIG. 16

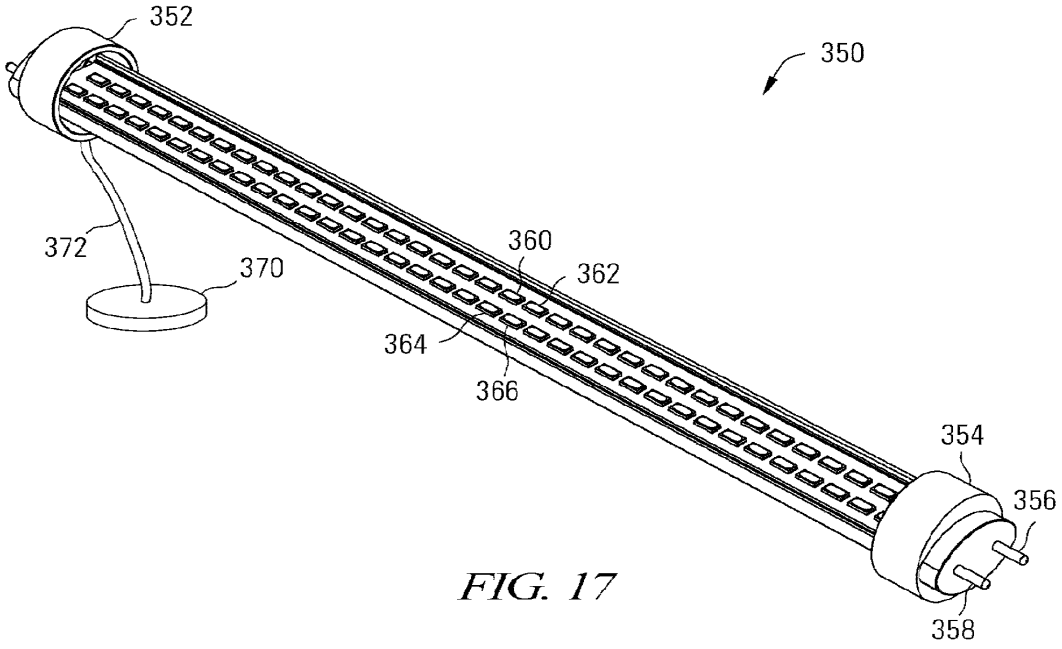

352
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372
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FIG. 17

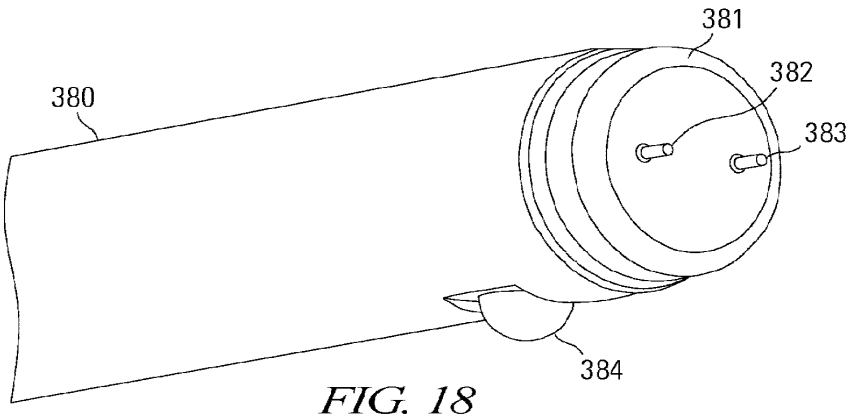

381
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383
384

FIG. 18

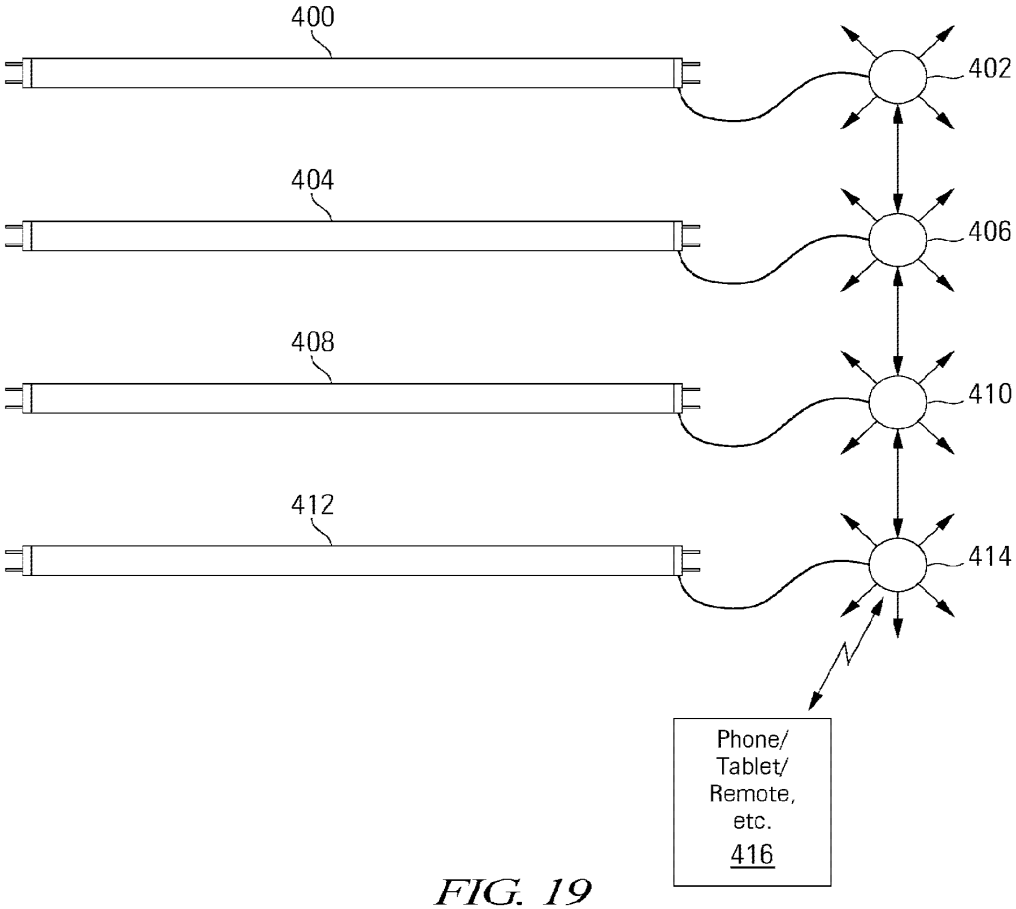

400
402
404
406
408
410
412
414
Phone/
Tablet/
Remote,
etc.
416

FIG. 19

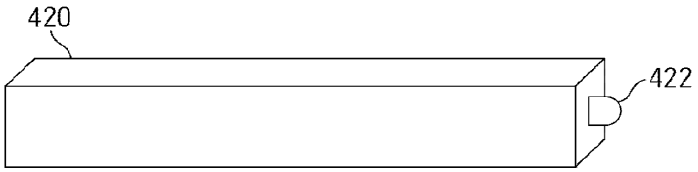


FIG. 20

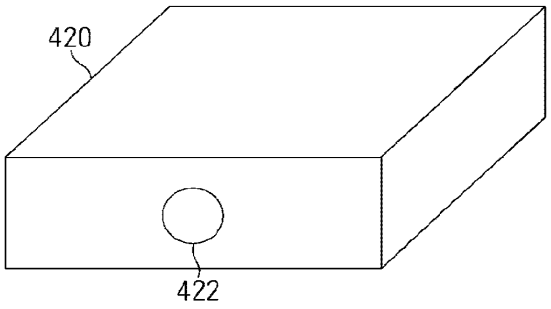


FIG. 21

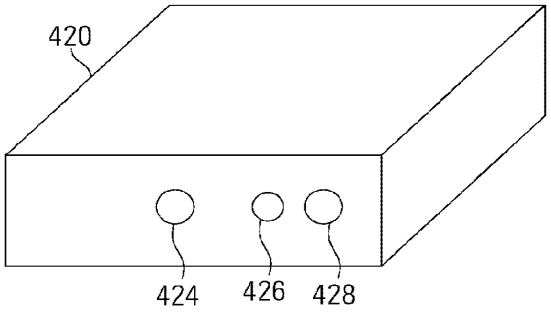


FIG. 22

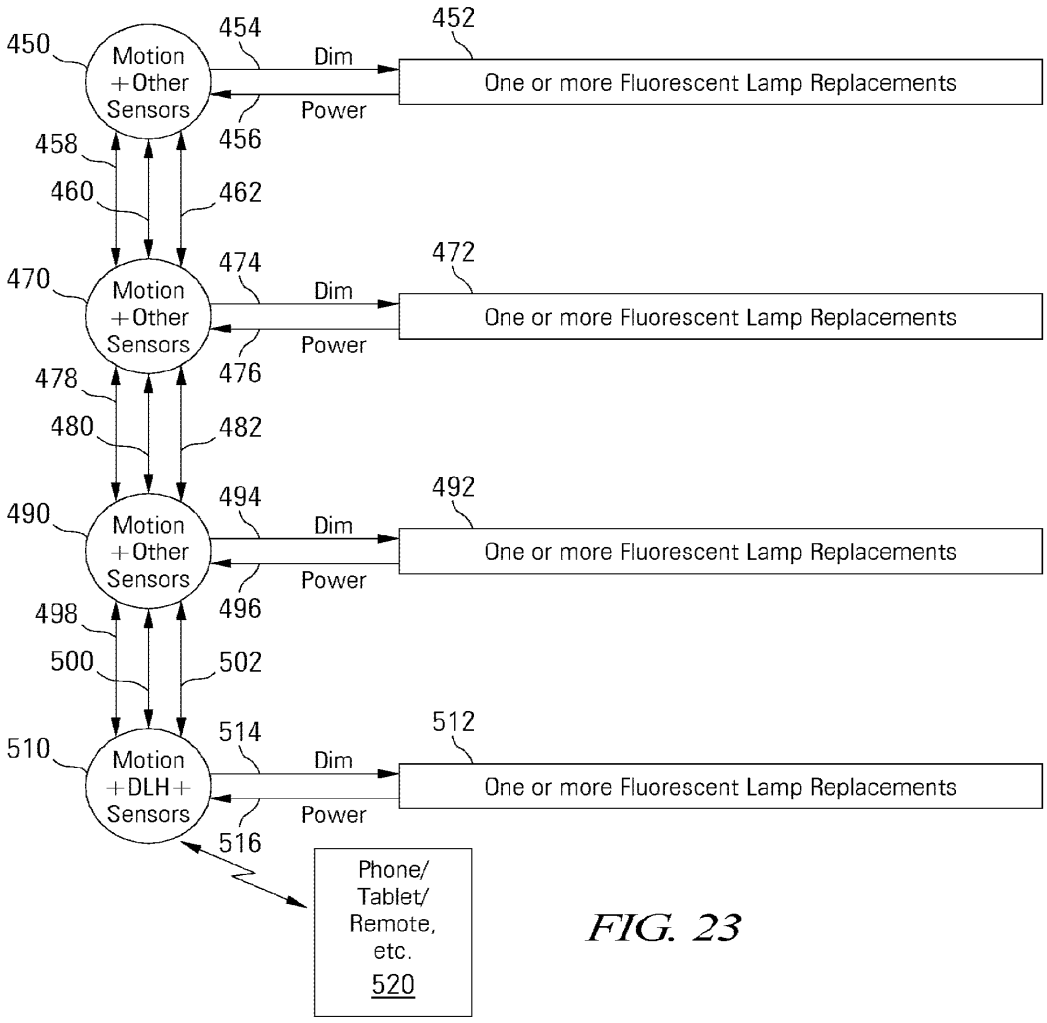


FIG. 23

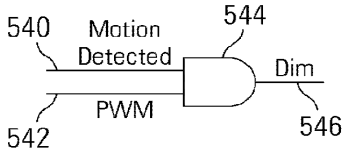


FIG. 24

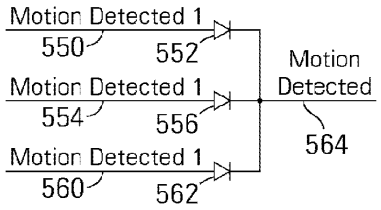


FIG. 25

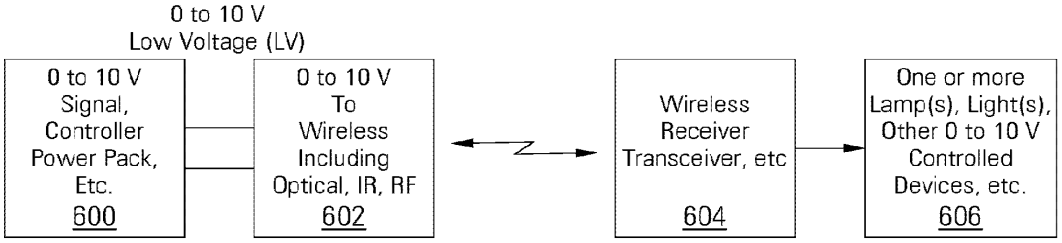


FIG. 26

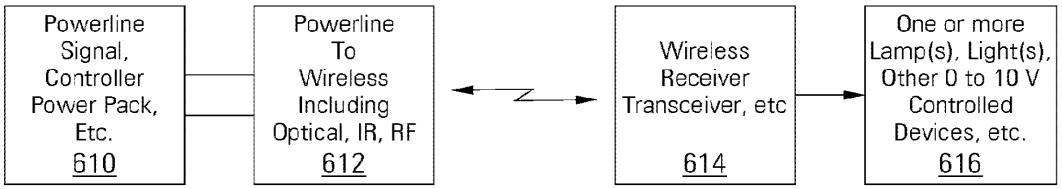


FIG. 27

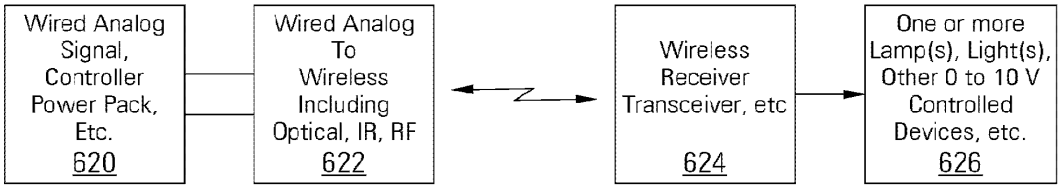


FIG. 28

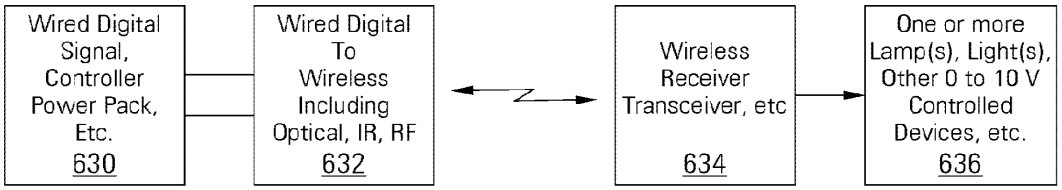


FIG. 29

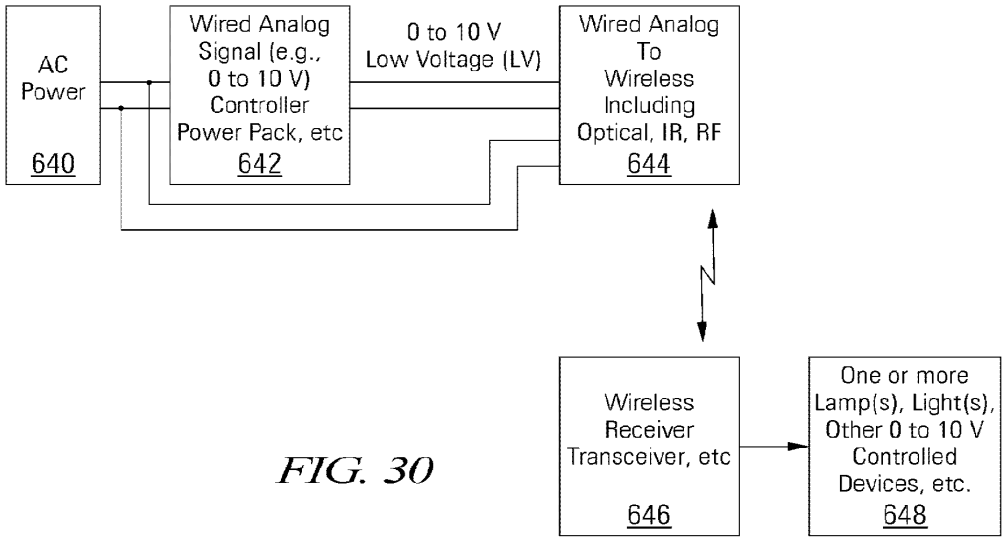

AC Power
640
Wired Analog Signal (e.g., 0 to 10 V) Controller Power Pack, etc
642
0 to 10 V Low Voltage (LV)
Wired Analog To Wireless Including Optical, IR, RF
644
Wireless Receiver Transceiver, etc
646
One or more Lamp(s), Light(s), Other 0 to 10 V Controlled Devices, etc.
648

FIG. 30

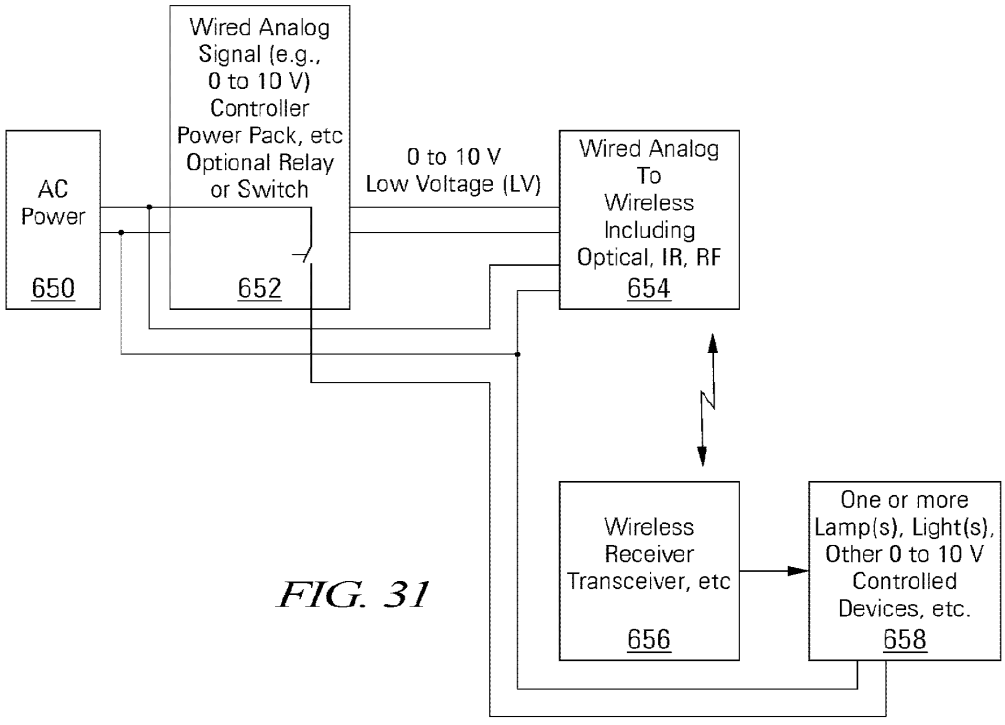

AC Power
650
Wired Analog Signal (e.g., 0 to 10 V) Controller Power Pack, etc Optional Relay or Switch
652
0 to 10 V Low Voltage (LV)
Wired Analog To Wireless Including Optical, IR, RF
654
Wireless Receiver Transceiver, etc
656
One or more Lamp(s), Light(s), Other 0 to 10 V Controlled Devices, etc.
658

FIG. 31

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US17/20047

A. CLASSIFICATION OF SUBJECT MATTER
IPC - G08C 17/02; H05B 37/02; H05B 41/38 (2017.01)
CPC - H05B 33/0842; H05B 33/0845; H05B 37/0272; H05B 37/0245; H05B 37/0209; H05B 41/36

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
See Search History document

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

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

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 2015/184019 A1 (INNOSYS, INC.) 3 December 2015; Abstract; paragraphs [0044], [0055], [0071].	1-20
A	US 2011/0119515 A1 (SADWICK, L et al.) 19 May 2011; entire document.	1-20
A	US 2005/0035717 A1 (ADAMSON, H et al.) 17 February 2005; entire document.	1-20

☐ Further documents are listed in the continuation of Box C. ☐ See patent family annex.

