

AO 120 (Rev. 08/10)

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

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

DOCKET NO. 6:22-cv-131	DATE FILED 2/6/2022	U.S. DISTRICT COURT WESTERN DISTRICT OF TEXAS
PLAINTIFF ROSEN TECHNOLOGIES LLC		DEFENDANT RESIDEO TECHNOLOGIES, INC.
PATENT OR TRADEMARK NO.	DATE OF PATENT OR TRADEMARK	HOLDER OF PATENT OR TRADEMARK
1 6,581,846	6/24/2003	ROSEN TECHNOLOGIES LLC
2 6,619,555	9/16/2003	ROSEN TECHNOLOGIES LLC
3 6,789,739	9/14/2004	ROSEN TECHNOLOGIES LLC
4 7,156,318	1/7/2007	ROSEN TECHNOLOGIES LLC
5 7,185,825	3/6/2007	ROSEN TECHNOLOGIES LLC

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
10/27/2022 Doc #40 ORDER GRANTING [39] Motion to Dismiss.

CLERK PHILIP J. DEVLIN	(BY) DEPUTY CLERK 	DATE 10/27/2022
--------------------------------------	---	---------------------------

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

PETITIONER ECOBEE
EX. 1006

AO 120 (Rev. 08/10)

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

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

DOCKET NO. 6:22-cv-131	DATE FILED 2/6/2022	U.S. DISTRICT COURT WESTERN DISTRICT OF TEXAS
PLAINTIFF ROSEN TECHNOLOGIES LLC		DEFENDANT RESIDEO TECHNOLOGIES, INC.
PATENT OR TRADEMARK NO.	DATE OF PATENT OR TRADEMARK	HOLDER OF PATENT OR TRADEMARK
1 7,232,075	6/19/2007	ROSEN TECHNOLOGIES LLC
2 RE40,437	7/15/2008	ROSEN TECHNOLOGIES LLC
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		
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DECISION/JUDGEMENT
10/27/2022 Doc #40 ORDER GRANTING [39] Motion to Dismiss.

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Copy 1—Upon initiation of action, mail this copy to Director Copy 3—Upon termination of action, mail this copy to Director
 Copy 2—Upon filing document adding patent(s), mail this copy to Director Copy 4—Case file copy

PETITIONER ECOBEE
EX. 1006

In Compliance with 35 U.S.C. § 290 and/or 15 U.S.C. § 1116 you are hereby advised that a court action has been filed in the U.S. District Court WESTERN DISTRICT OF TEXAS on the following

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

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

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

PETITIONER ECOBEE
EX. 1006

In Compliance with 35 U.S.C. § 290 and/or 15 U.S.C. § 1116 you are hereby advised that a court action has been filed in the U.S. District Court WESTERN DISTRICT OF TEXAS on the following

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



UNITED STATES PATENT AND TRADEMARK OFFICE

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

APPLICATION NO.	ISSUE DATE	PATENT NO.	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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11/804,324

07/15/2008

RE40437

HROSEN - DATA

9237

51413

7590

06/25/2008

AVERAGING R

MARC E. HANKIN, ESQ.
11414 THURSTON CIRCLE
LOS ANGELES, CA 90049

ISSUE NOTIFICATION

The projected patent number and issue date are specified above.

Determination of Patent Term Extension or Adjustment under 35 U.S.C. 154 (b)

A reissue patent is for "the unexpired part of the term of the original patent." See 35 U.S.C. 251. Accordingly, the above-identified reissue application is not eligible for Patent Term Extension or Adjustment under 35 U.S.C. 154(b).

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 (571)-272-4200.

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

Howard Rosen, Montreal, CANADA;

Electronic Patent Application Fee Transmittal

Application Number:	11804324			
Filing Date:	16-May-2007			
Title of Invention:	THERMOSTAT SYSTEM WITH REMOTE DATA AVERAGING			
First Named Inventor/Applicant Name:	Howard Rosen			
Filer:	Marc E. Hankin/Martyna Hadam			
Attorney Docket Number:	HROSEN - DATA AVERAGING R			
Filed as Small Entity				
Utility Filing Fees				
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	720	720
Extension-of-Time:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Miscellaneous:				
Total in USD (\$)				720

Electronic Acknowledgement Receipt

EFS ID:	3051380
Application Number:	11804324
International Application Number:	
Confirmation Number:	9237
Title of Invention:	THERMOSTAT SYSTEM WITH REMOTE DATA AVERAGING
First Named Inventor/Applicant Name:	Howard Rosen
Customer Number:	51413
Filer:	Marc E. Hankin/Martyna Hadam
Filer Authorized By:	Marc E. Hankin
Attorney Docket Number:	HROSEN - DATA AVERAGING R
Receipt Date:	25-MAR-2008
Filing Date:	16-MAY-2007
Time Stamp:	20:30:37
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	Credit Card
Payment was successfully received in RAM	\$720
RAM confirmation Number	4012
Deposit Account	
Authorized User	

File Listing:

Document Number	Document Description	File Name	File Size(Bytes) /Message Digest	Multi Part	Pages in App
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PETITIONER FILE

EX. 1006

1	Issue Fee Payment (PTO-85B)	Rosen-DataAveragingR-IssueFee.pdf	819419 e62e3fb2694c9bf2179b13e2644211045f9108fd	no	1
Warnings:					
Information:					
2	Fee Worksheet (PTO-06)	fee-info.pdf	8149 035588751d4d89b63d39c9a324ff5886dbc2cbf9	no	2
Warnings:					
Information:					
Total Files Size (in bytes):			827568		
This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503. <u>New Applications Under 35 U.S.C. 111</u> If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application. <u>National Stage of an International Application under 35 U.S.C. 371</u> If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course. <u>New International Application Filed with the USPTO as a Receiving Office</u> If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.					

PART B - FEE(S) TRANSMITTAL

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

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

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

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.

51413 7590 03/21/2008

MARC E. HANKIN, ESQ.
11414 THURSTON CIRCLE
LOS ANGELES, CA 90049

Certificate of Mailing or Transmission

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

MARTYNA V. HADAM	(Depositor's name)
<i>Marty V. Hadam</i>	(Signature)
MARCH 25, 2008	(Date)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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11/804,324 05/16/2007 Howard Rosen HROSEN - DATA 9237

TITLE OF INVENTION: THERMOSTAT SYSTEM WITH REMOTE DATA AVERAGING

AVERAGING R

APPLN. TYPE	SMALL ENTITY	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	YES	\$720	\$0	\$0	\$720	06/23/2008

EXAMINER	ART UNIT	CLASS-SUBCLASS
KOSOWSKI, ALEXANDER J	2125	700-277000

1. Change of correspondence address or indication of "Fee Address" (37 CFR 1.563).
☐ Change of correspondence address (or Change of Correspondence Address form PTO/SB/122) attached.
☐ "Fee Address" indication (or "Fee Address" Indication form PTO/SB/47; Rev 03-02 or more recent) attached. Use of a Customer Number is required.

2. For printing on the patent front page, list
(1) the names of up to 3 registered patent attorneys or agents OR, alternatively,
(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 MARCE E. HANKIN
2 HANKIN PATENT LAW, APC
3

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

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

(A) NAME OF ASSIGNEE

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

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

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

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

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

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

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

☐ a. Applicant claims SMALL ENTITY status. See 37 CFR 1.27. ☐ b. Applicant is no longer claiming SMALL ENTITY status. See 37 CFR 1.27(g)(2).

NOTE: The Issue Fee and Publication Fee (if required) will not be accepted from anyone other than the applicant; a registered attorney or agent; or the assignee or other party in interest as shown by the records of the United States Patent and Trademark Office.

Authorized Signature Marc E. Hankin
Typed or printed name MARCE E. HANKIN

Date MARCH 25, 2008
Registration No. 38,908

This collection of information is required by 37 CFR 1.311. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, Virginia 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450.

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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

51413 7590 03/21/2008

MARC E. HANKIN, ESQ.
11414 THURSTON CIRCLE
LOS ANGELES, CA 90049

EXAMINER

KOSOWSKI, ALEXANDER J

ART UNIT

PAPER NUMBER

2125

DATE MAILED: 03/21/2008

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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11/804,324

05/16/2007

Howard Rosen

HROSEN - DATA
AVERAGING R

9237

TITLE OF INVENTION: THERMOSTAT SYSTEM WITH REMOTE DATA AVERAGING

APPLN. TYPE	SMALL ENTITY	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	YES	\$720	\$0	\$0	\$720	06/23/2008

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 SMALL ENTITY status shown above.

If the SMALL ENTITY is shown as YES, verify your current SMALL ENTITY status:

A. If the status is the same, pay the TOTAL FEE(S) DUE shown above.

B. If the status above is to be removed, check box 5b on Part B - Fee(s) Transmittal and pay the PUBLICATION FEE (if required) and twice the amount of the ISSUE FEE shown above, or

If the SMALL ENTITY is shown as NO:

A. Pay TOTAL FEE(S) DUE shown above, or

B. If applicant claimed SMALL ENTITY status before, or is now claiming SMALL ENTITY status, check box 5a on Part B - Fee(s) Transmittal and pay the PUBLICATION FEE (if required) and 1/2 the ISSUE FEE shown above.