* Special categories of cited documents:
"A" document defining the general state of the art which is not considered to be of particular relevance
"E" earlier application or patent but published on or after the international filing date
"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
"O" document referring to an oral disclosure, use, exhibition or other means
"P" document published prior to the international filing date but later than the priority date claimed
"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
24 April 2017 (24.04.2017)	18 MAY 2017
Name and mailing address of the ISA/ Mail Stop PCT, Attn: ISA/US, Commissioner for Patents P.O. Box 1450, Alexandria, Virginia 22313-1450 Facsimile No. 571-273-8300	Authorized officer Shane Thomas PCT Helpdesk: 571-272-4300 PCT OSP: 571-272-7774

Form PCT/ISA/210 (second sheet) (January 2015)

Electronic Patent Application Fee Transmittal	
Application Number:	15871044
Filing Date:	14-Jan-2018
Title of Invention:	METHODS AND APPARATUS FOR CONTROLLING FAN DEVICES
First Named Inventor/Applicant Name:	Eric Stefankiewicz
Filer:	Michael P. Straub/Stephen Straub
Attorney Docket Number:	WAC-10APP1
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($)
Miscellaneous:				
SUBMISSION- INFORMATION DISCLOSURE STMT	2806	1	120	120
		Total in USD ($)		**120**

Electronic Acknowledgement Receipt	
EFS ID:	36989381
Application Number:	15871044
International Application Number:	
Confirmation Number:	9631
Title of Invention:	METHODS AND APPARATUS FOR CONTROLLING FAN DEVICES
First Named Inventor/Applicant Name:	Eric Stefankiewicz
Customer Number:	149297
Filer:	Michael P. Straub/Stephen Straub
Filer Authorized By:	Michael P. Straub
Attorney Docket Number:	WAC-10APP1
Receipt Date:	27-AUG-2019
Filing Date:	14-JAN-2018
Time Stamp:	13:13:54
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	DA
Payment was successfully received in RAM	$120
RAM confirmation Number	E20198QD14205887
Deposit Account	601862
Authorized User	Stephen Straub
The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows: 37 CFR 1.16 (National application filing, search, and examination fees) 37 CFR 1.17 (Patent application and reexamination processing fees)	

37 CFR 1.19 (Document supply fees)

37 CFR 1.20 (Post Issuance fees)

37 CFR 1.21 (Miscellaneous fees and charges)

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Information Disclosure Statement (IDS) Form (SB08)	8-27-19_WAC-10APP1_IDS.pdf	1034927 5485eff99ffb5275faf0deca5092f5bb898c16cd	no	4
Warnings:					
Information:					
2	Non Patent Literature	WAC-10APPTO3PCT_ISR_AND_WO_5-13-19.pdf	1938773 d75ef0b6772c5bd9bc97c488d72d7512fe9e0dcf	no	23
Warnings:					
Information:					
3	Foreign Reference	WO2017151682.pdf	4640805 6facd8e4b3c203ae36138e2aa7957fbe83fcfcdd	no	92
Warnings:					
Information:					
4	Fee Worksheet (SB06)	fee-info.pdf	30691 b7ac7fdf127aa8cf5a7c8b5c649c1d6f1c58aaab	no	2
Warnings:					
Information:					
		Total Files Size (in bytes):	7645196		

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

New Applications Under 35 U.S.C. 111

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

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

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

New International Application Filed with the USPTO as a Receiving Office

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

PTO/SB/06 (09-11)
Approved for use through 1/31/2014. OMB 0651-0032
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

PATENT APPLICATION FEE DETERMINATION RECORD Substitute for Form PTO-875	Application or Docket Number 15/871,044	Filing Date 01/14/2018	☐ To be Mailed

ENTITY: ☐ LARGE ☑ SMALL ☐ MICRO

APPLICATION AS FILED - PART I

FOR	(Column 1) NUMBER FILED	(Column 2) 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 $40 =	
INDEPENDENT CLAIMS (37 CFR 1.16(h))	minus 3 =	*		x $210 =	
☐ 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))					
* If the difference in column 1 is less than zero, enter "0" in column 2.				TOTAL	

APPLICATION AS AMENDED - PART II

		(Column 1)		(Column 2)	(Column 3)			
AMENDMENT	08/26/2019	CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA		RATE ($)	ADDITIONAL FEE ($)
	Total (37 CFR 1.16(i))	* 20	Minus	** 20	= 0		x $50 =	0
	Independent (37 CFR 1.16(h))	* 2	Minus	*** 3	= 0		x $230 =	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		RATE ($)	ADDITIONAL FEE ($)
	Total (37 CFR 1.16(i))	*	Minus	**	=		x $0 =	
	Independent (37 CFR 1.16(h))	*	Minus	***	=		x $0 =	
	☐ 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.	LIE
** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20".	/RENEE D HAWKINS/
*** 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

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
15/871,044	01/14/2018	Eric Stefankiewicz	WAC-10APP1	9631

149297 7590 10/02/2019

Straub & Straub - WAC correspondence
1st Fl, Building 1, Door B
788 Shrewsbury Ave
Tinton Falls, NJ 07724

EXAMINER
KING, MONICA C

ART UNIT	PAPER NUMBER
2844	

MAIL DATE	DELIVERY MODE
10/02/2019	PAPER

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.

Office Action Summary	**Application No.** 15/871,044	**Applicant(s)** Stefankiewicz et al.	
	Examiner MONICA C KING	**Art Unit** 2844	**AIA (FITF) 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 1/14/2018.

☐ 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 _____ is/are: a)☑ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

Certified copies:

a)☐ All b)☐ Some** c)☐ None of the:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

** See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)

2) ☑ Information Disclosure Statement(s) (PTO/SB/08a and/or PTO/SB/08b) Paper No(s)/Mail Date _____.

3) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date _____.

4) ☐ Other: _____.

Notice of Pre-AIA or AIA Status

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

Claim Rejections - 35 USC § 102

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.

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (a)(1) the claimed invention was patented, described in a printed publication, or in public use, on sale or otherwise available to the public before the effective filing date of the claimed invention.

Claims 1-20 are rejected under 35 U.S.C. 102(a)(1) as being anticipated by Suro, et al. (US 2013/0073431 A1, hereinafter "Suro").

Regarding claim 1, Suro discloses a control method comprising:

receiving, at a fan device including a fan motor ([0017]), radio frequency signal receiver and a WiFi interface, a first radio frequency (RF) control signal from a control unit, said fan device and said control unit being located at a customer premises ([0006]);

implementing, at the fan device, an operation in response to a first command communicated by the first RF control signal ([0025]); and

operating the fan device to communicate to a server located outside the customer premises, via the WiFi interface, information indicating the operation implemented in response to the first command ([0027], [0017], [0020]); and

wherein said fan device is mounted to a ceiling at the customer premises ([0017]: motor load being a ceiling fan, and it is a wireless control).

Regarding claim 2, Suro discloses the method of claim 1, wherein said first command is one of:

a fan on command, a fan off command, a fan power state change command, a fan speed up command, a fan speed down command, a fan direction change command, a light on command, a light off command, a light power state change command, a light increase command, a light decrease command ([0024]).

Regarding claim 3, Suro discloses the method of claim 1, wherein said RF control signal is sent using an RF frequency which is not used for WiFi signals ([0006]).

Regarding claim 4, Suro discloses the method of claim 3, further comprising:

operating a WiFi router located at the customer premises to receive a first WiFi control signal from a wireless terminal located at the customer premises, said first WiFi control signal communicating a second command used to control the fan device ([0018], [0017]: ceiling fan being second command);

operating the WiFi router to communicate, via a WiFi signal, the second command to the fan device; and operating the fan device to implement the second command ([0018]).

Regarding claim 5, Suro discloses the method of claim 4, further comprising:

operating the fan device to communicate to the server located outside the customer premises, via the WiFi interface, information indicating the operation implemented in response to the second command ([0027]-[0029]).

Regarding claim 6, Suro discloses the method of claim 5 wherein the second command is communicated from the wireless terminal to the fan device via the WiFi router located in the customer premises without said second command traversing a network outside the customer premises ([0020]).

Regarding claim 7, Suro discloses the method of claim 6, further comprising:

operating the server to receive a third command directed to the first fan device ([0017]: exhaust fan as third command); and

operating the server to communicate the third command via the Internet and said WiFi router to the fan device ([0027]).

Regarding claim 8, Suro discloses the method of claim 7, further comprising:

operating the server to update information about the state of one or more devices at the first customer premises based on the third command communicated to the fan device ([0017]).

Regarding claim 9, Suro discloses the method of claim 8, wherein said updating of the information about the state of one or more devices at the first customer premises is performed in response to transmitting the third command from the server ([0027]).

Regarding claim 10, Suro discloses a system comprising:

a fan device mounted to a ceiling comprising ([0017]):

a fan motor ([0017]);

a radio frequency (RF) signal receiver configured to receive radio frequency (RF) control signals from a control unit, said fan device and said control unit being located at a customer premises ([0026]);

a WiFi interface ([0006]);

a fan motor control circuit configured to control the fan motor in response to a received first radio frequency control signal, said first radio frequency control signal communicating a first command ([0017]); and

a first processor configured to communicate to a server, located outside the customer premises, via the WiFi interface, information indicating an operation implemented in response to the first command ([0027]: phone being the processor).

Regarding claim 11, Suro discloses the system of claim 10, wherein said fan device further comprises:

a light ([0027]); and

a light control circuit configured to control the light in response to a received second radio frequency control signal, said second radio frequency control signal communicating a second command ([0006]); and

wherein said first processor is further configured to communicate to said server, via the WiFi interface, information indicating an operation implemented in response to said first command ([0006]-[0007]).

Regarding claim 12, Suro discloses the system of claim 11, wherein said first RF control signal communicates one of:

a fan on command, a fan off command, a fan power state change command, a fan speed up command, a fan speed down command, a fan direction change command ([0024]); and

wherein said second RF control signal communicates one of: a light on command, a light off command, a light power state change command, a light increase command, a light decrease command ([0025]).

Regarding claim 13, Suro discloses the system of claim 11, wherein said first RF control signal and said second RF control signal are sent using RF frequencies which are not used for WiFi signals ([0006]: RF control signal).

Regarding claim 14, Suro discloses the system of claim 13, further comprising:

a WiFi router located at the customer premises, said WiFi router comprising ([0028]):

a receiver configured to receive a first WiFi control signal from a wireless terminal located at the customer premises, said first WiFi control signal communicating a third command used to control the fan device ([0008]);

a transmitter configured to communicate, via a WiFi signal, the third command to the fan device; and wherein said first processor is configured to control at least one of the fan motor control circuit or the light control circuit to implement the third command ([0017]).

Regarding claim 15, Suro discloses the system of claim 14, further comprising:

wherein said first processor is configured to control the WiFi interface in said fan device to send information indicating the operation implemented in response to the third command ([0022]).

Regarding claim 16, Suro discloses the system of claim 15, further comprising:

said wireless terminal, wherein said wireless terminal includes ([0025]: In response to actuations of the displayed soft buttons, the smart phone 120 transmits a first wireless digital message to the wireless router 140 via the RF signals 146. The first wireless digital message includes a command for controlling the lighting load 114):

a WiFi interface ([0006]: WiFi-enabled smart phone); and

a fan device control application configured to generate said third command in response to user input ([0017]: wireless fan device controlled); and

wherein the third command is communicated from the wireless terminal to the fan device via the WiFi router located in the customer premises without said third command traversing a network outside the customer premises ([0020]: The product display 100 comprises a wireless router 140 and a wireless dimming control module 142, which are electrically coupled together via a wired Ethernet link 144. The wireless router located off site is operable to receive digital messages from the smart phone 120 via RF signals 146 (e.g., a WiFi link) and to transmit corresponding digital messages to the wireless dimming control module 142 via the Ethernet link 144, without third command).

Regarding claim 17, Suro discloses the system of claim 16, further comprising: said server, wherein said server includes a second processor configured to:

operating the server to receive a fourth command directed to the first fan device ([0017], [0027]: the smart phone 120 could alternatively communicate with the wireless router 140 using cellular communications, for example, via the Internet through a cloud server managed by the manufacturer of the products in the product display 100); and

operating the server to communicate the fourth command via the Internet and said WiFi router to the fan device ([0018], [0008]: The display system also comprises a router operable to communicate with the smart phone, such that the load control device controls the electrical load in response to the smart phone).

Regarding claim 18, Suro discloses the system of claim 17, wherein said second processor is further configured to:

operating the server to update information about the state of one or more devices at the first customer premises based on the fourth command communicated to the fan device ([0017]).

Regarding claim 19, Suro discloses the system of claim 18, wherein said updating of the information about the state of one or more devices at the first customer premises is performed in response to transmitting the fourth command from the server ([0027]: While the present invention has been described with the smart phone 120 communicating directly with the wireless router 140 via the WiFi link, the smart phone 120 could alternatively communicate with the wireless router 140 using cellular communications, for example, via the Internet through a cloud server managed by the manufacturer of the products in the product display 100. For example, when the user scans the scannable tag 122 with the smart phone 120, the browser on the smart phone could launch a web page that is hosted on the cloud server and display screens similar to those of the product control application for controlling the lighting load 114. Therefore, the user does not need to download the product control application onto the smart phone 120 and the wireless router 140 could simply be a wired router).

Regarding claim 20, Suro discloses the system of claim 16, wherein said second processor is further configured to:

operating the server to generate a proposed normal device control schedule for the first customer premises from stored information indicating the state of one or more devices at the first customer premises over a period of time ([0017]: timeclock having to do with the state of control);

operate the server to send the proposed device control schedule to a device corresponding to the first customer premise ([0017]: HVAC system is controlling the premise);

operate the server to receive a message indicating approval of the proposed normal device control schedule for the first customer premises or a revised schedule for the first customer premises ([0005]: user-manipulatable actuator); and

operate the server to store as an approved normal control schedule for the first customer premises the approved proposed normal device control schedule or the revised schedule ([0022]).

Response to Arguments

Applicant's arguments filed 8/26/2019 have been fully considered but they are not persuasive.

The applicant's amendments were rejected by prior art of record. Please refer to the rejections for response to applicant's arguments.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing

date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to MONICA C KING whose telephone number is (571)270-3429. The examiner can normally be reached on Mon-Fri.

Examiner interviews are available via telephone, in-person, and video conferencing using a USPTO supplied web-based collaboration tool. To schedule an interview, applicant is encouraged to use the USPTO Automated Interview Request (AIR) at http://www.uspto.gov/interviewpractice.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Douglas Owens can be reached on (571) 272-1662. 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.

/MONICA C KING/
Primary Examiner, Art Unit 2844

9/28/2019

Search Notes	Application/Control No.	Applicant(s)/Patent Under Reexamination
	15/871,044	Stefankiewicz et al.
	Examiner	Art Unit
	MONICA C KING	2844

CPC - Searched*		
Symbol	Date	Examiner
H05B37/0272 OR H05B37/0227 OR H05B33/0872 OR H05B37/0218 OR H05B33/0854 OR H05B33/0863 OR H05B33/0851 OR H05B33/0803 OR H05B33/0869 OR H05B37/02 OR H05B37/0281 OR H05B33/0815 OR H05B33/0845 OR H05B33/0857 OR H05B33/086 OR H05B37/0209 OR H05B39/086 OR H05B39/088	03/22/2019	MK

CPC Combination Sets - Searched*		
Symbol	Date	Examiner

US Classification - Searched*			
Class	Subclass	Date	Examiner

* 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
CPC search, limited txt search, assignee search, inventor search	03/22/2019	MK
NPL search, google patent search	03/22/2019	MK
Updated search	09/25/2019	MK
IDS review	09/25/2019	MK

/MONICA C KING/ Primary Examiner, Art Unit 2844	

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Search Notes	Application/Control No.	Applicant(s)/Patent Under Reexamination
	15/871,044	Stefankiewicz et al.
	Examiner	Art Unit
	MONICA C KING	2844

Interference Search			
US Class/CPC Symbol	US Subclass/CPC Group	Date	Examiner
	H05B37/0272 OR H05B37/0227 OR H05B33/0872 OR H05B37/0218 OR H05B33/0854 OR H05B33/0863 OR H05B33/0851 OR H05B33/0803 OR H05B33/0869 OR H05B37/02 OR H05B37/0281 OR H05B33/0815 OR H05B33/0845 OR H05B33/0857 OR H05B33/086 OR H05B37/0209 OR H05B39/086 OR H05B39/088	03/22/2019	MK

/MONICA C KING/ Primary Examiner, Art Unit 2844	

Doc code: IDS
Doc description: Information Disclosure Statement (IDS) Filed

PTO/SB/08a (02-18)
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INFORMATION DISCLOSURE STATEMENT BY APPLICANT
(Not for submission under 37 CFR 1.99)

Application Number	15871044
Filing Date	2018-01-14
First Named Inventor	Eric Stefankiewicz
Art Unit	2844
Examiner Name	KING, MONICA C
Attorney Docket Number	WAC-10APP1

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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	9,589,461	B1	2017-03-07	Palm Coast Imports, LLC	

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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	20140101082	A1	2014-04-10	Nest Labs, Inc.	
	2	20140177900	A1	2014-06-26	Homewerks Worldwide, LLC	
	3	20140270714	A1	2014-09-18	Osminer et al.	
	4	20150351203	A1	2015-12-03	Zhejiang Shenghui Lighting Co., Ltd	
	5	20070110192	A1	2007-05-17	Steiner, James P.	

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ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /M.C.K/

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	15871044
	Filing Date	2018-01-14
	First Named Inventor	Eric Stefankiewicz
	Art Unit	2844
	Examiner Name	KING, MONICA C
	Attorney Docket Number	WAC-10APP1

	6	20190219060	A1	2019-07-18	Stefankiewicz, et al.	
	7	20190220071	A1	2019-07-18	Stefankiewicz, et al.	

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	1	2017/151682	WO	A1	2017-09-08	Innosys, Inc.		

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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	NOTIFICATION OF TRANSMITTAL OF THE INTERNATIONAL SEARCH REPORT AND THE WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY, OR THE DECLARATION with the INTERNATIONAL SEARCH REPORT and the WRITTEN OPINION from International application No. PCT/US 2019/013389 mail date May 13, 2019, Pages 1-23.	

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EXAMINER SIGNATURE

Examiner Signature	/MONICA C KING/	Date Considered	09/28/2019

*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.

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	15871044
	Filing Date	2018-01-14
	First Named Inventor	Eric Stefankiewicz
	Art Unit	2844
	Examiner Name	KING, MONICA C
	Attorney Docket Number	WAC-10APP1

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	/Stephen T. Straub, Reg. No. 43,938/	Date (YYYY-MM-DD)	2019-08-27
Name/Print	Stephen T. Straub	Registration Number	43,938

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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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 record s.