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: Utility patents issuing on applications filed on or after Dec. 12, 1980 may require payment of maintenance fees. It is patentee's responsibility to ensure timely payment of maintenance fees when due.

PART B - FEE(S) TRANSMITTAL

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

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

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

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.

51413 7590 03/21/2008

MARC E. HANKIN, ESQ.
11414 THURSTON CIRCLE
LOS ANGELES, CA 90049

Certificate of Mailing or Transmission

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

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

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
11/804,324	05/16/2007	Howard Rosen	HROSEN - DATA AVERAGING R	9237

TITLE OF INVENTION: THERMOSTAT SYSTEM WITH REMOTE DATA AVERAGING

APPLN. TYPE	SMALL ENTITY	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	YES	\$720	\$0	\$0	\$720	06/23/2008

EXAMINER	ART UNIT	CLASS-SUBCLASS
KOSOWSKI, ALEXANDER J	2125	700-277000

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

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

2. For printing on the patent front page, list

- (1) the names of up to 3 registered patent attorneys or agents OR, alternatively,
- (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 has been filed for recordation as set forth in 37 CFR 3.11. Completion of this form is NOT a substitute for filing an assignment.

(A) NAME OF ASSIGNEE

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

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

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

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

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

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

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

- ☐ a. Applicant claims SMALL ENTITY status. See 37 CFR 1.27. ☐ b. Applicant is no longer claiming SMALL ENTITY status. See 37 CFR 1.27(g)(2).

NOTE: The Issue Fee and Publication Fee (if required) will not be accepted from anyone other than the applicant; a registered attorney or agent; or the assignee or other party in interest as shown by the records of the United States Patent and Trademark Office.

Authorized Signature _____

Date _____

Typed or printed name _____

Registration No. _____

This collection of information is required by 37 CFR 1.311. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, Virginia 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450.

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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.
11/804,324	05/16/2007	Howard Rosen	HROSEN - DATA AVERAGING R	9237
51413	7590	03/21/2008	EXAMINER	
MARC E. HANKIN, ESQ. 11414 THURSTON CIRCLE LOS ANGELES, CA 90049			KOSOWSKI, ALEXANDER J	
			ART UNIT	PAPER NUMBER
			2125	
DATE MAILED: 03/21/2008				

Determination of Patent Term Extension or Adjustment under 35 U.S.C. 154 (b)

A reissue patent is for "the unexpired part of the term of the original patent." See 35 U.S.C. 251. Accordingly, the above-identified reissue application is not eligible for Patent Term Extension or Adjustment under 35 U.S.C. 154(b).

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.

Notice of Allowability

Application No.

11/804,324

Applicant(s)

ROSEN, HOWARD

Examiner

Alexander J. Kosowski

Art Unit

2125

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

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

1. ☒ This communication is responsive to the reissue application filed 5/16/07.
2. ☒ The allowed claim(s) is/are 1-15.
3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- 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.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
- (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
- 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____
- (b) ☐ 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) | 5. ☐ Notice of Informal Patent Application |
| 2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) | 6. ☐ Interview Summary (PTO-413),
Paper No./Mail Date _____ |
| 3. ☐ Information Disclosure Statements (PTO/SB/08),
Paper No./Mail Date _____ | 7. ☐ Examiner's Amendment/Comment |
| 4. ☐ Examiner's Comment Regarding Requirement for Deposit
of Biological Material | 8. ☒ Examiner's Statement of Reasons for Allowance |
| | 9. ☐ Other _____ |

DETAILED ACTION

1) Claims 1-15 are presented for examination in light of the pre-amendment filed 5/16/07.

This application is a reissue of application # 10/995,574, now U.S. Pat 7,058,477.

Allowable Subject Matter

2) Claims 1-15 are allowed.

The following is an examiner's statement of reasons for allowance:

As to claims 1-15, patentability resides, at least in part, in the combination of: an occupancy response system with a central control device, to control space conditioning equipment, wherein the control device apart from remote sensors in physical locations, the improvement includes, one or more environmental sensors and occupancy sensors, a central processor with a central processing unit, a real time clock, a memory, and an input/output unit, a remote processor for each remote sensors with central processing unit for storing a transmission control program, wherein the program detects occupancy or vacancy, read current signal from coupled environmental and occupancy sensors, and calculates an average of the received environmental sensor values and compares the average with a setpoint to determine actuation of the space conditioning equipment, in further combination with the other limitations of base claims 1 and 6.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

Application/Control Number:
11/804,324
Art Unit: 2125

Page 3

3) The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Games et al., Culp, Federspiel et al., Ratz et al., Rein et al., Russ et al., Kline et al., Pesko et al., and Dudley disclose related art.

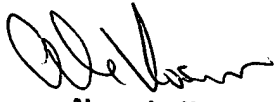
4) Any inquiry concerning this communication or earlier communications from the examiner should be directed to Alexander J Kosowski whose telephone number is 571-272-3744.

The examiner can normally be reached on Monday through Friday, alternating Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Leo Picard can be reached on 571-272-3749. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300. In addition, the examiner's RightFAX number is 571-273-3744.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 571-272-2100.

Alexander J. Kosowski
Primary Examiner
Art Unit 2125



Alexander Kosowski
Primary Examiner
TC2100

Notice of References Cited

Application/Control No.

11/804,324

Applicant(s)/Patent Under
Reexamination
ROSEN, HOWARD

Examiner

Alexander J. Kosowski

Art Unit

2125

Page 1 of 1

U.S. PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	Classification
*	A	US-4,205,381	05-1980	Games et al.	700/277
*	B	US-4,522,336	06-1985	Culp, Charles H.	236/46R
*	C	US-5,170,935	12-1992	Federspiel et al.	236/44C
*	D	US-5,197,668	03-1993	Ratz et al.	236/51
*	E	US-5,341,988	08-1994	Rein et al.	236/49.3
*	F	US-5,801,940	09-1998	Russ et al.	700/9
*	G	US-6,338,437	01-2002	Kline et al.	236/49.3
*	H	US-6,536,675	03-2003	Pesko et al.	236/47
*	I	US-2003/0216838	11-2003	Dudley, Kevin F.	700/277
	J	US-			
	K	US-			
	L	US-			
	M	US-			

FOREIGN PATENT DOCUMENTS

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

NON-PATENT DOCUMENTS

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

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

Issue Classification 	Application/Control No. 11/804,324	Applicant(s)/Patent under Reexamination ROSEN, HOWARD
	Examiner Alexander J. Kosowski	Art Unit 2125

ISSUE CLASSIFICATION												
ORIGINAL					INTERNATIONAL CLASSIFICATION							
CLASS		SUBCLASS			CLAIMED					NON-CLAIMED		
700		277			G	05	D	23	/00		/	
CROSS REFERENCES												
CLASS	SUBCLASS (ONE SUBCLASS PER BLOCK)											
700	276											
236	1C	51										
					Total Claims Allowed: 15							
(Assistant Examiner) (Date) <i>E. J. Lee</i> 3/20/08 (Legal Instruments Examiner) (Date)					<i>Alexander Kosowski</i> Alexander Kosowski 12/12/07 (Primary Examiner) (Date)					O.G. Print Claim(s) 1		O.G. Print Fig. 2 & 3

☒ Claims renumbered in the same order as presented by applicant					☐ CPA		☐ T.D.		☐ R.1.47		
Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original
	1		31		61		91		121		151
	2		32		62		92		122		152
	3		33		63		93		123		153
	4		34		64		94		124		154
	5		35		65		95		125		155
	6		36		66		96		126		156
	7		37		67		97		127		157
	8		38		68		98		128		158
	9		39		69		99		129		159
	10		40		70		100		130		160
	11		41		71		101		131		161
	12		42		72		102		132		162
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	28		58		88		118		148		178
	29		59		89		119		149		179
	30		60		90		120		150		180

Search Notes

Application/Control No.

11/804,324

Examiner

Alexander J. Kosowski

Applicant(s)/Patent under
Reexamination

ROSEN, HOWARD

Art Unit

2125

SEARCHED

Class	Subclass	Date	Examiner
700	276-278	12/12/2007	AJK
236	1C,51,91F	12/12/2007	AJK
236	91R	12/12/2007	AJK

INTERFERENCE SEARCHED

Class	Subclass	Date	Examiner
700	276-277	12/12/2007	AJK
235	1C,51	12/12/2007	AJK

**SEARCH NOTES
(INCLUDING SEARCH STRATEGY)**

	DATE	EXMR
EAST Search (attached)	12/12/2007	AJK
PALM Inventor Name Search STIC Search Interference Search	12/12/2007	AJK



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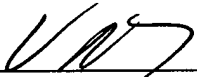
BIB DATA SHEET

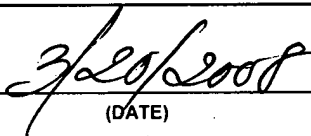
CONFIRMATION NO. 9237

SERIAL NUMBER 11/804,324	FILING or 371(c) DATE 05/16/2007 RULE	CLASS 370	GROUP ART UNIT 2125	ATTORNEY DOCKET NO. HRosen - Data Averaging R	
APPLICANTS Howard Rosen, Montreal, CANADA; ** CONTINUING DATA ***** This application is a REI of 10/995,574 11/23/2004 PAT 7,058,477 <i>NR</i> ** FOREIGN APPLICATIONS ***** <i>None</i> ** IF REQUIRED, FOREIGN FILING LICENSE GRANTED ** ** SMALL ENTITY ** 06/16/2007					
Foreign Priority claimed ☐ Yes ☒ No 35 USC 119(a-d) conditions met ☐ Yes ☒ No Verified and Acknowledged <i>[Signature]</i> Examiner's Signature	☐ Met after Allowance Initials	STATE OR COUNTRY CANADA	SHEETS DRAWINGS 4	TOTAL CLAIMS 15	INDEPENDENT CLAIMS 2
ADDRESS MARC E. HANKIN, ESQ. 11414 THURSTON CIRCLE LOS ANGELES, CA 90049 UNITED STATES					
TITLE Thermostat system with remote data averaging					
FILING FEE RECEIVED 700	FEES: Authority has been given in Paper No. _____ to charge/credit DEPOSIT ACCOUNT No. _____ for following:		☐ All Fees ☐ 1.16 Fees (Filing) ☐ 1.17 Fees (Processing Ext. of time) ☐ 1.18 Fees (Issue) ☐ Other _____ ☐ Credit _____		

Application Number  	Application No. 11/804,324	Applicant(s) REIS.REVFORM
	Notice of Reissue Published in OG on 7/17/2007	
Original Patent Number of Patent To Be Reissued is 7,058,477		The Maintenance fee status is: ☒ up to date. ☐ not required.
This reissue patent is subject to A Terminal Disclaimer that: ☐ was filed during the prosecution of the reissue application. ☐ was of record prior to the filing of the reissue application.		
Physical surrender of the letters patent ☐ was made. ☐ was not made, but a statement of loss/inaccessibility was provided. ☒ is not required		

Final SPRE Review


(INITIALS)


(DATE)

U.S. Patent and Trademark Office

EAST Search History

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
S1	1	"7058477".pn.	US-PGPUB; USPAT; EPO; JPO	OR	ON	2007/12/12 15:19
S2	0	("7058477").URPN.	USPAT	OR	ON	2007/12/12 14:23
S3	12	("20030216838" "4205381" "4522336" "4860950" "5170935" "5197668" "5341988" "5407002" "5644302" "5801940" "6338437" "6536675").PN.	US-PGPUB; USPAT; USOCR	OR	ON	2007/12/12 14:33
S4	3	"5407002".pn. or "5644302".pn. or "4860950".pn.	US-PGPUB; USPAT; USOCR	OR	ON	2007/12/12 14:27
S5	11	S3 and occup\$5	US-PGPUB; USPAT; EPO; JPO	OR	ON	2007/12/12 14:33
S6	5	S5 and remot\$2	US-PGPUB; USPAT; EPO; JPO	OR	ON	2007/12/12 14:30
S7	594	700/276-278.ccls.	US-PGPUB; USPAT; USOCR	OR	ON	2007/12/12 14:33
S8	3187	236/1c,51,91f,91r.ccls.	US-PGPUB; USPAT; USOCR	OR	ON	2007/12/12 14:33
S9	3732	S7 or S8	US-PGPUB; USPAT; USOCR	OR	ON	2007/12/12 14:33
S10	134	S9 and occup\$4 and averag\$3	US-PGPUB; USPAT; EPO; JPO	OR	ON	2007/12/12 14:36
S11	6	S10 and averag\$3 with remot\$4	US-PGPUB; USPAT; EPO; JPO	OR	ON	2007/12/12 14:36
S12	2479	700/276-277.ccls. or 236/1C,51.ccls.	US-PGPUB; USPAT; EPO; JPO	OR	ON	2007/12/12 15:19
S13	18	S12 and (occup\$4 and remot\$3 and temperature).clm.	US-PGPUB; USPAT; EPO; JPO	OR	ON	2007/12/12 15:22
S14	3	S13 and averag\$3.clm.	US-PGPUB; USPAT; EPO; JPO	OR	ON	2007/12/12 15:20
S15	1	S12 and (vacan\$4 and averag\$3).clm.	US-PGPUB; USPAT; EPO; JPO	OR	ON	2007/12/12 15:22

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SEARCH REQUEST FORM

Scientific and Technical Information Center

Requester's Full Name: Vincent N. Trans Examiner # : 65435 Date: _____
 Art Unit: 2100 Phone Number 2-3616 Serial Number: 11/804,324
 Mail Box Location: RND- 4B07 Results Format Preferred (circle): PAPER DISK E-MAIL

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Please provide a detailed statement of the search topic, and describe as specifically as possible the subject matter to be searched. Include the elected species or structures, keywords, synonyms, acronyms, and registry numbers, and combine with the concept or utility of the invention. Define any terms that may have a special meaning. Give examples or relevant citations, authors, etc, if known. Please attach a copy of the cover sheet, pertinent claims, and abstract.

Title of Invention: _____

Inventors (please provide full names): _____

Earliest Priority Filing Date: _____

**For Sequence Searches Only* Please include all pertinent information (parent, child, divisional, or issued patent numbers) along with the appropriate serial number.*

Litigation
7,058,477

STAFF USE ONLY

Type of Search

Vendors and cost where applicable

Searcher: <u>Shirelle Green</u>	Sequence (#) _____	STN _____
Searcher Phone #: <u>306-4767</u>	AA Sequence (#) _____	Dialog _____
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Date Searcher Picked Up: _____	Bibliographic _____	Dr.Link _____
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Searcher Prep & Review Time: _____	Fulltext _____	Sequence Systems _____
Clerical Prep Time: _____	Patent Family _____	WWW/Internet ☒
Online Time: <u>10</u>	Other _____	Other (specify) <u>Courthlink</u>

UNITED STATES PATENT AND TRADEMARK OFFICE GRANTED PATENT

7058477

June 6, 2006

Thermostat system with remote data averaging

REISSUE: May 16, 2007 - Reissue Application filed, Ex. Gp.: 2616; Re. S.N.: 11/804,324 (O.G. July 17, 2007)

INVENTOR: Rosen, Howard - Lyncroft Road, Hampstead, Quebec, H3X 3E3, Canada (CA)

APPL-NO: 995574 (10)

FILED-DATE: November 23, 2004

GRANTED-DATE: June 6, 2006

ENGLISH-ABST:

A thermostat system according to the invention includes: a central control device (typically a programmable thermostat with a processor having: a CPU, real time clock and a memory for storing a control program and data information), multiple rooms comprising a conditioned space, environmental control equipment, and multiple environmental sensors capable of sensing an environmental condition (such as temperature, humidity, or other condition). The sensors are associated with transmission means, which control transmission of sensor signals, and occupancy sensors. Each sensor measures a local environmental condition. Occupancy sensors comprise infrared or other motion sensors, light detection sensors, door opening sensors, and other such sensors that detect the presence of humans in a room of the conditioned space where its associated sensor is located. Space conditioning equipment is activated by comparison of a set-point to a control value averaged from values of environmental conditions in occupied rooms.

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File: ALL

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Search statement 2

Query/Command : us7058477/pn

** SS 2: Results 1

Search statement 3

?

Query/Command : prt full nonstop
legalall

1 / 1 PLUSPAT - ©QUESTEL-ORBIT - image
PN - US7058477 B1 20060606 [US7058477]
TI - (B1) Thermostat system with remote data averaging
LA - ENGLISH (ENG)
IN - (B1) ROSEN HOWARD (CA)
AP - US99557404 20041123 [2004US-0995574]
PR - US99557404 20041123 [2004US-0995574]
IC - (B1) G05D-023/00
ICAA- G05D-023/00 [2006-01 A F I B H US]
ICCA- G05D-023/00 [2006 C L I B H US]
EC - G05D-023/19D
G05D-023/19G4C2
PCL - ORIGINAL (O) : 700277000; CROSS-REFERENCE (X) : 236001000C
236051000 700276000
DT - Basic
CT - Cited; US4205381; US4522336; US5170935; US5197668; US5341988;
US5801940; US6338437; US6536675; US20030216838; Cited; US4860950;
US5407002; US5644302
STG - (B1) U.S. Patent (no pre-grant pub.) after Jan. 2, 2001
AB - A thermostat system according to the invention includes: a central
control device (typically a programmable thermostat with a
processor having: a CPU, real time clock and a memory for storing
a control program and data information), multiple rooms comprising
a conditioned space, environmental control equipment, and
multiple environmental sensors capable of sensing an environmental
condition (such as temperature, humidity, or other condition).
The sensors are associated with transmission means, which control
transmission of sensor signals, and occupancy sensors. Each sensor
measures a local environmental condition. Occupancy sensors
comprise infrared or other motion sensors, light detection
sensors, door opening sensors, and other such sensors that detect
the presence of humans in a room of the conditioned space where
its associated sensor is located. Space conditioning equipment is
activated by comparison of a setpoint to a control value averaged
from values of environmental conditions in occupied rooms.
UP - 2006-22