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.

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EAST Search History

EAST Search History (Prior Art)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
L1	21	("20070110192" | "20140177900" | "20130073431" | "20140101082" | "20150351203" | "20190219060" | "20140270714" | "9589461" | "20190220071").PN.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2019/09/28 16:29
S1	49446	rf AND WIFI AND LIGHT$3	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2019/03/23 03:56
S2	2055	rf AND WIFI AND LIGHT$3 AND FAN AND MOTOR	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2019/03/23 03:57
S3	2051	rf AND WIFI AND LIGHT$3 AND FAN AND MOTOR AND CONTROL	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2019/03/23 03:57
S4	1515	rf AND WIFI AND LIGHT$3 AND FAN AND MOTOR AND CONTROL AND COMMAND	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2019/03/23 03:58
S5	1262	rf AND WIFI AND LIGHT$3 AND FAN AND MOTOR AND CONTROL AND COMMAND AND SERVER	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2019/03/23 03:58
S6	1247	rf AND WIFI AND LIGHT$3 AND FAN AND MOTOR AND CONTROL AND COMMAND AND SERVER and processor	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2019/03/23 16:42
S7	1247	rf AND WIFI AND LIGHT$3 AND FAN AND	US-PGPUB;	OR	OFF	2019/03/23

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Petitioner Minka – EX1002
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		MOTOR AND CONTROL AND COMMAND AND SERVER and processor	USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB			16:48
S8	1144	rf AND WIFI AND LIGHT$3 AND FAN AND MOTOR AND CONTROL AND COMMAND AND SERVER and processor and @ad<"20180112"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2019/03/23 16:48
S9	1141	rf AND WIFI AND LIGHT$3 AND FAN AND MOTOR AND CONTROL AND COMMAND AND SERVER and processor and @ad<"20180112" and interface	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2019/03/23 18:53
S10	1005	rf AND WIFI AND LIGHT$3 AND FAN AND MOTOR AND CONTROL AND COMMAND AND SERVER and processor and @ad<"20180112" and interface and radio	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2019/03/23 18:54
S11	81	S10 AND ((H05B37/0272 OR H05B37/0227 OR H05B33/0872 OR H05B37/0218 OR H05B33/0854 OR H05B33/0863 OR H05B33/0851 OR H05B33/0803 OR H05B33/0869 OR H05B37/02 OR H05B37/0281 OR H05B33/0815 OR H05B33/0845 OR H05B33/0857 OR H05B33/086 OR H05B37/0209 OR H05B39/086 OR H05B39/088).CPC.)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2019/03/23 18:55
S12	125	(fan near2 motor) and wifi and rf and control and ceiling	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2019/09/28 14:57
S13	5	"20130073431"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2019/09/28 14:57

EAST Search History (Interference)

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Page 306 of 420

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Page 307 of 420

Doc Code: PA..
Document Description: Power of Attorney

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POWER OF ATTORNEY BY APPLICANT

I hereby revoke all previous powers of attorney given in the application identified in either the attached transmittal letter or the boxes below.

Application Number	Filing Date

(Note: The boxes above may be left blank if information is provided on form PTO/AIA/82A.)

☑ I hereby appoint the Patent 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 identified above: 72822

OR

☐ I hereby appoint Practitioner(s) named in the attached list (form PTO/AIA/82C) 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 patent application referenced in the attached transmittal letter (form PTO/AIA/82A) or identified above. (Note: Complete form PTO/AIA/82C.)

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OR

☐ The address associated with Customer Number:

OR

☐ Firm or Individual Name					
Address					
City		State		Zip	
Country					
Telephone		Email			

I am the Applicant (if the Applicant is a juristic entity, list the Applicant name in the box):

Wangs Alliance Corporation

☐ Inventor or Joint Inventor (title not required below)

☐ Legal Representative of a Deceased or Legally Incapacitated Inventor (title not required below)

☑ Assignee or Person to Whom the Inventor is Under an Obligation to Assign (provide signer's title if applicant is a juristic entity)

☐ 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) (provide signer's title if applicant is a juristic entity)

SIGNATURE of Applicant for Patent

The undersigned (whose title is supplied below) is authorized to act on behalf of the applicant (e.g., where the applicant is a juristic entity).

Signature		Date (Optional)	
Name	Tigran Vardanian		
Title	General Counsel		

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. If more than one applicant, use multiple forms.

☐ Total of forms are submitted.

This collection of information is required by 37 CFR 1.131, 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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Electronic Acknowledgement Receipt

EFS ID:	37994692
Application Number:	15871044
International Application Number:	
Confirmation Number:	9631
Title of Invention:	METHODS AND APPARATUS FOR CONTROLLING FAN DEVICES
First Named Inventor/Applicant Name:	Eric Stefankiewicz
Customer Number:	149297
Filer:	Edward M. Arons/Miri Rosengarten
Filer Authorized By:	Edward M. Arons
Attorney Docket Number:	WAC-10APP1
Receipt Date:	11-DEC-2019
Filing Date:	14-JAN-2018
Time Stamp:	11:47:01
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	Transmittal Letter	Transmittal_Letter_for_POA.pdf	99111 ddb5e26f7118edb47a5f51c9eb5c3e1f77dad2aa	no	1

Warnings:

Information:					
2	Power of Attorney	WAC_Signed_POA.pdf	1190964 fe6a4e8d5f3b91342a8034ae45044351b64029cc	no	1
Warnings:					
Information:					
			Total Files Size (in bytes):	1290075	

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

New Applications Under 35 U.S.C. 111

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

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

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

New International Application Filed with the USPTO as a Receiving Office

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

Doc Code: PA..
Document Description: Power of Attorney

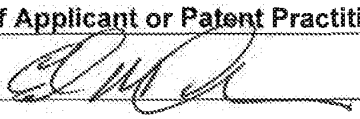
PTO/AIA/82A (07-13)
Approved for use through 03/31/2021, OMB 0651-0035
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
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TRANSMITTAL FOR POWER OF ATTORNEY TO ONE OR MORE REGISTERED PRACTITIONERS

NOTE: This form is to be submitted with the Power of Attorney by Applicant form (PTO/AIA/82B) to identify the application to which the Power of Attorney is directed, in accordance with 37 CFR 1.5, unless the application number and filing date are identified in the Power of Attorney by Applicant form. If neither form PTO/AIA/82A nor form PTO/AIA82B identifies the application to which the Power of Attorney is directed, the Power of Attorney will not be recognized in the application.

Application Number	15/871,044
Filing Date	January 14, 2018
First Named Inventor	Eric Stefankiewicz
Title	METHODS AND APPARATUS FOR CONTROLLING FAN DEVICES
Art Unit	2844
Examiner Name	Monica C. King
Attorney Docket Number	WAC-10APP1

SIGNATURE of Applicant or Patent Practitioner

Signature		Date (Optional)	12/11/2019
Name	Edward M. Arons	Registration Number	44511
Title (if Applicant is a juristic entity)	Attorney For Applicant		
Applicant Name (if Applicant is a juristic entity)	Wangs Appliance Corporation		

NOTE: This form must be signed in accordance with 37 CFR 1.33. See 37 CFR 1.4(d) for signature requirements and certifications. If more than one applicant, use multiple forms.

☐ *Total of _____ forms are submitted.

This collection of information is required by 37 CFR 1.131, 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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UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
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www.uspto.gov

APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
15/871,044	01/14/2018	Eric Stefankiewicz	WAC-10APP1

CONFIRMATION NO. 9631

149297
Straub & Straub - WAC correspondence
1st Fl, Building 1, Door B
788 Shrewsbury Ave
Tinton Falls, NJ 07724

POWER OF ATTORNEY NOTICE

OC000000113343214

Date Mailed: 12/16/2019

NOTICE REGARDING CHANGE OF POWER OF ATTORNEY

This is in response to the Power of Attorney filed 12/11/2019.

- The Power of Attorney to you in this application has been revoked by the applicant. Future correspondence will be mailed to the new address of record(37 CFR 1.33).

Questions about the contents of this notice and the requirements it sets forth should be directed to the Office of Data Management, Application Assistance Unit, at **(571) 272-4000** or **(571) 272-4200** or **1-888-786-0101**.

/sleutchit/

UNITED STATES PATENT AND TRADEMARK OFFICE

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

APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
15/871,044	01/14/2018	Eric Stefankiewicz	WAC-10APP1

CONFIRMATION NO. 9631

72822
Weiss & Arons LLP
63 South Main Street
Spring Valley, NY 10977

POA ACCEPTANCE LETTER

OC000000113343239

Date Mailed: 12/16/2019

NOTICE OF ACCEPTANCE OF POWER OF ATTORNEY

This is in response to the Power of Attorney filed 12/11/2019.

The Power of Attorney in this application is accepted. Correspondence in this application will be mailed to the above address as provided by 37 CFR 1.33.

Questions about the contents of this notice and the requirements it sets forth should be directed to the Office of Data Management, Application Assistance Unit, at **(571) 272-4000** or **(571) 272-4200** or **1-888-786-0101**.

/sleutchit/

PTO/SB/31 (07-09)
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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NOTICE OF APPEAL FROM THE EXAMINER TO THE BOARD OF PATENT APPEALS AND INTERFERENCES

Docket Number (Optional)
WAC-10APP1(309-010)

I hereby certify that this correspondence is being facsimile transmitted to the USPTO or 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" [37 CFR 1.8(a)]
on _____

Signature _____

Typed or printed name _____

In re Application of
Wangs Alliance Corporation

Application Number	Filed
15/871,044	January 14, 2018

For METHODS AND APPARATUS FOR CONTROLLING FAN DEVICES

Art Unit	Examiner
2844	Monica C. King

Applicant hereby **appeals** to the Board of Patent Appeals and Interferences from the last decision of the examiner.

The fee for this Notice of Appeal is (37 CFR 41.20(b)(1)) $ 800.00

☑ Applicant claims small entity status. See 37 CFR 1.27. Therefore, the fee shown above is reduced by half, and the resulting fee is: $ 400.00

☐ 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 No. 50-4650 .

☑ A petition for an extension of time under 37 CFR 1.136(a) (PTO/SB/22) is enclosed.

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/inventor.

☐ assignee of record of the entire interest.
See 37 CFR 3.71. Statement under 37 CFR 3.73(b) is enclosed.
(Form PTO/SB/96)

☑ attorney or agent of record.
Registration number 44,511.

☐ attorney or agent acting under 37 CFR 1.34.
Registration number if acting under 37 CFR 1.34. _____

/Edward M. Arons/
Signature

Edward M. Arons
Typed or printed name

845-362-6100
Telephone number

April 2, 2020
Date

NOTE: Signatures of all the inventors or assignees of record of the entire interest or their representative(s) are required.
Submit multiple forms if more than one signature is required, see below*.

☑ *Total of 1 forms are submitted.

This collection of information is required by 37 CFR 41.31. 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, 1.14 and 41.6. 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.

Attorney Docket No. WAC-10APP1
(309-010)

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of	:	Wangs Alliance Corporation
Application No.	:	15/871,044
Confirmation No.	:	9631
Examiner	:	Monica C. King
Filed	:	January 14, 2018
Group Art Unit	:	2844
For	:	METHODS AND APPARATUS FOR CONTROLLING FAN DEVICES

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

PETITION FOR EXTENSION OF TIME AND PRE-APPEAL BRIEF REQUEST FOR REVIEW

Dear Commissioner:

Petition for Extension of Time

Applicant hereby requests a three-month extension of time under 37 C.F.R. §1.136(a), and is concurrently paying $700.00 as payment of the fee set forth in 37 C.F.R. §1.17(a)(3), to extend to April 2, 2020, the period for the filing of a reply to the Office action mailed on October 2, 2020 (hereinafter, "the Office Action"), in the above-identified application. Applicant authorizes the Office to charge any outstanding fees that may be due in connection with this application, and to credit any overpayment of same, to Deposit Account No. 50-4650.

Pre-Appeal Brief Request For Review

Claims 1-20 are pending in this application.

The Examiner twice rejected claims 1-20 under 35 U.S.C. §102(a)(1) over Suro et al. U.S. Patent Publication No. 2013/0073431A1 (hereinafter "Suro"). March 26, 2019 Office Action at 2; October 2, 2019 Office Action at 2.

Claims 1 and 10, both independent, are set forth below, in relevant part.

Claim 1	Claim 10
1. A control method comprising: receiving, at a...device including...a radio frequency signal receiver and a WiFi interface, a first radio frequency (RF) control signal from a control unit, said fan device and said control unit being ***located at a customer premises***... (Emphasis added.)	10. A system comprising: a fan device mounted to a ceiling comprising: ... a radio frequency (RF) signal receiver configured to receive radio frequency (RF) control signals from a control unit, said fan device and said control unit being ***located at a customer premises***... (Emphasis added.)

Claims 2-9 depend from claim 1. Claims 11-19 depend from claim 10.

Application of Suro Para. 6 to Claim 1

The Examiner applied Suro para. 6, reproduced below, to the relevant part of claim 1, without articulating how the individual facts of Suro para. 6 apply to the individual features of the relevant part of claim 1. See March 26, 2019 Office Action at 2; and October 2, 2019 Office Action at 2.

> **[0006]** Some load control devices are operable to transmit and receive wireless signals, such as radio-frequency (RF) or infrared (IR) signals. Such wireless load control devices may be controlled in response to commands originating from a WiFi-enabled smart phone (such as, for example, an iPhone® smart phone). There is a need for a merchandise display that allows a potential customer to more personally interact with the products for sale, for example, by controlling a lighting load using a smart phone in wireless communication with a load control device.

WAC00000317
Petitioner Minka – EX1002
Page 317 of 420

Applicant submits that absent an explanation from the Examiner, it is unclear how the Examiner has applied the facts of para. 6 to the features of the relevant part of claim 1. In particular, it is unclear how the Examiner has applied the facts of para. 6 to the term ***located at a customer premises***.

Application of Suro Para. 26 to Claim 10

The Examiner applied Suro para. 26, reproduced below, to the relevant part of claim 10, without articulating how the individual facts of Suro para. 26 apply to the individual features of the relevant part of claim 1. See March 26, 2019 Office Action at 4; and October 2, 2019 Office Action at 5.

> **[0026]** The first wireless message transmitted by the smart phone **120** includes a product display address that may be unique to the specific product display **100**, and the second wireless message transmitted by the wireless dimming control module **142** includes a demo product address that is unique for each of the demo products in the display. According to an embodiment of the present invention, the smart phone **120** acquires the product display address from the data retrieved from the scannable tag **122**. Alternatively, the smart phone **120** could receive the product display address from the wireless router **140**, or could determine the product display address from the GPS location data of the store in which the product display **100**. According to an alternate embodiment, the product display address is not unique to each product display **100** and may be included with the downloaded product control application. A plurality of product displays located in retail stores in different locations all have the same default product display address, such that the smart phone **120** is instantly ready to control the dimmer switch **110** of the product display **100** upon downloading the product control application (i.e., without any additional programming or configuration steps).

Applicant submits that it is unclear how the Examiner has applied the facts of para. 26 to the features of the relevant part of claim 10. In particular, it is unclear how the Examiner has applied the facts of para. 26 to the term ***located at a customer premises***.

WAC00000318
Petitioner Minka – EX1002
Page 318 of 420

The Examiner's Mapping of the Different
Suro Paragraphs to the Different Claims

Both claims 1 and 10 recite ***located at a customer premises***, but the Examiner relied upon Suro para. 6 for claim 1, and Suro para. 26 for claim 10, without articulating why the different parts of Suro were relied upon for the different claims.

Applicant is Entitled to A Fair Opportunity to Reply

Applicant notes that the Examiner identified, consistent with the suggestion of MPEP 706.02(j)(A), the allegedly relevant teachings of Suro by paragraph number.

In view of gaps between the paragraphs and the claims, however, and in view of the Examiner's unexplained reliance upon different Suro paragraphs to cover recitations with common terms, applicant respectfully submits that applicant does not have sufficient information about the Examiner's rejection to respond to the rejection. See, e.g., MPEP 706.02(j) ("It is important for an examiner to properly communicate the basis for a rejection so that issues can be identified early and the applicant can be given fair opportunity to reply."); see also *Nidec Motor Corporation v. Zhonshan Broad Ocean Motor Co. Ltd.* et al., 851 F.3d 1270, 1274 (Fed. Cir. 2017) (admonishing the Patent Trials and Appeal Board for "improperly assum[ing] disclosure [by a reference] of a claim element," and distinguishing *Kennametal, Inc., v. Ingersoll Cutting Tool Co.*, 780 F.3d 1376 (Fed. Cir. 2015), which found anticipation because a skilled artisan reading the reference could "at once envisage" the anticipating element in the reference—but only in view of the Board's on-record factual findings of the teachings of the reference); see also MPEP 706.02(j) (stating that, because Examiners cannot normally be compelled to testify regarding their mental processes, "it is important that the written record clearly explain the rationale for decisions made during prosecution...").

For at least the foregoing reasons, applicant submits that the Office has not

WAC00000319
Petitioner Minka – EX1002
Page 319 of 420

provided applicant with a fair opportunity to reply, and respectfully requests that the rejection be withdrawn.

Respectfully submitted,

/Edward M. Arons/

Edward M. Arons
Reg. No. 44,511
Attorney for Applicant
WEISS & ARONS LLP
Customer No. 72,822
63 South Main Street
Spring Valley, New York 10977
Tel.: (845) 362-6100

Date: April 2, 2020

WAC00000320
Petitioner Minka – EX1002
Page 320 of 420

Electronic Patent Application Fee Transmittal				
Application Number:	15871044			
Filing Date:	14-Jan-2018			
Title of Invention:	METHODS AND APPARATUS FOR CONTROLLING FAN DEVICES			
First Named Inventor/Applicant Name:	Eric Stefankiewicz			
Filer:	Edward M. Arons/Chanie Ziskind			
Attorney Docket Number:	WAC-10APP1			
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:				
NOTICE OF APPEAL	2401	1	400	400
Post-Allowance-and-Post-Issuance:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Extension-of-Time:				
Extension - 3 months with $0 paid	2253	1	700	700
Miscellaneous:				
		Total in USD ($)		**1100**

Electronic Acknowledgement Receipt	
EFS ID:	39034502
Application Number:	15871044
International Application Number:	
Confirmation Number:	9631
Title of Invention:	METHODS AND APPARATUS FOR CONTROLLING FAN DEVICES
First Named Inventor/Applicant Name:	Eric Stefankiewicz
Customer Number:	72822
Filer:	Edward M. Arons/Chanie Ziskind
Filer Authorized By:	Edward M. Arons
Attorney Docket Number:	WAC-10APP1
Receipt Date:	02-APR-2020
Filing Date:	14-JAN-2018
Time Stamp:	12:53:16
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	CARD
Payment was successfully received in RAM	$1100
RAM confirmation Number	E202042C53501263
Deposit Account	504650
Authorized User	Chanie Ziskind
The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows: 37 CFR 1.16 (National application filing, search, and examination fees) 37 CFR 1.17 (Patent application and reexamination processing fees)	

37 CFR 1.19 (Document supply fees)

37 CFR 1.20 (Post Issuance fees)

37 CFR 1.21 (Miscellaneous fees and charges)

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Notice of Appeal Filed	WAC-10APP1_Notice_of_Appeal_as_Filed.pdf	192060 aaea8aeace7259b213037de41a586ae1521a75a7	no	2
Warnings:					
Information:					
2	Miscellaneous Incoming Letter	WAC-10APP1_Pre_Appeal_Review_Rquest_as_Filed.pdf	864469 00ff2cbade70e3916b641ef390cafe8c0fd1b46f	no	5
Warnings:					
Information:					
3	Fee Worksheet (SB06)	fee-info.pdf	32227 74c04c02a0d12aabf5d2789245761da967e83ed4	no	2
Warnings:					
Information:					
		Total Files Size (in bytes):	1088756		

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New Applications Under 35 U.S.C. 111

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

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

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

New International Application Filed with the USPTO as a Receiving Office

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

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www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
15/871,044	01/14/2018	Eric Stefankiewicz	WAC-10APP1	9631

72822 7590 11/06/2020

Weiss & Arons LLP
63 South Main Street
Spring Valley, NY 10977

EXAMINER	
KING, MONICA C	

ART UNIT	PAPER NUMBER
2844	

MAIL DATE	DELIVERY MODE
11/06/2020	PAPER

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 Panel Decision from Pre-Appeal Brief Review	Application No.	Applicant(s)	
	15/871,044	Stefankiewicz et al.	
	Examiner	Art Unit	AIA (FITF) Status
	MONICA C KING	2844	Yes

This is in response to the Pre-Appeal Brief Request for Review filed 02 April 2020 .