1 / 1 LGST - ©EPO

PN - US7058477 B1 20060606 [US7058477]
AP - US99557404 20041123 [2004US-0995574]
ACT - 20070717 US/RF-A
REISSUE APPLICATION FILED
EFFECTIVE DATE: 20070516
UP - 2007-29

1 / 1 CRXX - ©CLAIMS/RRX
PN - 7,058,477 A 20060606 [US7058477]
PA - Rosen, Howard CA
ACT - 20070516 REISSUE REQUESTED
ISSUE DATE OF O.G.: 20070717
REISSUE REQUEST NUMBER: 11/804324
EXAMINATION GROUP RESPONSIBLE FOR REISSUEPROCESS: 2616

Reissue Patent Number:

Search statement 3

Query/Command : stop

Session finished: 13 DEC 2007 Time 18:15:53

LGST - Time in minutes : 0,06
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	Estimated cost :	1.40 USD
Cost estimated for the last database search :		1.47 USD
Estimated total session cost :		2.26 USD

CRXX - Time in minutes : 0,11
The cost estimation below is based on Questel's
standard price list

	Estimated cost :	0.21 USD
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Cost estimated for the last database search :		12.21 USD
Estimated total session cost :		14.47 USD

LITA - Time in minutes : 0,03
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PLUSPAT - Time in minutes : 0,41
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standard price list

	Estimated cost :	1.19 USD
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Cost estimated for the last database search :		4.29 USD
Estimated total session cost :		18.84 USD

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Format for Search Results: PAPER EMAIL

AU 2600 Examiner # 62370

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NPL _____ where - IEEE, ACM, internet, other

Serial # 11/804324

Priority Date _____

DESCRIBE the scope of your request, such as the area of art, novelty, process or method if applicable. Specify the concepts, synonyms, keywords, acronyms, or definitions and the relationship of the concepts to each other. Please attach a copy of the background, abstract, and pertinent claims of the application. **ONLY specifying CLAIM 1 is not enough.**

US 7,058,477

STIC Searcher Kimberly Johnson Phone 2-4235
Date picked up 11/28/07 Date completed 11/28/07
DATABASES Searched Quest/ICRS/Courtl TEXT _____ LITIGATION X
OTHER _____



Query/Command : prt max legalall

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FAN - 20061580029871

PN -  US7058477 B1 20060606 [US7058477]

TI - Thermostat system with remote data averaging

IN - ROSEN HOWARD

AP - 2004US-0995574 20041123

PR - 2004US-0995574 20041123

IC - G05D-023/00

ICAA - G05D-023/00 [2006-01 A F I B H US]

ICCA - G05D-023/00 [2006 C L I B H US]

EC - G05D-023/19D
G05D-023/19G4C2

PCL - ORIGINAL (O) : 700277000; CROSS-REFERENCE (X) : 236001000C
236051000 700276000

CT - (US7058477)
Cited; US4205381; US4522336; US5170935; US5197668; US5341988;
US5801940; US6338437; US6536675; US20030216838; Cited; US4860950;
US5407002; US5644302

AB - (US7058477)
A thermostat system according to the invention includes: a central control device (typically a programmable thermostat with a processor having: a CPU, real time clock and a memory for storing a control program and data information), multiple rooms comprising a conditioned space, environmental control equipment, and multiple environmental sensors capable of sensing an environmental condition (such as temperature, humidity, or other condition). The sensors are associated with transmission means, which control transmission of sensor signals, and occupancy sensors. Each sensor measures a local environmental condition. Occupancy sensors comprise infrared or other motion sensors, light detection sensors, door opening sensors, and other such sensors that detect the presence of humans in a room of the conditioned space where its associated sensor is located. Space conditioning equipment is activated by comparison of a setpoint to a control value averaged from values of environmental conditions in occupied rooms.

OBJ - (US7058477)
This invention relates to the art of thermostats and, more particularly, to a thermostat system incorporating a central control device receiving remote environmental sensing data from remote sensors.
It is an object of the invention to average sensed environment conditions only in occupied rooms in order to calculate a control value.

ADB - (US7058477)
There is a need for zone control in a thermostat system where remote sensor values are averaged for occupied rooms at a central control device. However, this second embodiment comprises transmission means that causes transmission of environmental sensor signals to the central control device with additional signals indicating whether the sensor signal originates from an

control program, calculate an average of the received environmental sensor values and use the average result as a control value which is compared with a setpoint stored in the memory of the central control program to determine actuation of the space conditioning equipment.

UP - 2006-22

1/1 LGST- ©EPO

PN -  US7058477 B1 20060606 [US7058477]

AP - US99557404 20041123 [2004US-0995574]

ACT - 20070717 US/RF-A
REISSUE APPLICATION FILED
EFFECTIVE DATE: 20070516

UP - 2007-29

1/1 CRXX- ©CLAIMS/RRX

PN -  7,058,477 A 20060606 [US7058477]

PA - Rosen, Howard CA

ACT - 20070516 REISSUE REQUESTED
ISSUE DATE OF O.G.: 20070717
REISSUE REQUEST NUMBER: 11/804324
EXAMINATION GROUP RESPONSIBLE FOR REISSUEPROCESS: 2616

Reissue Patent Number:

Search statement 5

LEVEL 1 - 1 OF 1 PATENT

UNITED STATES PATENT AND TRADEMARK OFFICE GRANTED PATENT

7058477

June 6, 2006

Thermostat system with remote data averaging

REISSUE: May 16, 2007 - Reissue Application filed, Ex. Gp.: 2616; Re. S.N.:
11/804,324 (O.G. July 17, 2007)

APPL-NO: 995574 (10)

FILED-DATE: November 23, 2004

GRANTED-DATE: June 6, 2006

CORE TERMS: sensor, occupancy, remote, control device, environmental,
conditioned, averaging, occupied, thermostat, processor ...

LEXIS-NEXIS
Library: PATENTS
File: ALL

7,058,477 OR 7058477

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File: CASES

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7,058,477 OR 7058477

LEXIS-NEXIS
Library: PATENTS
File: JNLS

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7,058,477 OR 7058477

LEXIS-NEXIS
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APPLICATION NUMBER	FILING or 371(c) DATE	GRP ART UNIT	FIL FEE REC'D	ATTY. DOCKET NO	TOT CLAIMS	IND CLAIMS
11/804,324	05/16/2007	2616	700	HRosen - Data Averaging R	15	2

CONFIRMATION NO. 9237

FILING RECEIPT

51413
MARC E. HANKIN, ESQ.
11414 THURSTON CIRCLE
LOS ANGELES, CA90049

Date Mailed: 06/18/2007

Receipt is acknowledged of this reissue Patent Application. It will be considered in its order and you will be notified as to the results of the examination. Be sure to provide the U.S. APPLICATION NUMBER, FILING DATE, NAME OF APPLICANT, and TITLE OF INVENTION when inquiring about this application. 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 mail to the Commissioner for Patents P.O. Box 1450 Alexandria Va 22313-1450. 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 (if appropriate).**

Applicant(s)

Howard Rosen, Montreal, CANADA;

Power of Attorney: The patent practitioners associated with Customer Number 51413

Domestic Priority data as claimed by applicant

This application is a REI of 10/995,574 11/23/2004 PAT 7,058,477

Foreign Applications

If Required, Foreign Filing License Granted: 06/16/2007

The country code and number of your priority application, to be used for filing abroad under the Paris Convention, is
US11/804,324

Projected Publication Date: None, application is not eligible for pre-grant publication

Non-Publication Request: No

Early Publication Request: No

**** SMALL ENTITY ****

Title

Thermostat system with remote data averaging

Preliminary Class

**PETITIONER ECOBEE
EX. 1006**

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U.S. PTO

PTO/SB/50 (04-05)
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REISSUE PATENT APPLICATION TRANSMITTAL

Address to: Mail Stop Reissue Commissioner for Patents P.O. Box 1450 Alexandria, VA 22313-1450	Attorney Docket No.	HRosen - Data Averaging Reissue
	First Named Inventor	Rosen, Howard
	Original Patent Number	7,058,477
	Original Patent Issue Date (Month/Day/Year)	June 6, 2006
	Express Mail Label No.	EQ 704849984 US

APPLICATION FOR REISSUE OF: (Check applicable box)

☒ Utility Patent ☐ Design Patent ☐ Plant Patent

APPLICATION ELEMENTS (37 CFR 1.173)

1. ☒ Fee Transmittal Form (PTO/SB/56) (Submit a duplicate copy)
2. ☒ Applicant claims small entity status. See 37 CFR 1.27.
3. ☒ Specification and Claims in double column copy of patent format (amended, if appropriate)
4. ☒ Drawing(s) (proposed amendments, if appropriate)
5. ☒ Reissue Oath/Declaration (original or copy) (37 C.F.R. 1.175) (PTO/SB/51 or 52)
6. ☒ Power of Attorney
7. ☒ Original U.S. Patent currently assigned? ☐ Yes ☒ No
(If Yes, check applicable box(es))
 - ☐ Written Consent of all Assignees (PTO/SB/53)
 - ☐ 37 CFR 3.73(b) Statement (PTO/SB/96)
8. ☐ CD-ROM or CD-R in duplicate, Computer Program (Appendix) or large table
 - ☐ Landscape Table on CD
9. Nucleotide and/or Amino Acid Sequence Submission (if applicable, items a. - c. are required)
 - a. ☐ Computer Readable Form (CRF)
 - b. Specification Sequence Listing on:
 - i ☐ CD-ROM (2 copies) or CD-R (2 copies); or
 - ii ☐ paper
 - c. ☐ Statements verifying identity of above copies

ACCOMPANYING APPLICATION PARTS

10. ☒ Statement of status and support for all changes to the claims. See 37 CFR 1.173(c).
11. ☐ Foreign Priority Claim (35 U.S.C. 119) (if applicable)
12. ☐ Information Disclosure Statement (IDS) PTO/SB/08 or PTO-1449
 - ☐ Copies of citations attached
13. ☐ English Translation of Reissue Oath/Declaration (if applicable)
14. ☒ Preliminary Amendment
15. ☒ Return Receipt Postcard (MPEP 503) (Should be specifically itemized)
16. ☐ Other:

17. CORRESPONDENCE ADDRESS

☒ The address associated with Customer Number: 51413 OR ☐ Correspondence address below

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Country	Telephone	Email		
Signature		Date		
Name (Print/Type)		Registration No. (Attorney/Agent)		
Marc E. Hankin		38,908		

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PTO/SB/56 (02-07)

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REISSUE APPLICATION FEE TRANSMITTAL FORM

Docket Number (Optional)

HRosen - Data Averaging Reissue

Application as Filed - Part 1

	(1) Claims in Patent	(2) Claims Filed in Reissue Application	(3) Number Extra	Small Entity		Other than a Small Entity	
				Rate (\$)	Fee (\$)	Rate (\$)	Fee (\$)
Total Claims (37 CFR 1.16(i))	(A) 15	(B) 15	**** 0 =	x 25 =	0	x =	
Independent Claims (37 CFR 1.16(h))	(C) 2	(D) 2	* 0 =	x 100 =	0	x =	
Application Size Fee (37 CFR 1.16(s))	If the specification and drawings exceed 100 sheets of paper, the application size fee due is \$250 (\$125 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).					or	
				Filing Fee (37 CFR 1.16(e))		150.00	
				Search Fee (37 CFR 1.16(n))		250.00	
				Examination Fee (37 CFR 1.16(r))		300.00	
				Total Filing Fee		700.00	

Application as Amended - Part 2

	(1) Claims Remaining After Amendment	(2) Highest Number Previously Paid For	(3) Extra Claims Present	Small Entity		Other than a Small Entity	
				Rate (\$)	Fee (\$)	Rate (\$)	Fee (\$)
Total Claims (37 CFR 1.16(i))	*** 15	MINUS ** 20	= 0	x 25 =	0	x =	
Independent Claims (37 CFR 1.16(h))	*** 2	MINUS ***** 3	= 0	x 100 =	0	x =	
Application Size Fee (37 CFR 1.16(s))	If the specification and drawings exceed 100 sheets of paper, the application size fee due is \$250 (\$125 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).					or	
				Total Additional Fee		0	

* If (D) is less than (C), enter "0" in column 3. For reissues filed on or after Dec. 8, 2004, enter (D) minus 3 or "0" if (D) is less than 3.
 ** If the "Highest Number of Total Claims Previously Paid For" is less than 20, enter "20" in this space.
 *** After any cancellation of claims.
 **** If (A) is greater than 20, enter (B) - (A); if (A) is 20 or less, enter (B) - 20. For reissues filed on or after Dec. 8, 2004, enter (B) - 20.
 ***** For amendments filed on or after Dec. 8, 2004, enter the "Highest Number of Independent Claims Previously Paid For."
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☒ Applicant claims small entity status. See 37 CFR 1.27.

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Marc E. Hankin

Signature

MAY 15, 2007

Date

Marc E. Hankin

Typed or printed name

38,908

Registration Number, if applicable

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Telephone Number

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PETITIONER ECOBEE
EX. 1006

1

THERMOSTAT SYSTEM WITH REMOTE DATA AVERAGING

FIELD OF THE INVENTION

This invention relates to the art of thermostats and, more particularly, to a thermostat system incorporating a central control device receiving remote environmental sensing data from remote sensors.

BACKGROUND OF THE INVENTION

Thermostats have been used for many years as a temperature sensitive switch which controls heating and/or cooling equipment for conditioning a space in which the thermostat, or a temperature sensor connected to the thermostat, is placed. In the well known manner, a simple thermostat can be adjusted to establish a temperature set point such that, when the temperature in the conditioned space reaches the set point, the thermostat interacts with the heating and/or cooling equipment to take suitable action to heat or cool the conditioned space as may be appropriate for the season.

Modern thermostat systems, which take advantage of the ongoing rapid advances in electronic technology and circuit integration, have many features which provide more precise supervision of the heating and/or cooling equipment to achieve more economical and more comfortable management of the temperature of a conditioned space. Many modern thermostat systems include a real time clock, a memory and a data processor to run a process control program stored in the memory to accurately measure the temperature of a temperature sensor disposed in the conditioned space and to send control signals to the heating and/or cooling equipment to closely control the temperature of the conditioned space. Modern thermostat systems permit anticipating and minimizing hysteresis or overshoot of the temperature in the conditioned space. In addition, the program can specify different set points at different times of the day and week and may also include a "vacation" mode which employs different set points when the conditioned space is not occupied for an extended period.

Many modern thermostat systems have a central control device or unit that receives environmental sensor data from sensors remote from the central control device. These sensors can detect temperature, humidity, or other parameters that may be used in a control program by the central control device to control environmental control equipment. The environmental control equipment (comprising HVAC equipment, among others) responds to signals from the central control device to affect the ambient comfort in rooms of a conditioned space. Typically, a remote sensor signal is received by the central control device and its value compared with that of a pre-set setpoint. If the sensor value is sufficiently different from the setpoint, environmental control equipment is activated or de-activated in response thereto. Remote sensors can be connected by wire directly to the central control device or by wireless connection so that the control program can store the output of each sensor and associate it with an identifier for the remote sensor where the output originated.

Modern programmable thermostat systems also may act to control temperature in some rooms or out of all those in a conditioned space as a "zone". Unfortunately, zone control requires dedicated equipment for the zone or duct dampers or deflectors to direct conditioned air to the zone rooms. This requires complexity and additional cost to the system. One

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form of zone control uses storage in a central control device storing all the signals from multiple remote environmental sensors in the zone. The control program calculates an average value from the stored values of the remote sensors and uses that average value as a control value. The control value is compared with a setpoint, whereafter environmental control equipment is activated or de-activated. The control value established by prior art thermostat systems can easily over- or under-condition a room where a user most desires environmental control.

There is a need for zone control in a thermostat system where remote sensor values are averaged for occupied rooms at a central control device. The averaged sensor data establish a zone control value. This zone control value more accurately reflects environmental conditions of rooms where the user most desires control of those environmental conditions.

SUMMARY OF THE INVENTION

A thermostat system according to the invention includes: a central control device (typically a programmable thermostat with a processor having: a CPU, real time clock and a memory for storing a control program and data information), multiple rooms comprising a conditioned space, environmental control equipment, and multiple environmental sensors capable of sensing an environmental condition (such as temperature, humidity, or other condition). With exception of those provided within or close to a housing of the central control device, environmental sensors are located remote from the central control device. "Remote" as used herein means effectively remote from the central control device as to a sensed environmental condition. A remote sensor may be located in another room as compared with the central control device. Alternately, a remote sensor may be located some distance away from the central control device in a large room. A communications interface is adapted to establish reception of signals (via wired or wireless connections) between the processor and the environmental sensors.

In one embodiment, the sensors are associated with transmission means, which control transmission of sensor signals, and occupancy sensors. Each sensor measures a local environmental condition. Occupancy sensors comprise infrared or other motion sensors, light detection sensors, door opening sensors, and other such sensors that detect the presence of humans in a room of the conditioned space where its associated sensor is located.

In one form of the invention, transmission means enables transmission of environmental sensor signals to the central control device only upon input of signals from the occupancy detector. In another form of the invention, transmission means provide continuous transmissions from environmental sensor signals to a central control device, albeit where such signals are associated with indications of occupancy or non-occupancy of a room where the sensor is located. sensing occupancy of a room or an area of a large room. Such remote sensor signals are transmitted to the central control device and stored in its memory as a table of data indicating environmental conditions only in occupied rooms. The values of this table are averaged in one of several selected modes to yield a control value. This control value more accurately reflects the desired environmental conditions of the rooms where user's are present. Alternately, all sensor data may be stored at the central control device and associated with indications of occupancy or non-occupancy

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of a room where the sensor is located and a time of the sensing of the environmental condition and occupancy status of the room.