1. ☐ **Improper Request** - The Request is improper and a conference will not be held for the following reason(s):

☐ The Notice of Appeal has not been filed concurrent with the Pre-Appeal Brief Request.
☐ The request does not include reasons why a review is appropriate.
☐ A proposed amendment is included with the Pre-Appeal Brief request.
☐ Other: _____ .

The time period for filing a response continues to run from the receipt date of the Notice of Appeal or from the mail date of the last Office communication, if no Notice of Appeal has been received.

2. ☑ **Proceed to Board of Patent Appeals and Interferences** - A Pre-Appeal Brief conference has been held. The application remains under appeal because there is at least one actual issue for appeal. Applicant is required to submit an appeal brief in accordance with 37 CFR 41.37. The time period for filing an appeal brief will be reset to be one month from mailing this decision, or the balance of the two-month time period running from the receipt of the notice of appeal, whichever is greater. Further, the time period for filing of the appeal brief is extendible under 37 CFR 1.136 based upon the mail date of this decision or the receipt date of the notice of appeal, as applicable.

☑ The panel has determined the status of the claim(s) is as follows:
Claim(s) allowed: _____ .
Claim(s) objected to: _____ .
Claim(s) rejected: 1-20 .
Claim(s) withdrawn from consideration: _____ .

3. ☐ **Allowable application** - A conference has been held. The rejection is withdrawn and a Notice of Allowance will be mailed. Prosecution on the merits remains closed. No further action is required by applicant at this time.

4. ☐ **Reopen Prosecution** - A conference has been held. The rejection is withdrawn and a new Office action will be mailed. No further action is required by applicant at this time.

All participants:

(1) AMY JOHNSON .	(3) MONICA KING .
(2) DANIEL WU .	(4) _____ .

/AMY COHEN JOHNSON/ Supervisory Patent Examiner, Art Unit 2844	/Daniel Wu/ RQAS, OPQA	/MONICA C KING/ Primary Examiner, Art Unit 2844

PTO/SB/30 (11-17)
Approved for use through 11/30/2020. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Request for Continued Examination (RCE) Transmittal

Address to:
Mail Stop RCE
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Application Number	15871044
Filing Date	01-14-2018
First Named Inventor	Eric Stefankiewicz
Art Unit	2844
Examiner Name	Monica C. King
Attorney Docket Number	WAC-10APP1

This is a Request for Continued Examination (RCE) under 37 CFR 1.114 of the above-identified application.
Request for Continued Examination (RCE) practice under 37 CFR 1.114 does not apply to any utility or plant application filed prior to June 8, 1995, or to any design application. See Instruction Sheet for RCEs (not to be submitted to the USPTO) on page 2.

1. Submission required under 37 CFR 1.114 Note: If the RCE is proper, any previously filed unentered amendments and amendments enclosed with the RCE will be entered in the order in which they were filed unless applicant instructs otherwise. If applicant does not wish to have any previously filed unentered amendment(s) entered, applicant must request non-entry of such amendment(s).

   a. ☐ Previously submitted. If a final Office action is outstanding, any amendments filed after the final Office action may be considered as a submission even if this box is not checked.

      i. ☐ Consider the arguments in the Appeal Brief or Reply Brief previously filed on _____

      ii. ☐ Other _____

   b. ☑ Enclosed

      i. ☑ Amendment/Reply

      ii. ☐ Affidavit(s)/ Declaration(s)

      iii. ☐ Information Disclosure Statement (IDS)

      iv. ☐ Other _____

2. Miscellaneous

   a. ☐ Suspension of action on the above-identified application is requested under 37 CFR 1.103(c) for a period of _____ months. (Period of suspension shall not exceed 3 months; Fee under 37 CFR 1.17(i) required)

   b. ☐ Other _____

3. Fees The RCE fee under 37 CFR 1.17(e) is required by 37 CFR 1.114 when the RCE is filed.

   a. ☑ The Director is hereby authorized to charge the following fees, any underpayment of fees, or credit any overpayments, to Deposit Account No. 50-4650 .

      i. ☑ RCE fee required under 37 CFR 1.17(e)

      ii. ☐ Extension of time fee (37 CFR 1.136 and 1.17)

      iii. ☐ Other _____

   b. ☐ Check in the amount of $ _____ enclosed

   c. ☐ Payment by credit card (Form PTO-2038 enclosed)

   d. ☐ Payment by 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.

SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT REQUIRED

Signature	/Edward M. Arons/	Date	January 29, 2021
Name (Print/Type)	Edward M. Arons	Registration No.	44,511

CERTIFICATE OF MAILING OR TRANSMISSION

I hereby certify that this correspondence is being EFS-Web transmitted to the United States Patent and Trademark Office (USPTO), deposited with the United States Postal Service with sufficient postage as first class mail in an envelope addressed to: Mail Stop RCE, Commissioner for Patents, P. O. Box 1450, Alexandria, VA 22313-1450 or facsimile transmitted to the USPTO on the date shown below.

Signature			
Name (Print/Type)		Date	

This collection of information is required by 37 CFR 1.114. 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: Mail Stop RCE, 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.

PTO/SB/30 (07-09)
Approved for use through 11/30/2020. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Instruction Sheet for RCEs

(not to be submitted to the USPTO)

NOTES:

An RCE is not a new application, and filing an RCE will not result in an application being accorded a new filing date.

Filing Qualifications:
The application must be a utility or plant application filed on or after June 8, 1995. The application cannot be a provisional application, a utility or plant application filed before June 8, 1995, a design application, or a patent under reexamination. See 37 CFR 1.114(e).

Filing Requirements:
Prosecution in the application must be closed. Prosecution is closed if the application is under appeal, or the last Office action is a final action, a notice of allowance, or an action that otherwise closes prosecution in the application (e.g., an Office action under *Ex parte Quayle*). See 37 CFR 1.114(b).

A submission and a fee are required at the time the RCE is filed. If reply to an Office action under 35 U.S.C. 132 is outstanding (e.g., the application is under final rejection), the submission must meet the reply requirements of 37 CFR 1.111. If there is no outstanding Office action, the submission can be an information disclosure statement, an amendment, new arguments, or new evidence. See 37 CFR 1.114(c). The submission may be a previously filed amendment (e.g., an amendment after final rejection).

WARNINGS:

Request for Suspension of Action:
All RCE filing requirements must be met before suspension of action is granted. A request for a suspension of action under 37 CFR 1.103(c) does not satisfy the submission requirement and does not permit the filing of the required submission to be suspended.

Improper RCE will NOT toll Any Time Period:

Before Appeal - If the RCE is improper (e.g., prosecution in the application is not closed or the submission or fee has not been filed) and the application is not under appeal, the time period set forth in the last Office action will continue to run and the application will be abandoned after the statutory time period has expired if a reply to the Office action is not timely filed. No additional time will be given to correct the improper RCE.

Under Appeal - If the RCE is improper (e.g., the submission or the fee has not been filed) and the application is under appeal, the improper RCE is effective to withdraw the appeal. Withdrawal of the appeal results in the allowance or abandonment of the application depending on the status of the claims. If there are no allowed claims, the application is abandoned. If there is at least one allowed claim, the application will be passed to issue on the allowed claim(s). See MPEP 1215.01.

See MPEP 706.07(h) for further information on the RCE practice.

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.

Electronic Patent Application Fee Transmittal					
Application Number:	15871044				
Filing Date:	14-Jan-2018				
Title of Invention:	METHODS AND APPARATUS FOR CONTROLLING FAN DEVICES				
First Named Inventor/Applicant Name:	Eric Stefankiewicz				
Filer:	Edward M. Arons/Miri Rosengarten				
Attorney Docket Number:	WAC-10APP1				
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 - 2 months with $0 paid	2252	1	320	320
Miscellaneous:				
RCE- 1ST REQUEST	2801	1	680	680
		Total in USD ($)		**1000**

Electronic Acknowledgement Receipt	
EFS ID:	41782547
Application Number:	15871044
International Application Number:	
Confirmation Number:	9631
Title of Invention:	METHODS AND APPARATUS FOR CONTROLLING FAN DEVICES
First Named Inventor/Applicant Name:	Eric Stefankiewicz
Customer Number:	72822
Filer:	Edward M. Arons/Miri Rosengarten
Filer Authorized By:	Edward M. Arons
Attorney Docket Number:	WAC-10APP1
Receipt Date:	29-JAN-2021
Filing Date:	14-JAN-2018
Time Stamp:	11:52:40
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	CARD
Payment was successfully received in RAM	$1000
RAM confirmation Number	E20211SB53189028
Deposit Account	504650
Authorized User	Miri Rosengarten
The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows: 37 CFR 1.16 (National application filing, search, and examination fees) 37 CFR 1.17 (Patent application and reexamination processing fees)	

37 CFR 1.19 (Document supply fees)

37 CFR 1.20 (Post Issuance fees)

37 CFR 1.21 (Miscellaneous fees and charges)

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Request for Continued Examination (RCE)	WAC-10APP1_RCE_as_filed.pdf	218587 6b3b5f1acebe6e7d64b35d949688aa3e8955e00b	no	3
Warnings:					
This is not a USPTO supplied RCE SB30 form.					
Information:					
2	Preliminary Amendment	WAC-10APP1_Amendments_and_Remarks_for_RCE_as_filed.pdf	549863 f041ef16f22f8b5f1904456e51266338c76264e5	no	12
Warnings:					
Information:					
3	Fee Worksheet (SB06)	fee-info.pdf	32525 7267505cd6e1e92e559f05a6c3fd253ffe852928	no	2
Warnings:					
Information:					
		Total Files Size (in bytes):	800975		

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

New Applications Under 35 U.S.C. 111

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

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

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

New International Application Filed with the USPTO as a Receiving Office

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

Amendments to the claims

A complete set of the claims is included below, as well as the current status of each claim. This listing of claims will replace all prior versions and listings of claims in the application.

Listing of Claims

1-9 (Cancelled).

10 (Currently amended). A system comprising:

~~a fan device mounted to a ceiling comprising:~~

a fan motor;

a fan motor control circuit;

a processor in electrical communication with the fan motor control circuit;

a radio frequency interface ~~(RF) signal receiver~~ configured to receive, at a first frequency, a signal ~~radio frequency (RF) control signals from a control unit, said fan device and said control unit being located at a customer premises~~; and

a WiFi interface configured to communicate at a second frequency that is different from the first frequency;

wherein:

the fan motor control circuit is configured to cause the fan motor to perform an operation in response to the signal; and

the processor is configured to transmit, via the WiFi interface, to a server, an indication corresponding to the operation

~~a fan motor control circuit configured to control the fan motor in response to a received first radio frequency control signal, said first radio frequency control signal communicating a first command; and~~

~~a first processor configured to communicate to a server, located outside the customer premises, via the WiFi interface, information indicating an operation implemented in response to the first command.~~

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11 (Currently amended). The system of claim 10~~, wherein said fan device further comprises~~ further comprising, when the signal is a first signal, the operation is a first operation, and the indication is a first indication:

a light; and

a light control circuit configured to cause the light to perform a second operation in response to a second signal received by the radio frequency interface ~~control the light in response to a received second radio frequency control signal, said second radio frequency control signal communicating a second command~~; ~~and~~

wherein ~~said first~~ the processor is further configured to ~~communicate to said~~ transmit to the server, via the WiFi interface, ~~information indicating an operation implemented in response to said first command~~ a second indication corresponding to the second operation.

12 (Currently amended). The system of claim 11[[,]] wherein:

~~said first RF control signal~~ the first indication corresponds to an operation selected from the group consisting of: fan on, fan off, fan power state change, fan speed-up, fan speed-down, and fan direction-change ~~communicates one of: a fan on command, a fan off command, a fan power state change command, a fan speed up command, a fan speed down command, a fan direction change command~~; and

~~wherein said second RF control signal~~ the second indication corresponds to an operation selected from the group consisting of: light on, light off, light power state change, light increase, and light decrease ~~communicates one of: a light on command, a light off command, a light power state change command, a light increase command, a light decrease command~~.

13 (Currently amended). The system of claim 10 ~~11, wherein said first RF control signal and said second RF control signal are sent using RF frequencies which are not used for WiFi signals~~ further comprising a housing;

wherein the fan motor, the fan motor control circuit, the processor, the radio frequency interface, and the WiFi interface are disposed in the housing.

14 (Currently amended). The system of claim [[13,]] 10 further comprising[[:]] a WiFi router ~~located at the customer premises, said WiFi router~~ comprising:

a receiver configured to receive a ~~first~~ WiFi control signal from a wireless terminal ~~located at the customer premises, said first,~~ the WiFi control signal communicating a ~~third~~ command ~~used to control~~ for controlling the fan ~~device~~ motor; and

a transmitter configured to communicate, via a WiFi signal, the ~~third~~ command to the ~~fan device~~ WiFi interface; [[and]]

wherein ~~said first~~ the processor is further configured to cause ~~control at least one of~~ the fan motor control circuit ~~or the light control circuit~~ to implement the ~~third~~ command.

15 (Currently amended). The system of claim 14[[,]] ~~further comprising:~~ wherein ~~said first~~ the processor is further configured to ~~control~~ cause the WiFi interface ~~in said fan device~~ to send information indicating [[the]] an operation implemented in response to the ~~third~~ command.

16 (Currently amended). The system of claim 15[[,]] further comprising[[:]], when the WiFi interface is a first Wifi interface, the [[said]] wireless terminal[[,]]; wherein:

[[said]] the wireless terminal includes:

a second WiFi interface; and

a fan device control application configured to generate ~~said third~~ the command in response to user input; and

the wireless terminal, the WiFi router, and the processor are configured for operation in a wireless local network such that ~~wherein the third command is communicated from~~ the wireless terminal communicates the command to the ~~fan device~~ processor via the WiFi router ~~located in the customer premises~~ without ~~said third~~ the command traversing the Internet ~~a network outside the customer premises~~.

17 (Currently amended). The system of claim 16[[,]] further comprising[[:]], when the processor is a first processor and the command is a first command, the server; ~~said server,~~ wherein [[said]] the server includes a second processor configured to cause the server to:

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~~operating the server to~~ receive a ~~fourth~~ second command directed to the first ~~fan device~~ processor; and

~~operating the server to~~ communicate the ~~fourth~~ second command via the Internet and [[said]] the WiFi router to the ~~fan device~~ first processor.

18 (Currently amended). The system of claim 17[[,]] wherein [[said]] the second processor is further configured to~~:~~ ~~operating~~ cause the server to update information about [[the]] a state of ~~one or more devices at the first~~ a device that is located in the wireless local network ~~customer premises~~ based on the ~~fourth~~ second command ~~communicated to the fan device~~.

19 (Currently amended). The system of claim 18[[,]] wherein ~~said updating of the information about the state of one or more devices at the first customer premises is performed~~ the second processor is further configured to cause the server to update the information in response to transmitting the ~~fourth~~ second command from the server.

20 (Currently amended). The system of claim [[16,]] 17 wherein [[said]] the second processor is further configured to cause the server to:

~~operating the server to~~ generate a proposed normal device control schedule for a device, comprising the fan motor, at the ~~first customer premises~~ wireless local network from stored information indicating ~~the state of one or more~~ states of the device ~~devices at the first customer premises~~ over a period of time;

~~operate the server to~~ send the ~~proposed device control~~ schedule to [[a]] the device ~~corresponding to the first customer premise~~;

~~operate the server to~~ receive a message indicating approval of the ~~proposed normal device control~~ schedule ~~for the first customer premises or a revised schedule for the first customer premises~~; and

~~operate the server to~~ store, as an approved normal control schedule for the ~~first customer premises~~ wireless local network, the approved ~~proposed normal device control~~ schedule ~~or the revised schedule~~.

21 (New). The system of claim 20 wherein the second processor is further configured to cause the server to:

receive a revised schedule for the wireless local network; and

store, as the approved normal control schedule for the wireless local network, the revised schedule.

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Petitioner Minka – EX1002
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REMARKS

Upon entry of the foregoing amendments, claims 10-21 will be pending in this application.

I. Procedural Background

In the most recent Office Action, issued on October 2, 2019, the Examiner rejected claims 1-20 under 35 U.S.C. § 102 as allegedly being anticipated by Suro, et al. U.S. Patent Application Publication No. 2013/0073431 (hereinafter "Suro").

Applicant filed a Pre-Appeal Brief Request for Review, along with a Notice of Appeal, on April 2, 2020. A Notice of Panel Decision was mailed on November 6, 2020, communicating a panel decision to allow the application to proceed to Appeal.

Applicant is submitting a Request for Continued Examination concurrently with these Amendments and Remarks. Applicant submits that, at least as amended, the pending claims are patentable over Suro.

II. Claim Amendments

A clean copy of the amended claims is provided in the Attachment.

Claims 1-9

Applicant has cancelled claims 1-9.

Independent Claim 10

Applicant has amended independent claim 10 to include:

a radio frequency interface configured to receive, at a first frequency, a signal; and

a WiFi interface configured to communicate at a second frequency that is different from the first frequency.

Suro does not disclose:

a radio frequency interface configured to receive, at a first frequency, a signal; and

a WiFi interface configured to communicate at a second frequency that is different from the first frequency.

Applicant notes that claim 10 includes subject matter from the previous version of claim 13, to which the Examiner applied Suro para. 6. Office Action, pg. 6. Suro, however, whether in

para. 6 or elsewhere, does not disclose the claimed ***second frequency that is different from*** the claimed ***first frequency***.

For at least this reason, Applicant submits that independent claim 10, and the claims that depend therefrom, are patentable over Suro.

Other Amendments

Applicant has amended the claims to more particularly point out and distinctly claim subject matter that the inventors regard as inventive.

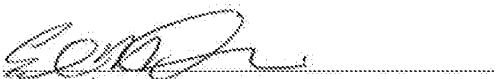
Applicant has added new claim 21.

Absence of a reply to a specific rejection, issue or comment does not signify applicant's agreement. Absence of an argument does not signify waiver of the argument. Further, amendment or cancellation of any claim is not a concession of unpatentability of the claim prior to the amendment or cancellation.

III. Conclusion

Applicant respectfully awaits a prompt and favorable response to this submission. The Director is hereby authorized to charge any additional fees that may be due in connection with this paper, or to refund any overpayments, to Deposit Account No. 50-4650.