In a second embodiment, remote sensors and occupancy detectors are associated as in the first embodiment. However, this second embodiment comprises transmission means that causes transmission of environmental sensor signals to the central control device with additional signals indicating whether the sensor signal originates from an occupied or non-occupied room. Transmission means may transmit continuously, periodically or upon the occurrence of a sensed event. The occupancy status of the room is determined by the input to the transmission means of the occupancy sensor. These remote sensor signals are transmitted to the central control device and stored in its memory as a table of data indicating environmental conditions of both occupied and un-occupied rooms. The values of this table are averaged in one of several selected modes to yield a control value. This control value more accurately reflects the overall desired environmental conditions of the rooms where user's are present.

A user may optionally select from one of several forms of averaging of sensor data to derive a control value. The control program may cause a display screen connected with the CPU to provide a user with a list of averaging options, where by the user can select one of the options through a user interface with touch sensitive buttons or other well known means.

Averaging of sensor data may be accomplished by one of several methods. The sensor data table may contain sensor data from sensors located at the central control devices as well as from remote sensors. Simple averaging of sensor data associated with room occupancy occurs when all environmental sensor data are added together and divided by the number of data items in the table.

A second form of averaging uses weighting depending on square footage of the room where the sensor is located. Greater weighting is assigned to sensor data associated with occupancy in rooms with greater relative square footage.

A third form of averaging uses sensor data from occupied and unoccupied rooms and assigns greater weight to sensor data from occupied rooms.

A fourth form of averaging uses historical data to determine rooms most heavily occupied over a pre-determined period (such as a week or month) and averages current sensor data only from those heavily occupied rooms to arrive at a control value regardless of current occupancy status.

Current thermostat systems can include mobile remote temperature sensors with wireless transmitters. These mobile temperature sensors send sensed, local temperature signals to a central control device and are usually battery powered and enclosed in a handheld housing. The mobile sensors can include a display of locally sensed temperature. In one form of the invention, mobile sensors detect room occupancy and also have means to detect motion of the device itself relative to its surroundings. Without such means, movement of the mobile sensor by a user would result in a false indication of occupancy to the occupancy sensor. For example, an infra-red motion detector in the mobile sensor would falsely interpret carrying the mobile sensor from one room to another as the presence of a person moving in a room. Instead, transmission means are connected to a device motion sensor. The device motion sensor in one form comprises a circuit that opens, closes or alternates between those states when the mobile sensor is picked up and moved. A set of fixed contacts for the circuit can be

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arranged so that rolling or sliding metallic pieces in an enclosed cavity break or complete the circuit when the device itself is picked up and carried to another room. The transmission means delays receipt of inputs from the occupancy sensor until the mobile sensor has come to rest and/or after a predetermined period of time. These adaptations allow the mobile sensor to come to rest before sensing room occupancy and thereafter transmitting local environmental conditions.

It is a feature of some modern thermostat systems to control duct dampers or diverters so that conditioned air from air handlers and fans is directed only to certain rooms of a conditioned space. In the present invention, occupancy sensed in a room creates a signal via the occupancy sensor which is transmitted from a remote device to the central control device. The central control device can act to average temperatures to calculate a control value and at the same time divert substantially all conditioned air only to the occupied rooms.

In some situations, environmental conditions in separated but occupied rooms may be quite different. A side of a building with its wall receiving full sun can dramatically heat a room on that side. A room on the opposite side of the building may be quite cool and have a temperature close to a desired setpoint. Simple averaging of local temperatures in those rooms may result in a control value near a desired setpoint for the central control device. A fifth form of averaging would cause the data table values of sensed environmental conditions to be subtracted from the setpoint to calculate a table of differences, some positive and some negative depending on the relationship of a sensor value to the setpoint. Differences beyond the setpoint value at which environmental control equipment is activated (such as the setpoint temperature at which air conditioning equipment is turned on) would be averaged and given greater weight than an average of differences outside of that activation range. For example, temperature sensors might indicate degree Fahrenheit temperatures of 80, 79, 77 and 75. If the setpoint is 78 for air conditioning to be turned on, the differences would be 2, 1, -1 and -3. Simply averaging the sensor values would not result in the overheated rooms being cooled. In one scenario, the positive differences are weighted 70% and the negative differences at 30%. The resulting control value will be sufficient to activate the air conditioning at the cost of overcooling some occupied rooms.

It is an object of the invention to average sensed environment conditions only in occupied rooms in order to calculate a control value.

DESCRIPTION OF THE DRAWING

FIG. 1 is a plan view of a conditioned space with several rooms, a central control device and remote environmental sensors arranged in the rooms.

FIG. 2 is a block diagram of a central control device and its relationship to environmental control equipment, the conditioned space, and remote sensors.

FIG. 3 is a block diagram of a remote sensor.

FIG. 4 is a high level process flow chart describing the operation of the remote sensor in a first embodiment.

FIG. 5 is a high level process flow chart describing the operation of the remote sensor in a second embodiment.

FIG. 6 is a high level process flow chart describing the operation of the central control device in the invention thermostat system.

5

DESCRIPTION OF THE PREFERRED
EMBODIMENT(S)

Referring first to FIG. 1, a structure 10 defines within its walls conditioned space for a thermostat system. Structure 10 comprises sides 11 and 12, rooms 13 through 18, lighting fixture 19, fireplace 20, and exemplary doors 21 and 22. The thermostat system includes central control device 23 and remote sensors 23A through 23F. Remote sensors 23A through 23F are located respectively in rooms 13 through 18. Alternately, any of the remote sensors 23A through 23F may be mobile sensors capable of being moved to any room in structure 10.

Referring now to FIG. 2, central control device 23 is shown in a block diagram form with a processor 30 connected to an environmental temperature sensor S1 and an occupancy sensor S2 which are disposed with access to conditioned space 38. The processor 30 and the sensors S1 and S2 may be situated in a common housing (not shown) or separated, all as very well known in the art, so that said sensors have effective access to the room in which the housing for processor 30 is located.

The processor 30 includes a central processing unit (CPU) 31 in communication with a memory 32 which stores data and program information and also, via an input/output unit (I/O unit) 34, an optional user interface 35 and a liquid crystal or other type display (LCD) 36. The memory 32 may include a read-only part which is factory-programmed and a random-access part which stores data subject to change during operation. A settable real time clock 33 is used to keep time in the central control device to facilitate diverse operations, such as different temperature set points (desired temperatures), during different periods of the day cycle. The thermostat system may be suitably powered by a battery (not shown) and/or from equipment to which is connected. The I/O unit 34 includes a wired or wireless communications interface 41 for coordinating communications between the CPU 31 and one or more remote sensors.

Referring now to FIG. 3, remote sensors 23A through 23F are shown in a block diagram form with a processor 50 connected to an environmental temperature sensor S3, an occupancy sensor S4, and device motion sensor S5 which are disposed with access to conditioned space 56. The processor 50 and the sensors S3, S4 and S5 may be situated in a common housing (not shown) or separated, all as very well known in the art, so that said sensors have effective access to the room in which the housing for processor 50 is located.

The processor 50 includes a central processing unit (CPU) 51 in communication with a memory 52 which stores data and program information and also, via an input/output unit (I/O unit) 54, and a liquid crystal or other type display (LCD) 55. The memory 52 may include a read-only part which is factory-programmed and a random-access part which stores data subject to change during operation. A settable real time clock 53 is used to keep time in the remote sensor to facilitate diverse operations, such as receiving and transmitting sensor signals. The remote sensor may be suitably powered by a battery (not shown) and/or from power supply integral with structure 10. The I/O unit 54 includes a wired or wireless communications interface 59 for coordinating communications between the CPU 50 and the central control device.

Thus, in the usual manner during normal operation, one or more environmental sensors send an electrical signal (e.g., if the sensor S1 is a simple thermistor, a resistance value; several types of temperature sensors are widely used) rep-

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resentative of the temperature within its local conditioned space (i.e., the room) which the processor can average to calculate a control value to compare against a previously entered set point to determine if control signals need to be sent to the space conditioning equipment 37. For example, if the control value temperature in the conditioned space is found to be too low when operation is in the heating mode, the processor 31 signals the space conditioning equipment 38 circulate, through ducts 39/40, air from/to the conditioned space 38 which is heated by the space conditioning equipment before return to the conditioned space. This heating phase continues until the calculated control value indicates that the space is now too hot (or approaching too hot) with reference to the set point such that the processor 31 sends signal(s) to the space conditioning equipment 38 to cease the heating function, all as very well known in the art. In a cooling mode, a counterpart procedure is followed. Those skilled in the art will understand that the control process typically includes such refinements as anticipation, hysteresis accommodation, fan control, etc. which are acknowledged, but are not directly relevant to the invention.