Respectfully submitted,



Edward M. Arons
Reg. No. 44,511
Attorney for Applicant
WEISS & ARONS LLP
Customer No. 72,822
63 South Main Street
Spring Valley, New York 10977
Tel.: (845) 362-6100

Date: January 29, 2021

Attachment

Attachment

1-9 (Cancelled).

10 (Currently amended). A system comprising:

a fan motor;

a fan motor control circuit;

a processor in electrical communication with the fan motor control circuit;

a radio frequency interface configured to receive, at a first frequency, a signal; and

a WiFi interface configured to communicate at a second frequency that is different from the first frequency;

wherein:

the fan motor control circuit is configured to cause the fan motor to perform an operation in response to the signal; and

the processor is configured to transmit, via the WiFi interface, to a server, an indication corresponding to the operation.

11 (Currently amended). The system of claim 10 further comprising, when the signal is a first signal, the operation is a first operation, and the indication is a first indication:

a light; and

a light control circuit configured to cause the light to perform a second operation in response to a second signal received by the radio frequency interface;

wherein the processor is further configured to transmit to the server, via the WiFi interface, a second indication corresponding to the second operation.

12 (Currently amended). The system of claim 11 wherein:

the first indication corresponds to an operation selected from the group consisting of: fan on, fan off, fan power state change, fan speed-up, fan speed-down, and fan direction-change; and

the second indication corresponds to an operation selected from the group consisting of: light on, light off, light power state change, light increase, and light decrease.

13 (Currently amended). The system of claim 10 further comprising a housing;

wherein the fan motor, the fan motor control circuit, the processor, the radio frequency interface, and the WiFi interface are disposed in the housing.

14 (Currently amended). The system of claim 10 further comprising a WiFi router comprising:

a receiver configured to receive a WiFi control signal from a wireless terminal, the WiFi control signal communicating a command for controlling the fan motor; and

a transmitter configured to communicate, via a WiFi signal, the command to the WiFi interface;

wherein the processor is further configured to cause the fan motor control circuit to implement the command.

15 (Currently amended). The system of claim 14 wherein the processor is further configured to cause the WiFi interface to send information indicating an operation implemented in response to the command.

16 (Currently amended). The system of claim 15 further comprising, when the WiFi interface is a first Wifi interface, the wireless terminal;

wherein:

the wireless terminal includes:

a second WiFi interface; and

a fan device control application configured to generate the command in response to user input; and

the wireless terminal, the WiFi router, and the processor are configured for operation in a wireless local network such that the wireless terminal communicates the command to the processor via the WiFi router without the command traversing the Internet.

17 (Currently amended). The system of claim 16 further comprising, when the processor is a first processor and the command is a first command, the server;

wherein the server includes a second processor configured to cause the server to:

receive a second command directed to the first processor; and

communicate the second command via the Internet and the WiFi router to the first processor.

18 (Currently amended). The system of claim 17 wherein the second processor is further configured to cause the server to update information about a state of a device that is in the wireless local network based on the second command.

19 (Currently amended). The system of claim 18 wherein the second processor is further configured to cause the server to update the information in response to transmitting the second command from the server.

20 (Currently amended). The system of claim 17 wherein the second processor is further configured to cause the server to:

generate a proposed normal device control schedule for a device, comprising the fan motor, at the wireless local network from stored information indicating states of the device over a period of time;

send the schedule to the device;

receive a message indicating approval of the schedule; and

store, as an approved normal control schedule, the approved schedule.

21 (New). The system of claim 20 wherein the second processor is further configured to cause the server to:

receive a revised schedule for the wireless local network; and

store, as the approved normal control schedule, the revised schedule.

Attorney Docket No. WAC-10APP1
(309-010)

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of	:	Wangs Alliance Corporation
Application No.	:	15/871,044
Confirmation No.	:	9631
Examiner	:	Monica C. King
Filed	:	January 14, 2018
Group Art Unit	:	2844
For	:	METHODS AND APPARATUS FOR CONTROLLING FAN DEVICES

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

PETITION FOR EXTENSION OF TIME, AND AMENDMENTS AND REMARKS

Dear Commissioner:

Petition for Extension of Time

Applicant hereby requests a two-month extension of time under 37 C.F.R. §1.136(a), and is concurrently paying $320.00 as payment of the fee set forth in 37 C.F.R. §1.17(a)(2), to extend to February 6, 2020, the period set forth in the Pre-Appeal Brief Conference decision mailed on November 6, 2020, in the above-identified application. Applicant authorizes the Office to charge any outstanding fees that may be due in connection with this application, and to credit any overpayment of same, to Deposit Account No. 50-4650.

Amendments and Remarks

Amendments to the claims begin on page 3.

Remarks begin on page 8.

Attachment: Clean copy of the amended claims.

WAC00000345
Petitioner Minka – EX1002
Page 345 of 420

PTO/SB/06 (09-11)
Approved for use through 1/31/2014. OMB 0651-0032
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

PATENT APPLICATION FEE DETERMINATION RECORD Substitute for Form PTO-875	Application or Docket Number 15/871,044	Filing Date 01/14/2018	☐ To be Mailed

ENTITY: ☑ LARGE ☐ SMALL ☐ MICRO

APPLICATION AS FILED - PART I

FOR	(Column 1) NUMBER FILED	(Column 2) 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 $80 =	
INDEPENDENT CLAIMS (37 CFR 1.16(h))	minus 3 =	*		x $420 =	
☐ 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))					
* If the difference in column 1 is less than zero, enter "0" in column 2.				TOTAL	

APPLICATION AS AMENDED - PART II

		(Column 1)		(Column 2)	(Column 3)			
AMENDMENT	01/29/2021	CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA		RATE ($)	ADDITIONAL FEE ($)
	Total (37 CFR 1.16(i))	* 12	Minus	** 20	= 0		x $100 =	0
	Independent (37 CFR 1.16(h))	* 1	Minus	*** 3	= 0		x $480 =	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		RATE ($)	ADDITIONAL FEE ($)
	Total (37 CFR 1.16(i))	*	Minus	**	=		x $0 =	
	Independent (37 CFR 1.16(h))	*	Minus	***	=		x $0 =	
	☐ 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.	LIE
** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20".	/AMANDA N FORD/
*** 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

72822 7590 03/24/2021

Weiss & Arons LLP
63 South Main Street
Spring Valley, NY 10977

EXAMINER	
KING, MONICA C	
ART UNIT	PAPER NUMBER
2844	

DATE MAILED: 03/24/2021

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
15/871,044	01/14/2018	Eric Stefankiewicz	WAC-10APP1	9631

TITLE OF INVENTION: METHODS AND APPARATUS FOR CONTROLLING FAN DEVICES

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	SMALL	$600	$0.00	$0.00	$600	06/24/2021

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.

PTOL-85 (Rev. 02/11)

PART B - FEE(S) TRANSMITTAL

Complete and send this form, together with applicable fee(s), by mail or fax, or via EFS-Web.

By mail, send to: Mail Stop ISSUE FEE
Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450

By fax, send to: (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)

72822 7590 03/24/2021

Weiss & Arons LLP
63 South Main Street
Spring Valley, NY 10977

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 transmitted to the USPTO via EFS-Web or by facsimile to (571) 273-2885, on the date below.

(Typed or printed name)
(Signature)
(Date)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
15/871,044	01/14/2018	Eric Stefankiewicz	WAC-10APP1	9631

TITLE OF INVENTION: METHODS AND APPARATUS FOR CONTROLLING FAN DEVICES

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	SMALL	$600	$0.00	$0.00	$600	06/24/2021

EXAMINER	ART UNIT	CLASS-SUBCLASS
KING, MONICA C	2844	315-158000

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 03-09 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,

(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.

1_____

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 must have been previously recorded, or filed for recordation, as set forth in 37 CFR 3.11 and 37 CFR 3.81(a). 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. Fees submitted: ❑Issue Fee ❑Publication Fee (if required) ❑Advance Order - # of Copies _____

4b. Method of Payment: *(Please first reapply any previously paid fee shown above)*

❑ Electronic Payment via EFS-Web ❑ Enclosed check ❑ Non-electronic payment by credit card (Attach form PTO-2038)

❑ The Director is hereby authorized to charge the required fee(s), any deficiency, or credit any overpayment to Deposit Account No. _____

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. _____

PTOL-85 Part B (08-18) Approved for use through 01/31/2020 OMB 0651-0033 U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

WAC00000348
Petitioner Minka – EX1002
Page 348 of 420

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
15/871,044	01/14/2018	Eric Stefankiewicz	WAC-10APP1	9631

72822 7590 03/24/2021

Weiss & Arons LLP
63 South Main Street
Spring Valley, NY 10977

EXAMINER	
KING, MONICA C	
ART UNIT	**PAPER NUMBER**
2844	

DATE MAILED: 03/24/2021

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.

PTOL-85 (Rev. 02/11)

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 30 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. 15/871,044	Applicant(s) Stefankiewicz et al.	
	Examiner MONICA C KING	Art Unit 2844	AIA (FITF) 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 1/29/2021.
   ☐ 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 10-21 . 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 _____.

/MONICA C KING/
Primary Examiner, Art Unit 2844

Issue Classification	Application/Control No.	Applicant(s)/Patent Under Reexamination
	15/871,044	Stefankiewicz et al.
	Examiner	**Art Unit**
	MONICA C KING	2844

CPC							
Symbol						**Type**	**Version**
F04D	/	27	/	004		F	2013-01-01
G08C	/	17	/	02		I	2013-01-01
F04D	/	25	/	088		I	2013-01-01
F04D	/	25	/	06		I	2013-01-01
G05B	/	15	/	02		I	2013-01-01
F04D	/	27	/	001		I	2013-01-01
F04D	/	13	/	0693		I	2013-01-01
F04D	/	19	/	005		I	2013-01-01
F04D	/	27	/	008		I	2013-01-01
G08C	/	2201	/	10		A	2013-01-01

CPC Combination Sets								
Symbol						**Type**	**Set**	**Ranking**	**Version**
	/		/						

NONE		Total Claims Allowed:	
(Assistant Examiner)	(Date)	12	
/MONICA C KING/ Primary Examiner, Art Unit 2844	13 March 2021	O.G. Print Claim(s)	O.G. Print Figure
(Primary Examiner)	(Date)	10	8

U.S. Patent and Trademark Office — Part of Paper No.: 20210313

WAC00000352
Petitioner Minka – EX1002
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Issue Classification	Application/Control No.	Applicant(s)/Patent Under Reexamination
	15/871,044	Stefankiewicz et al.
	Examiner	**Art Unit**
	MONICA C KING	2844

INTERNATIONAL CLASSIFICATION				
CLAIMED				
F04D27/00	/	27	/	00
G08C17/02	/	17	/	02
F04D25/08	/	25	/	08
F04D25/06	/	25	/	06
G05B15/02	/	15	/	02
F04D13/06	/	13	/	06
F04D19/00	/	19	/	00

NON-CLAIMED				
	/		/	

US ORIGINAL CLASSIFICATION	
CLASS	**SUBCLASS**

CROSS REFERENCES(S)						
CLASS	**SUBCLASS (ONE SUBCLASS PER BLOCK)**					

NONE		**Total Claims Allowed:**	
(Assistant Examiner)	(Date)	12	
/MONICA C KING/ Primary Examiner, Art Unit 2844	13 March 2021	O.G. Print Claim(s)	O.G. Print Figure
(Primary Examiner)	(Date)	10	8

U.S. Patent and Trademark Office — Part of Paper No.: 20210313

WAC00000353
Petitioner Minka – EX1002
Page 353 of 420

Issue Classification	Application/Control No.	Applicant(s)/Patent Under Reexamination
	15/871,044	Stefankiewicz et al.
	Examiner	**Art Unit**
	MONICA C KING	2844

☑ Claims renumbered in the same order as presented by applicant ☐ CPA ☐ T.D. ☐ R.1.47

CLAIMS

Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original

NONE		**Total Claims Allowed:**	
(Assistant Examiner)	(Date)	12	
/MONICA C KING/ Primary Examiner, Art Unit 2844	13 March 2021	O.G. Print Claim(s)	O.G. Print Figure
(Primary Examiner)	(Date)	10	8

U.S. Patent and Trademark Office — Part of Paper No.: 20210313

WAC00000354
Petitioner Minka – EX1002
Page 354 of 420

Search Notes	Application/Control No.	Applicant(s)/Patent Under Reexamination
	15/871,044	Stefankiewicz et al.
	Examiner	Art Unit
	MONICA C KING	2844

CPC - Searched*		
Symbol	**Date**	**Examiner**
H05B37/0272 OR H05B37/0227 OR H05B33/0872 OR H05B37/0218 OR H05B33/0854 OR H05B33/0863 OR H05B33/0851 OR H05B33/0803 OR H05B33/0869 OR H05B37/02 OR H05B37/0281 OR H05B33/0815 OR H05B33/0845 OR H05B33/0857 OR H05B33/086 OR H05B37/0209 OR H05B39/086 OR H05B39/088	03/22/2019	MK
H05B37/0272 OR H05B37/0227 OR H05B33/0872 OR H05B37/0218 OR H05B33/0854 OR H05B33/0863 OR H05B33/0851 OR H05B33/0803 OR H05B33/0869 OR H05B37/02 OR H05B37/0281 OR H05B33/0815 OR H05B33/0845 OR H05B33/0857 OR H05B33/086 OR H05B37/0209 OR H05B39/086 OR H05B39/088	03/10/2021	MK

CPC Combination Sets - Searched*		
Symbol	**Date**	**Examiner**

US Classification - Searched*			
Class	**Subclass**	**Date**	**Examiner**

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

/MONICA C KING/ Primary Examiner, Art Unit 2844	

Search Notes	Application/Control No.	Applicant(s)/Patent Under Reexamination
	15/871,044	Stefankiewicz et al.
	Examiner	Art Unit
	MONICA C KING	2844

Search Notes		
Search Notes	**Date**	**Examiner**
CPC search, limited txt search, assignee search, inventor search	03/22/2019	MK
NPL search, google patent search	03/22/2019	MK
Updated search	09/25/2019	MK
IDS review	09/25/2019	MK
Updated search	03/10/2021	MK

Interference Search			
US Class/CPC Symbol	**US Subclass/CPC Group**	**Date**	**Examiner**
	H05B37/0272 OR H05B37/0227 OR H05B33/0872 OR H05B37/0218 OR H05B33/0854 OR H05B33/0863 OR H05B33/0851 OR H05B33/0803 OR H05B33/0869 OR H05B37/02 OR H05B37/0281 OR H05B33/0815 OR H05B33/0845 OR H05B33/0857 OR H05B33/086 OR H05B37/0209 OR H05B39/086 OR H05B39/088	03/22/2019	MK
	H05B37/0272 OR H05B37/0227 OR H05B33/0872 OR H05B37/0218 OR H05B33/0854 OR H05B33/0863 OR H05B33/0851 OR H05B33/0803 OR H05B33/0869 OR H05B37/02 OR H05B37/0281 OR H05B33/0815 OR H05B33/0845 OR H05B33/0857 OR H05B33/086 OR H05B37/0209 OR H05B39/086 OR H05B39/088	03/10/2021	MK

/MONICA C KING/ Primary Examiner, Art Unit 2844	

WAC00000356
Petitioner Minka – EX1002
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EAST Search History

EAST Search History (Prior Art)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
L1	200	(fan near2 motor) and wifi and rf and control and ceiling and lighting	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2021/03/13 22:33
L2	1,353	rf and WIFI AND LIGHT$3 AND FAN AND MOTOR AND CONTROL AND COMMAND AND SERVER and processor and @ad<"20180112"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2021/03/13 22:34
L3	261	(fan near2 motor) and wifi and rf and control and ceiling	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2021/03/13 22:34
L4	234	(fan near2 motor) and wifi and rf and control and ceiling and lighting	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2021/03/13 22:34
L5	0	(fan near2 motor) and wifi and rf and control and ceiling and lighting AND ((H05B37/0272 OR H05B37/0227 OR H05B33/0872 OR H05B37/0218 OR H05B33/0854 OR H05B33/0863 OR H05B33/0851 OR H05B33/0803 OR H05B33/0869 OR H05B37/02 OR H05B37/0281 OR H05B33/0815 OR H05B33/0845 OR H05B33/0857 OR H05B33/086 OR H05B37/0209 OR H05B39/086 OR H05B39/088).CPC.)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2021/03/13 22:34
L6	0	(fan near2 motor) and wifi and rf and control and ceiling AND ((H05B37/0272 OR H05B37/0227 OR H05B33/0872 OR H05B37/0218 OR H05B33/0854 OR H05B33/0863 OR H05B33/0851 OR	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO;	OR	ON	2021/03/13 22:34

		H05B33/0803 OR H05B33/0869 OR H05B37/02 OR H05B37/0281 OR H05B33/0815 OR H05B33/0845 OR H05B33/0857 OR H05B33/086 OR H05B37/0209 OR H05B39/086 OR H05B39/088).CPC.)	DERWENT; IBM_TDB			
L7	6	(fan with motor) and wifi and rf and control and ceiling AND ((H05B37/0272 OR H05B37/0227 OR H05B33/0872 OR H05B37/0218 OR H05B33/0854 OR H05B33/0863 OR H05B33/0851 OR H05B33/0803 OR H05B33/0869 OR H05B37/02 OR H05B37/0281 OR H05B33/0815 OR H05B33/0845 OR H05B33/0857 OR H05B33/086 OR H05B37/0209 OR H05B39/086 OR H05B39/088).CPC.)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2021/03/13 22:34
L8	6	(fan with motor) and wifi and rf and control and ceiling AND ((H05B37/0272 OR H05B37/0227 OR H05B33/0872 OR H05B37/0218 OR H05B33/0854 OR H05B33/0863 OR H05B33/0851 OR H05B33/0803 OR H05B33/0869 OR H05B37/02 OR H05B37/0281 OR H05B33/0815 OR H05B33/0845 OR H05B33/0857 OR H05B33/086 OR H05B37/0209 OR H05B39/086 OR H05B39/088).CPC.) and frequency	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2021/03/13 22:35
L9	6	(fan with motor) and wifi and rf and control and ceiling AND ((H05B37/0272 OR H05B37/0227 OR H05B33/0872 OR H05B37/0218 OR H05B33/0854 OR H05B33/0863 OR H05B33/0851 OR H05B33/0803 OR H05B33/0869 OR H05B37/02 OR H05B37/0281 OR H05B33/0815 OR H05B33/0845 OR H05B33/0857 OR H05B33/086 OR H05B37/0209 OR H05B39/086 OR H05B39/088).CPC.) and ((signal or frequency) with wifi)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2021/03/13 22:36
L10	0	(fan with motor) and wifi and rf and control and ceiling AND ((H05B37/0272 OR H05B37/0227 OR H05B33/0872 OR H05B37/0218 OR H05B33/0854 OR H05B33/0863 OR H05B33/0851 OR H05B33/0803 OR H05B33/0869 OR H05B37/02 OR H05B37/0281 OR H05B33/0815 OR H05B33/0845 OR H05B33/0857 OR H05B33/086 OR H05B37/0209 OR H05B39/086 OR H05B39/088).CPC.) and ((signal or	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2021/03/13 22:38

		frequency) with wifi) and (fan with light)				
L11	0	(fan with motor) and wifi and rf and control and ceiling AND ((H05B37/0272 OR H05B37/0227 OR H05B33/0872 OR H05B37/0218 OR H05B33/0854 OR H05B33/0863 OR H05B33/0851 OR H05B33/0803 OR H05B33/0869 OR H05B37/02 OR H05B37/0281 OR H05B33/0815 OR H05B33/0845 OR H05B33/0857 OR H05B33/086 OR H05B37/0209 OR H05B39/086 OR H05B39/088).CPC.) and ((signal or frequency) with wifi) and (fan same light)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2021/03/13 22:38
S1	49,446	rf AND WIFI AND LIGHT$3	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2019/03/23 03:56
S2	2,055	rf AND WIFI AND LIGHT$3 AND FAN AND MOTOR	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2019/03/23 03:57
S3	2,051	rf AND WIFI AND LIGHT$3 AND FAN AND MOTOR AND CONTROL	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2019/03/23 03:57
S4	1,515	rf AND WIFI AND LIGHT$3 AND FAN AND MOTOR AND CONTROL AND COMMAND	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2019/03/23 03:58
S5	1,262	rf AND WIFI AND LIGHT$3 AND FAN AND MOTOR AND CONTROL AND COMMAND AND SERVER	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2019/03/23 03:58