Consider now a first embodiment of the invention referring to FIG. 4 as well as FIGS. 1, 2 and 3. Continuously or at one or more predetermined times of day (and/or on-demand if provided for in a sensor control program), occupancy sensor S4 determines whether or not its local conditioned space (i.e., a room) is occupied. An occupancy sensor S4 may detect motion in the room, the opening of doors 21 or 22, or the turning on of a light fixture 19, all of which indicate presence of a human occupant. Processor 50 comprises a sensor control program that determines whether occupancy sensor S4 has detected occupancy in conditioned space 56. If occupancy is not detected, the control program optionally waits a predetermined period of time before evaluating input from occupancy sensor S4 again or monitors such inputs continuously. If occupancy is detected, the sensor control program inquires to determine if an optional device motion sensor S5 has detected movement of the remote sensor from a resting or installation location. If remote sensor movement is detected, the control program optionally waits a predetermined period of time before evaluating input from occupancy sensor S4 again. If remote sensor movement is not detected, the control program receives input from environmental sensor S3 and transmits its signal (or value) to the central control device 23 for storage in memory of processor 30. Each remote sensor has a known data communications "address" so that a control program of the central control device can determine which remote sensor has transmitted sensor signals or values.

Consider now a second embodiment of the invention referring to FIG. 5 as well as FIGS. 1, 2 and 3. Continuously or at one or more predetermined times of day (and/or on-demand if provided for in a sensor control program), occupancy sensor S4 determines whether or not its local conditioned space (i.e., a room) is occupied. An occupancy sensor S4 may detect motion in the room, the opening of doors 21 or 22, or the turning on of a light fixture 19, all of which indicate presence of a human occupant. Processor 50 comprises a sensor control program that determines whether occupancy sensor S4 has detected occupancy in conditioned space 56. If occupancy is not detected, the sensor control program receives and transmits to the central control device 23 the signals (or values) from environmental sensor S3 with signals indicating that the sensor value is associated with a vacant room. The remote sensor optionally waits a predetermined period of time before evaluating input from occupancy sensor S4 again. If occupancy is detected, the sensor

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control program inquires to determine if an optional device motion sensor S5 has detected movement of the remote sensor from a resting or installation location. If remote sensor movement is detected, the control program optionally waits a predetermined period of time before evaluating input from occupancy sensor S4 again. If remote sensor movement is not detected, the control program receives input from environmental sensor S3 and transmits its signal (or value) to the central control device 23 for storage in memory of processor 30 with signals indicating that the sensor value is associated with occupied room. Each remote sensor has a known data communications "address" so that a control program of the central control device can determine which remote sensor has transmitted sensor signals or values.

Consider now the first and second embodiments of the invention referring to FIG. 6 as well as FIGS. 1 through 5. At the start of a portion of a control program for the central control device 23, a user may select one of a set of averaging methods for environmental sensor values stored in memory 32 to generate a control value to compare with a setpoint for control of equipment 38. The control program determines whether or not a user has selected an averaging method. If no averaging method is selected, a default method is used for averaging said environmental sensor values. In one form, the default averaging method adds together all stored sensor values in a data table and divides them by the number of sensor values to arrive at a control value. This form of averaging is referred to herein as the simple form. After an averaging method is selected, previously stored sensor values in the data table are erased and new sensor values are received and stored in the data table. Alternately, previously stored values from the data table are stored with an associated current time and date so that historical occupancy and vacancy may be determined for a particular room of structure 10. New values of sensors S1 and/or S3 are received into a data table in memory 32 of the central control device to be used for averaging environmental condition values detected in certain rooms of structure 10. The averaging calculation results in a control value used in comparison with a previously input setpoint to control operation of equipment 38 for changing an environmental condition in the conditioned space of structure 10.

If the central control device is programmable, the control program installed during manufacture will provide for user entry of above user input following conventional instructions similar to those used in user-programming the climate control operation of the thermostat system.

As used herein, a second form of averaging uses weighting of values of environmental conditions detected by environmental sensors S1 and S3 in occupied rooms depending on square footage of the room where the sensor is located. Greater weighting is assigned to sensor data in rooms with greater relative square footage. For an example using the environmental condition of temperature, assume that room 13 is four times the size of room 15 in structure 10. If rooms 13 and 15 are the only ones occupied, the second form of averaging would divide the sensed temperature at central control device 23 by 0.80 and the sensed temperature at remote sensor 23C by 0.20 to arrive at the control value. The denominator in the divisions is arrived at by the pro rata amount of space or square footage of the rooms relative to each other.

For the second embodiment of the invention, a third form of averaging uses weighting of values of environmental conditions detected by environmental sensors S1 and S3 in occupied and unoccupied rooms and assigns greater weight to sensor data from occupied rooms. For an example using

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the environmental condition of temperature, assume that rooms 13 through 15 are occupied and the rest vacant. The third form of averaging would divide the sensed temperatures at central control device 23 and remote sensors 23B and 23C by 0.90 and the sensed temperatures at the remainder of the remote sensors by 0.10 to arrive at the control value. The denominator in the divisions is arrived at determining the value of conditioning the air in the unoccupied rooms.

A fourth form of averaging uses historical data to determine rooms most heavily occupied over a pre-determined period (such as a week or month) and averages current sensor data only from those heavily occupied rooms to arrive at a control value that may or may not depend on current occupancy. Historical data would indicate that, for example, rooms 13, 15 and 17 are occupied above a predetermined threshold level, i.e., three times per week or fifteen times per week. For those rooms where historical data indicated frequent occupancy and in the second embodiment of the invention, the environmental sensor data used to determine a control value would be those environmental conditions from occupied rooms and those environmental conditions from rooms where there is frequent occupancy regardless of current occupancy status. This form of averaging anticipates actual occupancy of a room. However, if a mobile environmental sensor it moved from one room to another and such motion is detected as above, historical environmental data for the moved sensor will be erased for the purposes of averaging in this embodiment of the invention. Environmental sensor data must begin anew with respect to room occupancy for a moved environmental sensor.

While the principles of the invention have now been made clear in an illustrative embodiment, there will be immediately obvious to those skilled in the art many modifications of structure, arrangements, proportions, the elements, materials, and components, used in the practice of the invention which are particularly adapted for specific environments and operating requirements without departing from those principles.

What is claimed is:

1. An occupancy response system with a central control device adapted to control space conditioning equipment affecting a conditioned space, the central control device located at a single physical location in one of multiple rooms comprising the conditioned space, where remote sensors are located in physical locations substantially apart from the central control device, the improvement comprising:

- A) two or more environmental sensors adapted to measure a local environmental condition and generate signals indicating its value;
- B) two or more occupancy sensors adapted to detect occupancy of space around an environmental sensor and generate signals indicating occupancy;
- C) either the central control device and one or more of the remote sensors or two or more of the remote sensors each comprise an environmental sensor and an occupancy sensor;
- D) a central processor for the central control device including:
 - 1) a central processing unit;
 - 2) a real time clock;
 - 3) a memory coupled to said central processing unit for storing a central control program and data, said data including at least one of the values of the environmental conditions sensed by the environmental sensors; and

- 4) an input/output unit coupled to the central processing unit, to the space conditioning equipment for issuing control signals thereto, and to a reception interface adapted to receive signals representing environmental conditions at a remote sensor;
- E) a remote processor for each of the remote sensors including a central processing unit, a real time clock, a memory coupled to said central processing unit for storing a transmission control program, and an input/output unit coupled to the central processing unit and to a transmissions interface adapted to send to the central control device signals representing environmental conditions from a coupled environmental sensor; and
- F) for the central control device or remote sensors having environmental sensors and occupancy sensors, their input/output units further including a sensor input coupled to an environmental sensor and an occupancy input coupled to an occupancy sensor;
- G) the control programs causing a coupled central processing unit to selectively:
 - 1) detect occupancy or vacancy of a nearby space from signals from a coupled occupancy sensor;
 - 2) read current signals from a coupled environmental sensor and transmit them for storage in the memory of the central control device only if occupancy is detected;
 - 3) for the central control program, calculate an average of the received environmental sensor values and use the average result as a control value which is compared with a setpoint stored in the memory of the central control program to determine actuation of the space conditioning equipment.
2. The system of claim 1 wherein averaging of received environmental sensor values is calculated by simple averaging or a weighted averaging depending on relative spaces of occupied rooms.
3. The system of claim 2 wherein a display and a user interface are coupled with the input/output unit of the central processing device so the central control program causes a display of averaging methods for averaging received environmental sensor values.
4. The system of claim 3 wherein the central control program further causes a display indicating that a user may select an averaging method through the user interface and thereafter accepting user input selecting one of the averaging methods.
5. The system of claim 1 wherein the space conditioning equipment comprises zone control means so that only occupied rooms have their space affected by the space conditioning equipment.
6. An occupancy response system with a central control device adapted to control space conditioning equipment affecting a conditioned space, the central control device located at a single physical location in one of multiple rooms comprising the conditioned space, where remote sensors are located in physical locations substantially apart from the central control device, the improvement comprising:
 - A) one or more environmental sensors adapted to measure a local environmental condition and generate signals indicating its value;
 - B) one or more occupancy sensors adapted to detect occupancy of space around an environmental sensor and generate signals indicating occupancy;
 - C) either the central control device and one or more of the remote sensors or two or more of the remote sensors each comprise an environmental sensor and an occupancy sensor;