S6	1,247	rf AND WIFI AND LIGHT$3 AND FAN AND MOTOR AND CONTROL AND COMMAND AND SERVER and processor	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2019/03/23 16:42
S7	1,247	rf AND WIFI AND LIGHT$3 AND FAN AND MOTOR AND CONTROL AND COMMAND AND SERVER and processor	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2019/03/23 16:48
S8	1,144	rf AND WIFI AND LIGHT$3 AND FAN AND MOTOR AND CONTROL AND COMMAND AND SERVER and processor and @ad<"20180112"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2019/03/23 16:48
S9	1,141	rf AND WIFI AND LIGHT$3 AND FAN AND MOTOR AND CONTROL AND COMMAND AND SERVER and processor and @ad<"20180112" and interface	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2019/03/23 18:53
S10	1,005	rf AND WIFI AND LIGHT$3 AND FAN AND MOTOR AND CONTROL AND COMMAND AND SERVER and processor and @ad<"20180112" and interface and radio	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2019/03/23 18:54
S11	81	S10 AND ((H05B37/0272 OR H05B37/0227 OR H05B33/0872 OR H05B37/0218 OR H05B33/0854 OR H05B33/0863 OR H05B33/0851 OR H05B33/0803 OR H05B33/0869 OR H05B37/02 OR H05B37/0281 OR H05B33/0815 OR H05B33/0845 OR H05B33/0857 OR H05B33/086 OR H05B37/0209 OR H05B39/086 OR H05B39/088).CPC.)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2019/03/23 18:55
S12	125	(fan near2 motor) and wifi and rf and control and ceiling	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO;	OR	OFF	2019/09/28 14:57

			DERWENT; IBM_TDB			
S13	5	"20130073431"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2019/09/28 14:57
S14	21	("20070110192" | "20140177900" | "20130073431" | "20140101082" | "20150351203" | "20190219060" | "20140270714" | "9589461" | "20190220071").PN.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2019/09/28 16:29

EAST Search History (Interference)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
L12	0	(fan with motor) and wifi and rf and control and ceiling AND ((H05B37/0272 OR H05B37/0227 OR H05B33/0872 OR H05B37/0218 OR H05B33/0854 OR H05B33/0863 OR H05B33/0851 OR H05B33/0803 OR H05B33/0869 OR H05B37/02 OR H05B37/0281 OR H05B33/0815 OR H05B33/0845 OR H05B33/0857 OR H05B33/086 OR H05B37/0209 OR H05B39/086 OR H05B39/088).CPC.) and ((signal or frequency) with wifi) and (fan same light)	USPAT	OR	ON	2021/03/13 22:38
L13	3	(fan with motor) and wifi and rf and control and ceiling AND ((H05B37/0272 OR H05B37/0227 OR H05B33/0872 OR H05B37/0218 OR H05B33/0854 OR H05B33/0863 OR H05B33/0851 OR H05B33/0803 OR H05B33/0869 OR H05B37/02 OR H05B37/0281 OR H05B33/0815 OR H05B33/0845 OR H05B33/0857 OR H05B33/086 OR H05B37/0209 OR H05B39/086 OR H05B39/088).CPC.) and ((signal or frequency) with wifi)	USPAT	OR	ON	2021/03/13 22:38
L14	3	rf AND WIFI AND LIGHT$3 AND FAN AND MOTOR AND CONTROL AND COMMAND AND SERVER and processor and @ad<"20180112" and interface and radio AND ((H05B37/0272 OR H05B37/0227 OR H05B33/0872 OR H05B37/0218 OR H05B33/0854 OR H05B33/0863 OR H05B33/0851 OR H05B33/0803 OR H05B33/0869 OR H05B37/02 OR H05B37/0281 OR H05B33/0815 OR H05B33/0845 OR H05B33/0857	USPAT	OR	OFF	2021/03/13 22:38

		OR H05B33/086 OR H05B37/0209 OR H05B39/086 OR H05B39/088).CPC.)				
L15	3	rf AND WIFI AND LIGHT$3 AND FAN AND MOTOR AND CONTROL AND COMMAND AND SERVER and processor and @ad<"20180112" and interface and radio AND ((H05B37/0272 OR H05B37/0227 OR H05B33/0872 OR H05B37/0218 OR H05B33/0854 OR H05B33/0863 OR H05B33/0851 OR H05B33/0803 OR H05B33/0869 OR H05B37/02 OR H05B37/0281 OR H05B33/0815 OR H05B33/0845 OR H05B33/0857 OR H05B33/086 OR H05B37/0209 OR H05B39/086 OR H05B39/088).CPC.)	USPAT	OR	ON	2021/03/13 22:38

3/13/2021 10:39:13 PM
C:\Users\mking\Documents\EAST\Workspaces\15871044.wsp

PART B – FEE(S) TRANSMITTAL

Complete and send this form, together with the applicable fee(s), by mail or fax, or via EFS-Web.

By mail, send to: Mail Stop ISSUE FEE
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

By fax, send to: (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)

Weiss & Arons LLP
63 South Main Street
Spring Valley, NY 10977

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 transmitted to the USPTO via EFS-Web or by facsimile to (571) 273-2885, on the date below.

(Typed or printed name)
(Signature)
(Date)

APPLICATION NO	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO	CONFIRMATION NO
15/871,044	01-14-2018	Eric Stefankiewicz	WAC-10APP1	9631

TITLE OF INVENTION:

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
Non-Provisional	Small	$600.00	$0	$0	$600.00	06-24-2021

EXAMINER	ART UNIT	CLASS-SUBCLASS

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 03-09 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,

(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.

1. Weiss & Arons LLP
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 must have been previously recorded, or filed for recordation, as set forth in 37 CFR 3.11 and 37 CFR 3.81(a). Completion of this form is NOT a substitute for filing an assignment.

(A) NAME OF ASSIGNEE	(B) RESIDENCE: (CITY and STATE or COUNTRY)
Wangs Alliance Corporation	Port Washington, New York

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

4a. Fees Submitted: ☑ Issue Fee ☐ Publication Fee (if required) ☐ Advance Order - # of Copies _____

4b. Method of Payment (*Please first reapply any previously paid fee shown above*):

☑ Electronic Payment via EFS-Web ☐ Enclosed check ☐ Non-electronic payment by credit card (Attach form PTO-2038)

☑ The Director is hereby authorized to charge the required fee(s), any deficiency, or credit any overpayment to Deposit Account No. 50-4650

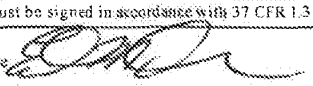
5. Change of Entity Status (from status indicated above)

☐ Applicant certifying micro entity status. See 37 CFR 1.29. 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.

☐ 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 as a notification of loss of entitlement to micro entity status.

☐ Applicant changing to regular undiscounted fee status. NOTE: Checking this box will be taken as 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 April 29, 2021

Typed or printed name Edward Arons Registration No. 44,511

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 30 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.

Electronic Patent Application Fee Transmittal

Application Number:	15871044
Filing Date:	14-Jan-2018
Title of Invention:	METHODS AND APPARATUS FOR CONTROLLING FAN DEVICES
First Named Inventor/Applicant Name:	Eric Stefankiewicz
Filer:	Edward M. Arons/Miri Rosengarten
Attorney Docket Number:	WAC-10APP1

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:				
UTILITY APPL ISSUE FEE	2501	1	600	600

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Extension-of-Time:				
Miscellaneous:				
			Total in USD ($)	**600**

Electronic Acknowledgement Receipt	
EFS ID:	42589131
Application Number:	15871044
International Application Number:	
Confirmation Number:	9631
Title of Invention:	METHODS AND APPARATUS FOR CONTROLLING FAN DEVICES
First Named Inventor/Applicant Name:	Eric Stefankiewicz
Customer Number:	72822
Filer:	Edward M. Arons/Miri Rosengarten
Filer Authorized By:	Edward M. Arons
Attorney Docket Number:	WAC-10APP1
Receipt Date:	29-APR-2021
Filing Date:	14-JAN-2018
Time Stamp:	12:14:34
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	CARD
Payment was successfully received in RAM	$600
RAM confirmation Number	E20214SC15213218
Deposit Account	504650
Authorized User	Miri Rosengarten
The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows: 37 CFR 1.16 (National application filing, search, and examination fees) 37 CFR 1.17 (Patent application and reexamination processing fees)	

37 CFR 1.19 (Document supply fees)

37 CFR 1.20 (Post Issuance fees)

37 CFR 1.21 (Miscellaneous fees and charges)

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Amendment after Notice of Allowance (Rule 312)	WAC-10APP1_312_Amendment.pdf	189578 e073168b5d7c7bce4e36a46e508601c42835f702	no	5
Warnings:					
Information:					
2	Issue Fee Payment (PTO-85B)	WAC-10APP1_Issue_Fee_Form_as_filed.pdf	193478 48367939e273119e05c2592ddf86105c4d2f2502	no	2
Warnings:					
Information:					
3	Fee Worksheet (SB06)	fee-info.pdf	30540 d0066fc0ab644ccd6a712e001f7e1e97a4bb2158	no	2
Warnings:					
Information:					
		Total Files Size (in bytes):	413596		

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

New Applications Under 35 U.S.C. 111

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

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

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

New International Application Filed with the USPTO as a Receiving Office

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

Attorney Docket No. WAC-10APP1
(309-010)

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of	:	Wangs Alliance Corporation
Application No.	:	15/871,044
Confirmation No.	:	9631
Examiner	:	Monica C. King
Filed	:	January 14, 2018
Group Art Unit	:	2844
For	:	METHODS AND APPARATUS FOR CONTROLLING FAN DEVICES

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

AMENDMENT AFTER NOTICE OF ALLOWANCE

Dear Commissioner:

This submission is being filed in the above-identified application as an amendment after notice of allowance under 37 CFR §1.312. The Director is hereby authorized to charge any fees that may be due in connection with this paper, or to refund any overpayments, to Deposit Account No. 50-4650.

Amendments to the claims begin on page 2; and

Remarks begin on page 5.

Amendments to the claims

A complete set of the claims is included below, as well as the current status of each claim. This listing of claims will replace all prior versions and listings of claims in the application.

Listing of Claims

1-9 (Cancelled).

10 (Previously presented). A system comprising:

a fan motor;

a fan motor control circuit;

a processor in electrical communication with the fan motor control circuit;

a radio frequency interface configured to receive, at a first frequency, a signal; and

a WiFi interface configured to communicate at a second frequency that is different from the first frequency;

wherein:

the fan motor control circuit is configured to cause the fan motor to perform an operation in response to the signal; and

the processor is configured to transmit, via the WiFi interface, to a server, an indication corresponding to the operation.

11 (Previously presented). The system of claim 10 further comprising, when the signal is a first signal, the operation is a first operation, and the indication is a first indication:

a light; and

a light control circuit configured to cause the light to perform a second operation in response to a second signal received by the radio frequency interface;

wherein the processor is further configured to transmit to the server, via the WiFi interface, a second indication corresponding to the second operation.

12 (Previously presented). The system of claim 11 wherein:

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Petitioner Minka – EX1002
Page 370 of 420

the first indication corresponds to an operation selected from the group consisting of: fan on, fan off, fan power state change, fan speed-up, fan speed-down, and fan direction-change; and

the second indication corresponds to an operation selected from the group consisting of: light on, light off, light power state change, light increase, and light decrease.

13 (Previously presented). The system of claim 10 further comprising a housing;

wherein the fan motor, the fan motor control circuit, the processor, the radio frequency interface, and the WiFi interface are disposed in the housing.

14 (Previously presented). The system of claim 10 further comprising a WiFi router comprising:

a receiver configured to receive a WiFi control signal from a wireless terminal, the WiFi control signal communicating a command for controlling the fan motor; and

a transmitter configured to communicate, via a WiFi signal, the command to the WiFi interface;

wherein the processor is further configured to cause the fan motor control circuit to implement the command.

15 (Previously presented). The system of claim 14 wherein the processor is further configured to cause the WiFi interface to send information indicating an operation implemented in response to the command.

16 (Previously presented). The system of claim 15 further comprising, when the WiFi interface is a first Wifi interface, the wireless terminal;

wherein:

the wireless terminal includes:

a second WiFi interface; and

a fan device control application configured to generate the command in response to user input; and

WAC00000371
Petitioner Minka – EX1002
Page 371 of 420

the wireless terminal, the WiFi router, and the processor are configured for operation in a wireless local network such that the wireless terminal communicates the command to the processor via the WiFi router without the command traversing the Internet.

17 (Currently amended). The system of claim [[16]] 10 further comprising, when the processor is a first processor ~~and the command is a first command~~, the server;

wherein the server includes a second processor configured to cause the server to:

receive a ~~second~~ command directed to the first processor; and

communicate the ~~second~~ command via the Internet and [[the]] a WiFi router to the first processor.

18 (Currently amended). The system of claim 17 wherein the second processor is further configured to cause the server to update information about a state of a device that is in [[the]] a wireless local network based on the ~~second~~ command.

19 (Currently amended). The system of claim 18 wherein the second processor is further configured to cause the server to update the information in response to transmitting the ~~second~~ command from the server.

20 (Currently amended). The system of claim 17 wherein the second processor is further configured to cause the server to:

generate a proposed normal device control schedule for a device, comprising the fan motor, at [[the]] a wireless local network from stored information indicating states of the device over a period of time;

send the schedule to the device;

receive a message indicating approval of the schedule; and

store, as an approved normal control schedule, the approved schedule.

21 (Previously presented). The system of claim 20 wherein the second processor is further configured to cause the server to:

receive a revised schedule for the wireless local network; and

store, as the approved normal control schedule, the revised schedule.

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Petitioner Minka – EX1002
Page 372 of 420

REMARKS

Claims 10-21 are allowed in this application.

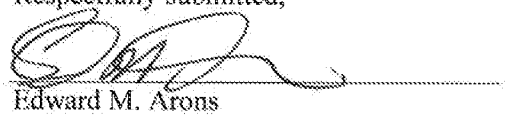
Claim 10 is independent and claims 11-21 depend directly or indirectly therefrom.

Claim 17 is proposed to be amended to revise claim dependency.

Claims 17-20 are proposed to be amended to revise antecedent references based on the revised claim dependency of claim 17.

Applicant notes that as a courtesy, an email was sent on April 14, 2021, and a phone call was placed on April 20, 2021, to inform the Examiner of plans to file the enclosed amendments.

Respectfully submitted,



Edward M. Arons
Reg. No. 44,511
Attorney for Applicant
WEISS & ARONS LLP
Customer No. 72,822
63 South Main Street
Spring Valley, New York 10977
Tel.: (845) 362-6100

Date: April 29, 2021

WAC00000373
Petitioner Minka – EX1002
Page 373 of 420

PRINTER RUSH
(PTO ASSISTANCE)

Application: 15871044	**Examiner:** King	**GAU:** 2844
From:	**Location:** RTFM	**Creation Date:** 04/30/2021

Week Date: 3/22/2021

DOC CODE	DOC DATE	MISCELLANEOUS
☐ 1449		☐ Continuing Data
☐ IDS		☐ Foreign Priority
☐ CLM		☐ Document Legibility
☐ IIFW/FWCLM		☐ Fees
☐ SRFW		☐ Petition (TC)
☐ DRW		☐ Other
☐ OATH		
☒ 312	04/29/2021	
☐ SPEC		

[RUSH] Message:

Please respond to the 04/29/2021 A.NA.

Thank You

[XRUSH] Response:

Initials: _____

Examiner: PUBS contact - James Leija, (703) 756-1197
NOTE: This form will be included as part of the official USPTO record with the response document coded as XRUSH.
REV: AUG 16

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.
15/871,044	01/14/2018	Eric Stefankiewicz	WAC-10APP1	9631

72822 7590 05/06/2021

Weiss & Arons LLP
63 South Main Street
Spring Valley, NY 10977

EXAMINER
KING, MONICA C

ART UNIT	PAPER NUMBER
2844	

MAIL DATE	DELIVERY MODE
05/06/2021	PAPER

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.

Response to Rule 312 Communication	Application No.	Applicant(s)	
	15/871,044	Stefankiewicz et al.	
	Examiner	Art Unit	AIA (FITF) Status
	MONICA C KING	2844	Yes

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

1. ☑ The amendment filed on 29 April 2021 under 37 CFR 1.312 has been considered, and has been:

a) ☑ entered.

b) ☐ entered as directed to matters of form not affecting the scope of the invention.

c) ☐ disapproved because the amendment was filed after the payment of the issue fee.

Any amendment filed after the date the issue fee is paid must be accompanied by a petition under 37 CFR 1.313(c)(1) and the required fee to withdraw the application from issue.

d) ☐ disapproved. See explanation below.

e) ☐ entered in part. See explanation below.

/MONICA C KING/
Primary Examiner, Art Unit 2844

PRINTER RUSH
(PTO ASSISTANCE)

Application: 15871044	**Examiner:** King	**GAU:** 2844
From:	**Location:** RTFM	**Creation Date:** 04/30/2021

Week Date: 3/22/2021

DOC CODE	DOC DATE	MISCELLANEOUS
☐ 1449		☐ Continuing Data
☐ IDS		☐ Foreign Priority
☐ CLM		☐ Document Legibility
☐ IIFW/FWCLM		☐ Fees
☐ SRFW		☐ Petition (TC)
☐ DRW		☐ Other
☐ OATH		
☒ 312	04/29/2021	
☐ SPEC		

[RUSH] Message:

Please respond to the 04/29/2021 A.NA.

Thank You

[XRUSH] Response:

Amendment entered.

/M.C.K/

Initials: _____

Examiner: PUBS contact - James Leija, (703) 756-1197
NOTE: This form will be included as part of the official USPTO record with the response document coded as XRUSH.
REV: AUG 16

WAC00000377
Petitioner Minka – EX1002
Page 377 of 420

OK TO ENTER: /M.C.K/

Attorney Docket No. WAC-10APP1
(309-010)

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of	:	Wangs Alliance Corporation
Application No.	:	15/871,044
Confirmation No.	:	9631
Examiner	:	Monica C. King
Filed	:	January 14, 2018
Group Art Unit	:	2844
For	:	METHODS AND APPARATUS FOR CONTROLLING FAN DEVICES

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

AMENDMENT AFTER NOTICE OF ALLOWANCE

Dear Commissioner:

This submission is being filed in the above-identified application as an amendment after notice of allowance under 37 CFR §1.312. The Director is hereby authorized to charge any fees that may be due in connection with this paper, or to refund any overpayments, to Deposit Account No. 50-4650.

Amendments to the claims begin on page 2; and

Remarks begin on page 5.

Doc code: IDS
Doc description: Information Disclosure Statement (IDS) Filed

PTO/SB/08a (02-18)
Approved for use through 11/30/2020. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

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

Application Number	15871044
Filing Date	2018-01-14
First Named Inventor	Eric Stefankiewicz
Art Unit	2844
Examiner Name	KING, MONICA C
Attorney Docket Number	WAC-10APP1

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	9,589,461	B1	2017-03-07	~~Palm Coast Imports, LLC~~ Byrne et al.	

Change(s) applied to document, /J.L./ 4/1/2021

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	20140101082	A1	2014-04-10	~~Nest Labs, Inc.~~ Matsuoka et al.	
	2	20140177900	A1	2014-06-26	~~Homeworks Worldwide, LLC~~ Berkman et al.	
	3	20140270714	A1	2014-09-18	Osminer et al.	
	4	20150351203	A1	2015-12-03	~~Zhejiang Shenghui Lighting Co., Ltd~~ Shen et al.	
	5	20070110192	A1	2007-05-17	Steiner, James P.	

EFS Web 2.1.18

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /M.C.K/

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
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Alexandria, Virginia 22313-1450
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APPLICATION NO.	ISSUE DATE	PATENT NO.	ATTORNEY DOCKET NO.	CONFIRMATION NO.
15/871,044	06/08/2021	11028854	WAC-10APP1	9631

72822 7590 05/19/2021

Weiss & Arons LLP
63 South Main Street
Spring Valley, NY 10977

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 0 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):

Wangs Alliance Corporation, Port Washington, NY
Eric Stefankiewicz, Old Bethpage, NY;
Shelley Wald, Manhasset, NY;

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.

Attorney Docket No. WAC-10APP1
(309-010)

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Patentees	:	Stefankiewicz et al.
Assignee	:	Wangs Alliance Corporation
Application No.	:	15/871,044
Confirmation No.	:	9631
Patent No.	:	11,028,854
Issued	:	June 8, 2021
Filed	:	January 14, 2018
For	:	METHODS AND APPARATUS FOR CONTROLLING FAN DEVICES

Commissioner for Patents
Office of Data Management
Attention: Certifications of Correction Branch
P.O. Box 1450
Alexandria, Virginia 22313-1450

REQUEST FOR ISSUANCE OF A CERTIFICATE OF CORRECTION UNDER 37 C.F.R. § 1.322

Dear Commissioner:

The undersigned respectfully requests the following corrections in the above-captioned patent:

1. In Claim 1, at column 43, line 3 replace "wherein;" with "wherein:".
2. In Claim 5, at column 43, line 36 replace "control" with "WiFi control".

The corrections are listed on the attached Form PTO/SB/44 and patentee respectfully requests that the Office issue a Certificate of Correction.

Patentee respectfully submits that the corrections are due to errors by the Patent and Trademark Office and are clearly disclosed in the records of the Office. Accordingly, pursuant to 35 U.S.C. § 254, no fees are required in connection with this request for a Certificate of

Correction. Nevertheless, the Director is hereby authorized to charge any fees that may be due, or to refund any overpayments, to Deposit Account No. 50-4650.

Respectfully submitted,

Edward M. Arons
Reg. No. 44,511
Attorney for Applicant
WEISS & ARONS LLP
Customer No. 72,822
63 South Main Street
Spring Valley, New York 10977
Tel.: (845) 362-6100

Date: August 25, 2021

Attachment: Form PTO/SB/44

WAC00000382
Petitioner Minka – EX1002
Page 382 of 420

PTO/SB/44 (09-07)
Approved for use through 01/31/2020. OMB 0651-0033
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.
(Also Form PTO-1050)

UNITED STATES PATENT AND TRADEMARK OFFICE
CERTIFICATE OF CORRECTION

PATENT NO. : 11,028,854

APPLICATION NO.: 15/871,044

ISSUE DATE : June 8, 2021

INVENTOR(S) : Eric Stefankiewicz, Shelley Wald

It is certified that an error appears or errors appear in the above-identified patent and that said Letters Patent is hereby corrected as shown below:
In the Claims:

In Claim 1, at column 43, line 3 replace "wherein;" with "wherein:"

In Claim 5, at column 43, line 36 replace "control" with "WiFi control"

MAILING ADDRESS OF SENDER (Please do not use Customer Number below):

63 South Main Street
Spring Valley, NY 10977

This collection of information is required by 37 CFR 1.322, 1.323, and 1.324. 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 1.0 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: Attention Certificate of Corrections Branch, 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.

Electronic Acknowledgement Receipt	
EFS ID:	43597058
Application Number:	15871044
International Application Number:	
Confirmation Number:	9631
Title of Invention:	METHODS AND APPARATUS FOR CONTROLLING FAN DEVICES
First Named Inventor/Applicant Name:	Eric Stefankiewicz
Customer Number:	72822
Filer:	Edward M. Arons/Miri Rosengarten
Filer Authorized By:	Edward M. Arons
Attorney Docket Number:	WAC-10APP1
Receipt Date:	25-AUG-2021
Filing Date:	14-JAN-2018
Time Stamp:	12:07:28
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	Request for Certificate of Correction	WAC-10APP1_Request_for_Certificate_of_Correction_as_filed.pdf	58080 038af46fc5dcc59168726b84c4921ccd3902d630	no	2

Warnings:

Information:					
2	Request for Certificate of Correction	WAC-10APP1_sb0044_fillable.pdf	183917 e4993ae5f1df12b6e4077b9caf2de72fbdd549ce	no	2
Warnings:					
Information:					
			Total Files Size (in bytes):	241997	

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

New Applications Under 35 U.S.C. 111

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

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

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

New International Application Filed with the USPTO as a Receiving Office

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

UNITED STATES PATENT AND TRADEMARK OFFICE

CERTIFICATE OF CORRECTION

PATENT NO.	: 11,028,854 B2
APPLICATION NO.	: 15/871044
DATED	: June 8, 2021
INVENTOR(S)	: Eric Stefankiewicz and Shelley Wald

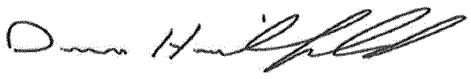
It is certified that error appears in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

In the Claims

In Claim 1, at Column 43, Line 3 replace “wherein;” with “wherein:”

In Claim 5, at Column 43, Line 36 replace “control” with “WiFi control”

Signed and Sealed this
Twenty-first Day of September, 2021



Drew Hirshfeld
Performing the Functions and Duties of the
Under Secretary of Commerce for Intellectual Property and
Director of the United States Patent and Trademark Office

AO 120 (Rev. 08/10)

TO:	REPORT ON THE FILING OR DETERMINATION OF AN ACTION REGARDING A PATENT OR TRADEMARK
Mail Stop 8 Director of the U.S. Patent and Trademark Office P.O. Box 1450 Alexandria, VA 22313-1450	

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 for the Central District of California on the following

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

DOCKET NO.	DATE FILED	U.S. DISTRICT COURT
2:22-cv-02527	4/14/2022	for the Central District of California

PLAINTIFF	DEFENDANT
Wangs Alliance Corporation d/b/a WAC Lighting 44 Harbor Park Drive, Port Washington, NY 11050	Scadlock, Inc. d/b/a ONE Products and Promounts 20218 Hamilton Avenue Torrance, CA 90502

	PATENT OR TRADEMARK NO.	DATE OF PATENT OR TRADEMARK	HOLDER OF PATENT OR TRADEMARK
1	11,028,854	6/8/2021	Wangs Alliance Corporation
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	(BY) DEPUTY CLERK	DATE

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

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

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 for the Central District of California on the following

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

DOCKET NO.	DATE FILED	U.S. DISTRICT COURT
2:22-cv-02527 JAK-RAO	4/14/2022	for the Central District of California

PLAINTIFF	DEFENDANT
Wangs Alliance Corporation d/b/a WAC Lighting 44 Harbor Park Drive, Port Washington, NY 11050	Scadlock, Inc. d/b/a ONE Products and Promounts 20218 Hamilton Avenue Torrance, CA 90502

	PATENT OR TRADEMARK NO.	DATE OF PATENT OR TRADEMARK	HOLDER OF PATENT OR TRADEMARK
1	11,028,854	6/8/2021	Wangs Alliance Corporation
2			
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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
NOTICE of Voluntary Dismissal

CLERK	(BY) DEPUTY CLERK	DATE
Kiry K Gray	Lori Muraoka	6/15/22

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

AO 120 (Rev. 08/10)

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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 for the Central District of California on the following

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PLAINTIFF	DEFENDANT
Wangs Alliance Corporation d/b/a WAC Lighting 44 Harbor Park Drive, Port Washington, NY 11050	Scadlock, Inc. d/b/a ONE Products and Promounts 20218 Hamilton Avenue Torrance, CA 90502

	PATENT OR TRADEMARK NO.	DATE OF PATENT OR TRADEMARK	HOLDER OF PATENT OR TRADEMARK
1	11,028,854	6/8/2021	Wangs Alliance Corporation
2			
3			
4			
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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
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In the above—entitled case, the following decision has been rendered or judgement issued:

DECISION/JUDGEMENT
NOTICE of Voluntary Dismissal

CLERK	(BY) DEPUTY CLERK	DATE
Kiry K Gray	Lori Muraoka	6/15/22

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

CONFIRMATORY ASSIGNMENT

WHEREAS, I, **Kevin Darrah** ("Assignor"), a citizen of the United States, residing in Medina, Ohio, have invented certain new and useful inventions variously titled and described in:

U.S. Patent No. 11,028,854, issued June 8, 2021;

U.S. Patent No. 10,488,897, issued November 26, 2019;

U.S. Patent App. No. 15/871,047, filed January 14, 2018;

U.S. Patent App. No. 17/340,338, filed June 7, 2021;

U.S. Provisional Patent App. No. 62/617,274, filed January 14, 2018;

U.S. Provisional Patent App. No. 62/617,152, filed January 12, 2018; and

PCT App. Pub. No. WO 2019/140,335, filed January 12, 2019

(the "**Inventions**").

WHEREAS, Wangs Alliance Corporation ("**Assignee**"), a corporation organized under the laws of the State of New York, located at 44 Harbor Park Drive, Port Washington, NY 11050 is desirous of acquiring the entire right, title and interest in and to the aforesaid inventions and in and to all applications and Letters Patent therefor granted in the United States of America, and in any and all countries foreign thereto, to the extent not previously sold, assigned or transferred to Assignee by virtue of any other agreement with Assignee, any previous assignment to Assignee, operation of law, or otherwise.

NOW, THEREFORE, TO WHOM IT MAY CONCERN, be it known that, for good and valuable consideration, including salary or payment for the making of inventions, or employee benefits, the receipt and sufficiency of which is hereby acknowledged, I said Assignor, by these presents do sell, assign and transfer unto said Assignee, its successors, assigns and legal representatives, to the extent not previously sold, assigned or transferred to Assignee by virtue of my employment, any previous assignment to Assignee, operation of law, or otherwise, the full and exclusive right, title and interest for the territory of the United States of America and all countries foreign thereto, and throughout the world and in space, (including the right to apply for Letters Patent in foreign countries in its own name and to claim any priority rights for such foreign applications to which such applications are entitled under international conventions, treaties, or otherwise), in and to said inventions and in and to all applications and Letters Patent granted therefor, and all non-provisionals, divisionals, reissues, reexaminations, continuations, continuation-in- parts and extensions thereof, and in and to all copyrights, trademarks with their associated goodwill, trade secrets, confidential information, and compilations, necessary or useful to make, use, or sell the inventions. I hereby authorize and request the Commissioner of Patents, and any official whose duty it is to issue patents, to issue all Letters Patent on said inventions or resulting therefrom to said Assignee, or its successors and assigns, as assignee of the entire right, title and interest. I represent and warrant that I have full right to agree to, execute, and deliver this assignment. I agree that I will without further consideration, but at the expense of Assignee, communicate to said Assignee, or its successors, assigns, or nominees, any and all facts known to me regarding said inventions whenever requested, and that I will execute all non- provisional, divisional, reissue, reexamination, continuation and continuation-in-part applications, testify in any legal proceedings, sign all lawful papers, make all rightful oaths, and generally do everything reasonable for said Assignee, its successors, assigns, and nominees, to obtain and enforce proper patent protection for said inventions in all countries.

Pursuant to 37 C.F.R. § 1.324(b)(1), and 35 U.S.C. § 256, I agree to any change of inventorship of the Inventions to name myself as inventor(s) of the Inventions.

IN WITNESS WHEREOF, I have hereunto set my hand and seal this 22 day of December, 2022.

KEVIN DARRAH

INVENTOR AGREEMENT

I, **Shelley Wald**, am an inventor of certain new and useful inventions variously titled and described in:

U.S. Patent No. 11,028,854, issued June 8, 2021;

U.S. Patent No. 10,488,897, issued November 26, 2019;

U.S. Patent App. No. 15/871,047, filed January 14, 2018;

U.S. Patent App. No. 17/340,338, filed June 7, 2021;

U.S. Provisional Patent App. No. 62/617,274, filed January 14, 2018;

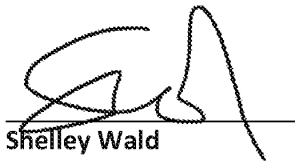
U.S. Provisional Patent App. No. 62/617,152, filed January 12, 2018; and

PCT App. Pub. No. WO 2019/140,335, filed January 12, 2019

(the "**Inventions**").

Pursuant to 37 C.F.R. § 1.324(b)(1), and 35 U.S.C. § 256, I agree to change inventorship of the Inventions to add Kevin Darrah as an inventor of the Inventions.

IN WITNESS WHEREOF, I have hereunto set my hand and seal this 21st day of December, 2022.



Shelley Wald

PTO/SB/44 (09-07)
Approved for use through 01/31/2020. OMB 0651-0033
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.
(Also Form PTO-1050)

UNITED STATES PATENT AND TRADEMARK OFFICE
CERTIFICATE OF CORRECTION

PATENT NO. : 11,028,854

APPLICATION NO.: 15/871,044

ISSUE DATE : June 8, 2021

INVENTOR(S) : Eric Stefankiewicz, Shelley Wald

It is certified that an error appears or errors appear in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

In the Inventors:

Add Kevin Darrah, Medina, OH (US) as an Inventor.

MAILING ADDRESS OF SENDER (Please do not use Customer Number below):

63 South Main Street
Spring Valley, NY 10977

This collection of information is required by 37 CFR 1.322, 1.323, and 1.324. 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 1.0 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: Attention Certificate of Corrections Branch, 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.

INVENTOR AGREEMENT

I, **Eric Stefankiewicz**, am an inventor of certain new and useful inventions variously titled and described in:

U.S. Patent No. 11,028,854, issued June 8, 2021;

U.S. Patent No. 10,488,897, issued November 26, 2019;

U.S. Patent App. No. 15/871,047, filed January 14, 2018;

U.S. Patent App. No. 17/340,338, filed June 7, 2021;

U.S. Provisional Patent App. No. 62/617,274, filed January 14, 2018;

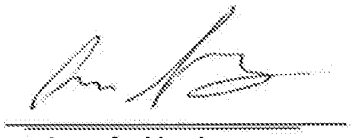
U.S. Provisional Patent App. No. 62/617,152, filed January 12, 2018; and

PCT App. Pub. No. WO 2019/140,335, filed January 12, 2019

(the "**Inventions**").

Pursuant to 37 C.F.R. § 1.324(b)(1), and 35 U.S.C. § 256, I agree to change inventorship of the Inventions to add Kevin Darrah as an inventor of the Inventions.

IN WITNESS WHEREOF, I have hereunto set my hand and seal this 21 day of December 2022.



Eric Stefankiewicz

ASSIGNEE STATEMENT UNDER 37 CFR 1.324

Wangs Alliance Corporation, of 44 Harbor Park Dr., Port Washington, NY 11050 ("**WAC**") is the sole assignee, applicant, and patent owner of certain new and useful inventions variously titled and described in:

U.S. Patent No. 11,028,854, issued June 8, 2021;

U.S. Patent No. 10,488,897, issued November 26, 2019;

U.S. Patent App. No. 15/871,047, filed January 14, 2018;

U.S. Patent App. No. 17/340,338, filed June 7, 2021;

U.S. Provisional Patent App. No. 62/617,274, filed January 14, 2018;

U.S. Provisional Patent App. No. 62/617,152, filed January 12, 2018; and

PCT App. Pub. No. WO 2019/140,335, filed January 12, 2019

(the "**Inventions**").

WAC is the sole assignee of all inventors of the Inventions and is the assignee and patent owner of the entire right, title and interest of the Inventions.

Pursuant to 37 C.F.R. § 1.324(b)(2), and 35 U.S.C. § 256, WAC agrees to change inventorship of the Inventions to add Kevin Darrah as an inventor of the Inventions.

The undersigned is authorized to act on behalf of WAC.

IN WITNESS WHEREOF, I have hereunto set my hand and seal this 22 day of December 2022.

WANGS ALLIANCE CORPORATION

By: Tigran Vardanian
Its: General Counsel

PATENT ASSIGNMENT COVER SHEET

Electronic Version v1.1
Stylesheet Version v1.2

EPAS ID: PAT4871411

SUBMISSION TYPE:	NEW ASSIGNMENT
NATURE OF CONVEYANCE:	ASSIGNMENT

CONVEYING PARTY DATA

Name	Execution Date
ERIC STEFANKIEWICZ	02/15/2018
SHELLEY WALD	02/20/2018

RECEIVING PARTY DATA

Name:	WANGS ALLIANCE CORPORATION
Street Address:	44 HARBOR PARK DRIVE
City:	PORT WASHINGTON
State/Country:	NEW YORK
Postal Code:	11050

PROPERTY NUMBERS Total: 1

Property Type	Number
Application Number:	15871044

CORRESPONDENCE DATA

Fax Number: (732)936-1401

Correspondence will be sent to the e-mail address first; if that is unsuccessful, it will be sent using a fax number, if provided; if that is unsuccessful, it will be sent via US Mail.

Phone: 7329361400
Email: stephen@straub-ip.com
Correspondent Name: STRAUB & STRAUB
Address Line 1: 788 SHREWSBURY AVENUE
Address Line 4: TINTON FALLS, NEW JERSEY 07724

ATTORNEY DOCKET NUMBER:	WAC-10APP1
NAME OF SUBMITTER:	STEPHEN T. STRAUB
SIGNATURE:	/Stephen T. STRAUB, Reg. No. 43,938/
DATE SIGNED:	03/17/2018

Total Attachments: 5
source=WAC-10APP1_Assignment_Executed#page1.tif
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source=WAC-10APP1_Assignment_Executed#page3.tif
source=WAC-10APP1_Assignment_Executed#page4.tif
source=WAC-10APP1_Assignment_Executed#page5.tif

ASSIGNMENT

WHEREAS, we, **Eric Stefankiewicz**, ASSIGNOR

a citizen of the **US**, residing at **14 Kingswood Circle, Old Bethpage, NY 11804**; and

Shelley Wald, ASSIGNOR

a citizen of the **US**, residing at **8 Fairway Lane, Manhasset, NY 11030**;

are inventors of the invention in:

METHODS AND APPARATUS FOR CONTROLLING FAN DEVICES

for which an application for a Patent of the United States

was filed on January 14, 2018, as application serial No. 15/871,044; and

for which a provisional U.S. patent application

was filed on January 14, 2018, as application serial No. 62/617,274; and

for which a provisional U.S. patent application

was filed on January 12, 2018, as application serial No. 62/617,152;

and WHEREAS, **Wangs Alliance Corporation**, a corporation of **New York**, having a place of business at **44 Harbor Park Drive, Port Washington, N.Y. 11050**, ASSIGNEE

is desirous of obtaining from the aforementioned inventors their entire right, title and interest in, to and under the invention and the applications:

NOW, THEREFORE, in consideration of the sum of One Dollar ($1.00) to us in hand paid, and other good and valuable

consideration, the receipt of which is hereby acknowledged, WE, the ASSIGNORS, have sold, assigned, transferred and set over, and by these presents do hereby sell, assign, transfer and set over, unto the ASSIGNEE, its successors, legal representatives and assigns, the entire right, title and interest in, to and under the invention, the United States provisional applications and the United States non-provisional application and all non-provisionals, divisions, renewals and continuations (including all continuation-in-part applications) thereof, and all Patents of the United States which may be granted thereon and all reissues and extensions thereof; and all applications for industrial property protection, including, without limitation, all applications for patents, utility models and designs which have been or may hereafter be filed for the invention or claim the benefit of the application or any right of priority to the application, in any and all countries including any country or countries foreign to the United States, together with the right to file such applications and the right to claim for the same the priority rights derived from the United States application under the Patent Laws of the United States, the International Convention for the Protection of Industrial Property, or any other international agreement or the domestic laws of the country in which any such application is filed, as may be applicable; and all forms of industrial property protection, including, without limitation, patents, utility models, inventor's certificates and designs which may be granted for the invention in any country or countries foreign to the United States and all extensions, renewals and reissues thereof;

AND WE HEREBY authorize and request the Commissioner of Patents and Trademarks of the United States, and any official of any country or countries foreign to the United States, whose duty it is to issue patents or other evidence or forms of industrial property protection on applications as aforesaid, to issue the same to the ASSIGNEE, its successors, legal representatives and assigns, in accordance with the terms of this instrument.

AND WE HEREBY covenant and agree that we have full right to convey the entire interest assigned, and that we have not executed, and will not execute, any agreement in conflict herewith.

AND WE HEREBY further covenant and agree that we will communicate to the ASSIGNEE, its successors, legal representatives and assigns, any facts known to us regarding the invention, and testify in any legal proceeding, sign all lawful papers, execute all divisional, continuing, reissue and foreign applications, make all rightful oaths, and generally do everything possible to aid the ASSIGNEE, its successors, legal representatives and assigns, to obtain and enforce proper protection for the invention in all countries.

The undersigned hereby grant(s) the law firm of Straub & Straub, and any other representative of the Assignee, the power to: insert on this Assignment any further identification, including the application serial number and/or application filing date which may be necessary or desirable in order to comply with the rules of the U.S. Patent and Trademark Office for recordation of this document and/or to insert the execution date of this assignment. The undersigned hereby further grant(s) the law firm of Straub & Straub, and its successors the power to make corrections in any information included in this assignment including in the assignor information and the assignee information including the assignor name and/or address and the assignee name and/or address and/or any other corrections.

PATENT
REEL: 045263 FRAME: 0572
WAC00000400
Petitioner Minka – EX1002
Page 400 of 420

IN TESTIMONY WHEREOF, I hereunto set my hand and seal this 15 day of February, 2018.

Eric Stefankiewicz, ~~Assignor~~

WITNESSED BY:

Witness signature

NUNZIO DINO PATRUNO

Witness name (Please print)

51 SUNSET AVENUE

Address

AMITYVILLE, NY 11701

WITNESSED BY:

Witness signature

SEAN THAM

Witness name (Please print)

507 SCHORR DRIVE 40A

Address

COLLEGE POINT, NY 11356

PATENT
REEL: 045263 FRAME: 0573
WAC00000401
Petitioner Minka – EX1002
Page 401 of 420

IN TESTIMONY WHEREOF, I hereunto set my hand and seal this 20th day of ~~MARCH~~ FEBRUARY 2018, 2018.

Shelley Wald, Assignor

WITNESSED BY:

Witness signature

NUNZIO DINO PATRUNO

Witness name (Please print)

51 SUNSET AVENUE

Address

AMITYVILLE, NY 11701

WITNESSED BY:

Witness signature

SEAN THAM

Witness name (Please print)

507 SCHOAR DRIVE 4OA

Address

COLLEGE POINT, NY 11356.

RECORDED: 03/17/2018

PATENT
REEL: 045263 FRAME: 0574

WAC00000402

Petitioner Minka – EX1002
Page 402 of 420

Attorney Docket No. WAC-10APP1

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Patentee	:	Wangs Alliance Corporation
Application No	:	15/871,044
Patent No.	:	11,028,854
Filed	:	01/14/2018
Issued	:	06/08/2021
Confirmation No.	:	9631
For	:	METHODS AND APPARATUS FOR CONTROLLING FAN DEVICES

Commissioner for Patents
Office of Data Management
Attention: Certificates of Corrections Branch
P.O. Box 1450
Alexandria, Virginia 22313-1450

REQUEST FOR ISSUANCE OF A CERTIFICATEOF CORRECTION UNDER 37 C.F.R. 1.324

Dear Commissioner:

The undersigned respectfully requests correction of the inventors of the above-captioned patent as listed on the attached Form PTO/SB/44 and an issuance of a Certificate of Correction. Kevin Darrah of Medina, OH (US) should be listed as an inventor.

As required by 37 C.F.R. 1.324 and 35 U.S.C. 256, patentee is concurrently submitting:

1) A statement from each person being added as an inventor agreeing to the change of inventorship;

2) A statement from each person currently named as an inventor agreeing to the change of inventorship;
3) A statement from all assignees of the parties in 1) and 2) above, agreeing to the change of inventorship. Patentee Wangs Alliance Corporation is the only assignee as shown by the attached assignments; and
4) The fee set forth in § 1.20(b).

The Director is hereby authorized to charge any fees that may be due in connection with this paper, or to refund any overpayments, to Deposit Account No. 50-4650.

Respectfully submitted,

/Evan Schechter/

Evan Schechter
Reg. No. 67,550
Attorney for Applicant
Customer No. 72822
Weiss & Arons LLP
63 South Main St.
Spring Valley, New York 10970

Date: December 23, 2022

WAC00000404
Petitioner Minka – EX1002
Page 404 of 420

Electronic Patent Application Fee Transmittal

Application Number:	15871044
Filing Date:	14-Jan-2018
Title of Invention:	METHODS AND APPARATUS FOR CONTROLLING FAN DEVICES
First Named Inventor/Applicant Name:	Eric Stefankiewicz
Filer:	Evan Schechter
Attorney Docket Number:	WAC-10APP1

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:				
PROCESSING FEE, EXCEPT PROV. APPLS.	2830	1	70	70
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
CERTIFICATE OF CORRECTION	2811	1	160	160
PROCESSING FEE CORRECTING INVENTORSHIP	2816	1	160	160
Extension-of-Time:				
Miscellaneous:				
		Total in USD ($)		**390**

Electronic Acknowledgement Receipt	
EFS ID:	47263629
Application Number:	15871044
International Application Number:	
Confirmation Number:	9631
Title of Invention:	METHODS AND APPARATUS FOR CONTROLLING FAN DEVICES
First Named Inventor/Applicant Name:	Eric Stefankiewicz
Customer Number:	72822
Filer:	Evan Schechter
Filer Authorized By:	
Attorney Docket Number:	WAC-10APP1
Receipt Date:	23-DEC-2022
Filing Date:	14-JAN-2018
Time Stamp:	11:29:58
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	CARD
Payment was successfully received in RAM	$390
RAM confirmation Number	E2022BMB30193570
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	Request for Certificate of Correction	AssignmentKevinDarrah.pdf	59400 ffb552da5d1749baebe7311c51ae20d76e16484d	no	1
Warnings:					
Information:					
2	Request for Certificate of Correction	WAC10APPExistingInventoragreementSHELLEY.pdf	87524 a8e74b8712a5e2dc606fea58403594798234 5868	no	1
Warnings:					
Information:					
3	Request for Certificate of Correction	WAC-10APP1_sb0044_fillable.pdf	153215 e89d028634db1d5a1757994b1be6477af2bee9ee	no	2
Warnings:					
Information:					
4	Request for Certificate of Correction	Eric_scanned.pdf	26644 5bd2fbbb164af8fdb1763514d0ce7b2071d06595	no	1
Warnings:					
Information:					
5	Request for Certificate of Correction	WAC10APPassigneeagreement.pdf	98725 582a66d281a6f292819204f725b0594825aaa0f7	no	1
Warnings:					
Information:					
6	Request for Certificate of Correction	assignment-pat-045263-0569.pdf	220890 2eb415f7ab0a49d35a9bc631d7e56e44364d9536	no	6
Warnings:					
Information:					

7	Request for Certificate of Correction	letter_scanned_2.pdf	52235 f05ed8958a65a0d8ff2998a009456b6972452855	no	2
Warnings:					
Information:					
8	Fee Worksheet (SB06)	fee-info.pdf	42523 0fb66e419dd1c231d377ca01ceee6c985ad02321	no	2
Warnings:					
Information:					
			Total Files Size (in bytes):	741156	

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

New Applications Under 35 U.S.C. 111

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

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

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

New International Application Filed with the USPTO as a Receiving Office

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

QUITCLAIM ASSIGNMENT

This Quitclaim Assignment, executed on August 3, 2022 (the "**Effective Date**"), is made by and between USA Firmware, LLC ("**Assignor**"), a company organized under the laws of the State of Ohio, located at 10060 Brecksville Rd, Brecksville, OH 44141, and Wangs Alliance Corporation ("**Assignee**"), a corporation organized under the laws of the State of New York, located at 14 Harbor Park Drive, Port Washington, NY 11050 (collectively the "**Parties**", or each, individually, a "**Party**").

WITNESSETH, that Assignor, in consideration of good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged, to the extent not previously sold, assigned or transferred to Assignee by virtue of any other agreement with Assignee, any previous assignment to Assignee, operation of law, or otherwise, does hereby release and quitclaim unto Assignee, its successors, assigns and legal representatives forever, all right, title, and interest, if any, of Assignor in and to the patent applications and patents and the inventions represented therein, listed below (the "**Inventions**"):

No.	Application or Patent No.	Title	Application or Issue Date
1.	U.S. Patent No. 11,028,854	METHODS AND APPARATUS FOR CONTROLLING FAN DEVICES	06/08/2021
2.	U.S. Patent No. 10,488,897	METHODS AND APPARATUS RELATING TO FAN AND/OR LIGHTING CONTROL	11/26/2019
3.	U.S. Patent App. No. 15/871,047	METHODS AND APPARATUS FOR CONTROLLING FAN DEVICES	1/14/2018
4.	U.S. Patent App. No. 17/340,338	METHODS AND APPARATUS FOR CONTROLLING FAN DEVICES	6/7/2021
5.	U.S. Provisional Patent App. No. 62/617,274	METHODS AND APPARATUS FOR CONTROLLING FAN DEVICES	1/14/2018
6.	U.S. Provisional Patent App. No. 62/617,152	METHODS AND APPARATUS FOR CONTROLLING FAN DEVICES	1/12/2018
7.	PCT App. Pub. No. WO 2019/140,335	METHODS AND APPARATUS RELATING TO FAN AND/OR LIGHTING CONTROL	1/12/2019

in and to the Inventions and in and to all applications and Letters Patent granted therefor, and all non-provisionals, divisionals, reissues, reexaminations, continuations, continuation-in-parts and

extensions thereof. Assignor hereby further releases and quitclaims unto Assignee, its successors, assigns and legal representatives forever, all right, title, and interest, if any, of Assignor in and to all intellectual property specifically and uniquely created by Assignor for Assignee within the scope of services rendered by Assignor to Assignee under any written agreement, statement of work, quotation, or change order, to the extent not previously sold, assigned or transferred to Assignee by virtue of any other agreement with Assignee, any previous assignment to Assignee, operation of law, or otherwise, in and to all copyrights, trademarks with their associated goodwill, trade secrets, confidential information, and compilations, necessary or useful to make, use, or sell the inventions described in the Inventions, for the territory of the United States of America and all countries foreign thereto, and throughout the world and in space, (including the right to apply for Letters Patent in foreign countries in its own name and to claim any priority rights for such foreign applications to which such applications are entitled under international conventions, treaties, or otherwise).

Assignor hereby authorizes and requests the Commissioner of Patents, and any official whose duty it is to issue patents, to issue all Letters Patent on said Inventions or resulting therefrom to Assignee, or its successors and assigns, as assignee of the entire right, title and interest.

Assignor represents and warrants that:

1) It is a corporation or limited liability company duly organized, validly existing and in good standing in the jurisdiction of its registration;
2) It is duly qualified to do business and is in good standing in every jurisdiction in which such qualification is required for purposes of this Agreement;
3) It has full right to agree to, execute, and deliver this assignment.
4) It has not assigned or sold any of the rights associated with the Inventions to any third party before the Effective Date;
5) It had the opportunity to consult counsel with respect to the advisability of signing this Assignment; and
6) All subject matter assigned under this Quitclaim Assignment is free from any security interest, option, mortgage, charge, or lien.

Assignor agrees that it will without further consideration, but at the expense of Assignee, communicate to Assignee, or its successors, assigns, or nominees, any and all facts known by Assignor regarding said Inventions whenever requested, and that Assignor will execute all non-provisional, divisional, reissue, reexamination, continuation and continuation-in-part applications, testify in any legal proceedings, sign all lawful papers, make all rightful oaths, and generally do everything reasonable for Assignee, its successors, assigns, and nominees, to obtain and enforce proper patent protection for said inventions in all countries.

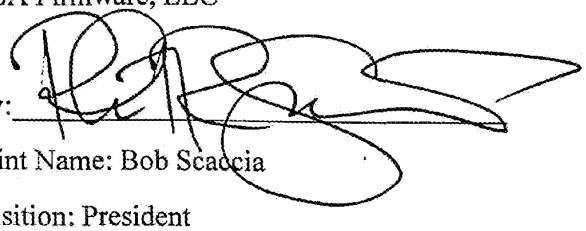
The undersigned hereby certifies that the undersigned is authorized by Assignor to execute this Assignment

[signature page follows]

IN WITNESS WHEREOF, I have hereunto set my hand and seal this 13th day of October, 2022.

FOR Assignor

USA Firmware, LLC

By: 

Print Name: Bob Scaccia

Position: President

Electronic Acknowledgement Receipt	
EFS ID:	47270191
Application Number:	15871044
International Application Number:	
Confirmation Number:	9631
Title of Invention:	METHODS AND APPARATUS FOR CONTROLLING FAN DEVICES
First Named Inventor/Applicant Name:	Eric Stefankiewicz
Customer Number:	72822
Filer:	Evan Schechter
Filer Authorized By:	
Attorney Docket Number:	WAC-10APP1
Receipt Date:	23-DEC-2022
Filing Date:	14-JAN-2018
Time Stamp:	14:08:58
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	Request for Certificate of Correction	smallUSAFIRMWAREASSIGNMENTTOWAC_Executed.pdf	6008073 6827576086c19f18bc2d40207eb21d9f3b06703a	no	3

Warnings:

Information:	
Total Files Size (in bytes):	6008073

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

New Applications Under 35 U.S.C. 111

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

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

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

New International Application Filed with the USPTO as a Receiving Office

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

UNITED STATES PATENT AND TRADEMARK OFFICE

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

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
15/871,044	01/14/2018	Eric Stefankiewicz	WAC-10APP1	9631

72822 7590 01/09/2023

Weiss & Arons LLP
63 South Main Street
Spring Valley, NY 10977

EXAMINER	
KING, MONICA C	

ART UNIT	PAPER NUMBER
2844	

MAIL DATE	DELIVERY MODE
01/09/2023	PAPER

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.

UNITED STATES PATENT AND TRADEMARK OFFICE

Commissioner for Patents
United States Patent and Trademark Office
P.O. Box 1450
Alexandria, VA 22313-1450
www.uspto.gov

Patent No.: 11028854
Issue Date: 06/08/2021
Appl. No.: 15/871,044
Filed: 01/14/2018

PART (A) RESPONSE FOR CERTIFICATES OF CORRECTION

This is a decision on the Certificate of Correction request filed 23 December 2022.

The request for issuance of Certificate of Correction for the above-identified correction(s) under the provisions of 37 CFR 1.322 and/or 1.323 is hereby:

(Check one)
☑ Approved ☐ Approved in Part ☐ Denied

Comments: ____

PART (B) PETITION UNDER 37 CFR 1.324 OR 37 CFR 1.48

☐ This is a decision on the petition filed ____ to correct inventorship under 37 CFR 1.324.

☐ This is a decision on the request under 37 CFR 1.48, petition filed ____. In view of the fact that the patent has already issued, the request under 37 CFR 1.48 has been treated as a petition to correct inventorship under 37 CFR 1.324.

The petition is hereby: ☐ Granted ☐ Dismissed

Comment: ____

The patented filed is being forwarded to Certificate of Corrections Branch for issuance of a certificate naming only the actual inventor or inventors.

/ALEXANDER H TANINGCO/
Supervisory Patent Examiner, Art Unit 2844
Technology Center 2800
Phone: (571)272-8048

Certificates of Correction Branch email: CustomerServiceCoC@uspto.gov CoC Central Phone Number: (703) 756-1814

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.
15/871,044	01/14/2018	Eric Stefankiewicz	WAC-10APP1	9631

72822 7590 01/13/2023

Weiss & Arons LLP
63 South Main Street
Spring Valley, NY 10977

EXAMINER	
KING, MONICA C	

ART UNIT	PAPER NUMBER
2844	

MAIL DATE	DELIVERY MODE
01/13/2023	PAPER

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.

UNITED STATES PATENT AND TRADEMARK OFFICE

Commissioner for Patents
United States Patent and Trademark Office
P.O. Box 1450
Alexandria, VA 22313-1450
www.uspto.gov

Patent No.: 11028854
Issue Date: 06/08/2021
Appl. No.: 15/871,044
Filed: 01/14/2018

PART (A) RESPONSE FOR CERTIFICATES OF CORRECTION

This is a decision on the Certificate of Correction request filed ____.

The request for issuance of Certificate of Correction for the above-identified correction(s) under the provisions of 37 CFR 1.322 and/or 1.323 is hereby:

(Check one)
☐ Approved ☐ Approved in Part ☐ Denied

Comments: ____

PART (B) PETITION UNDER 37 CFR 1.324 OR 37 CFR 1.48

☑ This is a decision on the petition filed 23 December 2022 to correct inventorship under 37 CFR 1.324.

☐ This is a decision on the request under 37 CFR 1.48, petition filed ____. In view of the fact that the patent has already issued, the request under 37 CFR 1.48 has been treated as a petition to correct inventorship under 37 CFR 1.324.

The petition is hereby: ☑ Granted ☐ Dismissed

Comment: See Continuation Sheet

The patented filed is being forwarded to Certificate of Corrections Branch for issuance of a certificate naming only the actual inventor or inventors.

/ALEXANDER H TANINGCO/
Supervisory Patent Examiner, Art Unit 2844
Technology Center 2800
Phone: (571)272-8048

Certificates of Correction Branch email: CustomerServiceCoC@uspto.gov CoC Central Phone Number: (703) 756-1814

Continuation of PART (B): Decison on Certificate of Correction sent on 1/9/23 is vacated - the petition to add an inventor has been granted under 37 CFR 1.324

UNITED STATES PATENT AND TRADEMARK OFFICE

CERTIFICATE OF CORRECTION

PATENT NO.	: 11,028,854 B2
APPLICATION NO.	: 15/871044
DATED	: June 8, 2021
INVENTOR(S)	: Eric Stefankiewicz and Shelley Wald

It is certified that error appears in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

On the Title Page

Item (72) In the Inventors:
Add Kevin Darrah, Medina, OH (US) as an Inventor.

Signed and Sealed this
Twenty-fourth Day of January, 2023

Katherine Kelly Vidal

Katherine Kelly Vidal
Director of the United States Patent and Trademark Office