- D) a central processor for the central control device including:
 - 1) a central processing unit;
 - 2) a real time clock;
 - 3) a memory coupled to said central processing unit for storing a central control program and data, said data including at least one of the values of the environmental conditions sensed by the environmental sensors; and
 - 4) an input/output unit coupled to the central processing unit, to the space conditioning equipment for issuing control signals thereto, and to a reception interface adapted to receive signals representing environmental conditions at a remote sensor;
- E) a remote processor for each of the remote sensors including a central processing unit, a real time clock, a memory coupled to said central processing unit for storing a transmission control program, and an input/output unit coupled to the central processing unit and to a transmissions interface adapted to send to the central control device signals representing environmental conditions from a coupled environmental sensor; and
- F) for the central control device or remote sensors having environmental sensors and occupancy sensors, their input/output units further including a sensor input coupled to an environmental sensor and an occupancy input coupled to an occupancy sensor;
- G) the control programs causing a coupled central processing unit to selectively:
 - 1) detect occupancy or vacancy of a nearby space from signals from a coupled occupancy sensor;
 - 2) read current signals from a coupled environmental sensor and a coupled occupancy sensor and transmit them for storage in the memory of the central control device so that values of environmental conditions are associated with their source of occupied or unoccupied rooms;
 - 3) for the central control program, calculate an average of the received environmental sensor values and use the average result as a control value which is compared with a setpoint stored in the memory of the central control program to determine actuation of the space conditioning equipment.
7. The system of claim 6 wherein averaging of received environmental sensor values is calculated by simple averaging or a weighted averaging where environmental condition values from occupied rooms are given substantially more value than those of vacant rooms.
8. The system of claim 6 wherein where occupancy sensors include infra-red motion detectors.
9. The system of claim 6 wherein environmental sensors include temperature sensors and humidity sensors.
10. The system of claim 7 wherein a display and a user interface are coupled with the input/output unit of the central processing device so the central control program causes a display of averaging methods for averaging received environmental sensor values.
11. The system of claim 10 wherein the central control program further causes a display indicating that a user may select an averaging method through the user interface and thereafter accepting user input selecting one of the averaging methods.
12. The system of claim 6 wherein the space conditioning equipment comprises zone control means so that only occupied rooms have their space affected by the space conditioning equipment.

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13. The system of claim 6 wherein a device motion sensor is coupled to the remote sensor's input output unit so that movement of the remote sensor results in transmission of a movement signal of the device motion sensor to be received by the central control device from the remote sensor and said movement signal is associated with previously received environmental sensor signals from said remote sensor and used for said averaging.

14. The system of claim 13 wherein the central control program of the central control device acts to remove data

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associated with said movement signal from calculations averaging environmental signals to arrive at a control value.

15. The system of claim 13 wherein the transmission control program of the remote sensor acts to stop transmission of environmental sensor signals to the central control device for a predetermined period of time after receipt of a movement signal.

* * * * *



US007058477B1

(12) **United States Patent**
Rosen

(10) **Patent No.:** **US 7,058,477 B1**
(45) **Date of Patent:** **Jun. 6, 2006**

(54) **THERMOSTAT SYSTEM WITH REMOTE
DATA AVERAGING**

(76) Inventor: **Howard Rosen**, Lyncroft Road,
Hampstead, Quebec (CA) H3X 3E3

(*) Notice: Subject to any disclaimer, the term of this
patent is extended or adjusted under 35
U.S.C. 154(b) by 42 days.

(21) Appl. No.: **10/995,574**

(22) Filed: **Nov. 23, 2004**

(51) Int. Cl.
G05D 23/00 (2006.01)

(52) U.S. Cl. **700/277; 700/276; 236/1 C;**
236/51

(58) **Field of Classification Search** **700/276-278;**
236/1 C, 51, 91 F, 91 R
See application file for complete search history.

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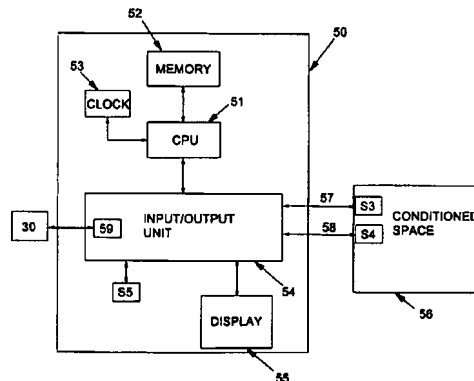
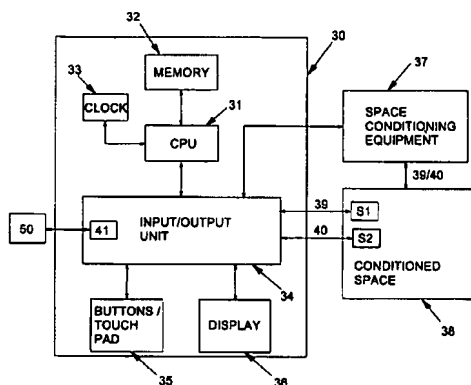
Primary Examiner—Jayprakash N. Gandhi

(74) *Attorney, Agent, or Firm*—Hankin Patent Law, PC;
Marc E. Hankin

(57) **ABSTRACT**

A thermostat system according to the invention includes: a central control device (typically a programmable thermostat with a processor having: a CPU, real time clock and a memory for storing a control program and data information), multiple rooms comprising a conditioned space, environmental control equipment, and multiple environmental sensors capable of sensing an environmental condition (such as temperature, humidity, or other condition). The sensors are associated with transmission means, which control transmission of sensor signals, and occupancy sensors. Each sensor measures a local environmental condition. Occupancy sensors comprise infrared or other motion sensors, light detection sensors, door opening sensors, and other such sensors that detect the presence of humans in a room of the conditioned space where its associated sensor is located. Space conditioning equipment is activated by comparison of a setpoint to a control value averaged from values of environmental conditions in occupied rooms.

15 Claims, 4 Drawing Sheets



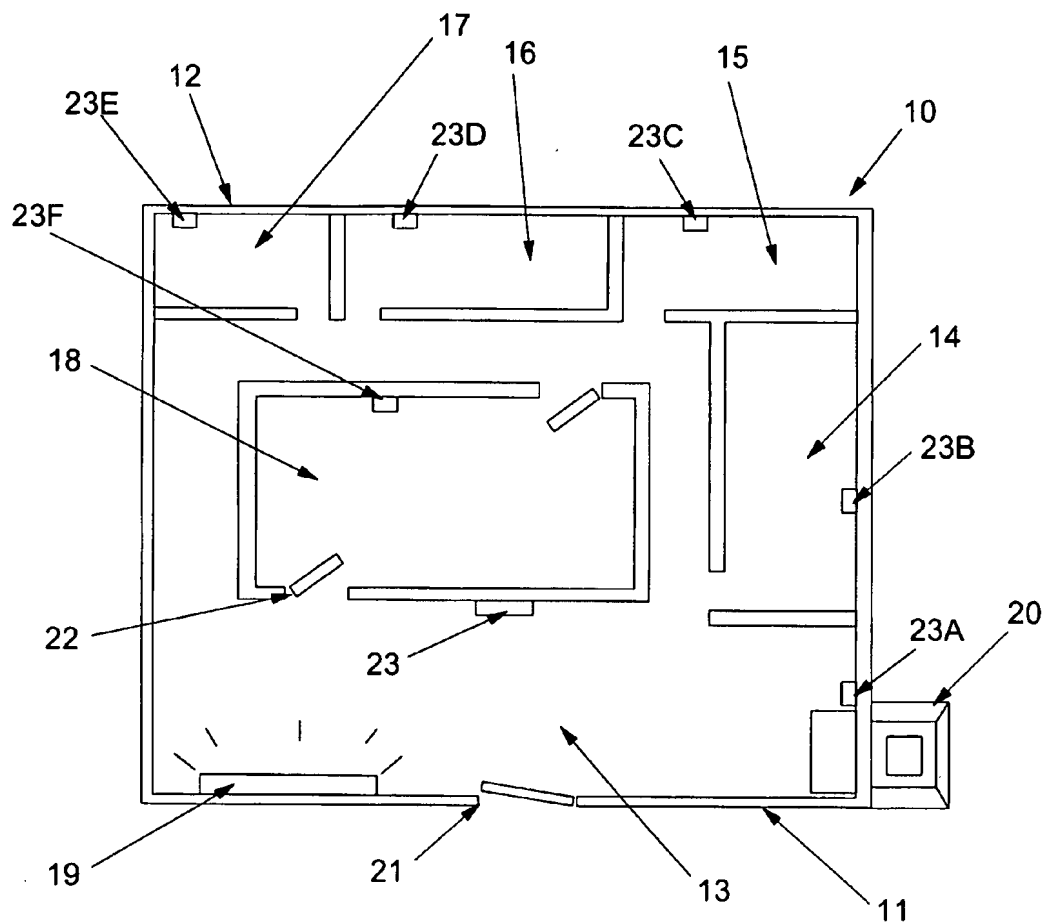


FIG. 1

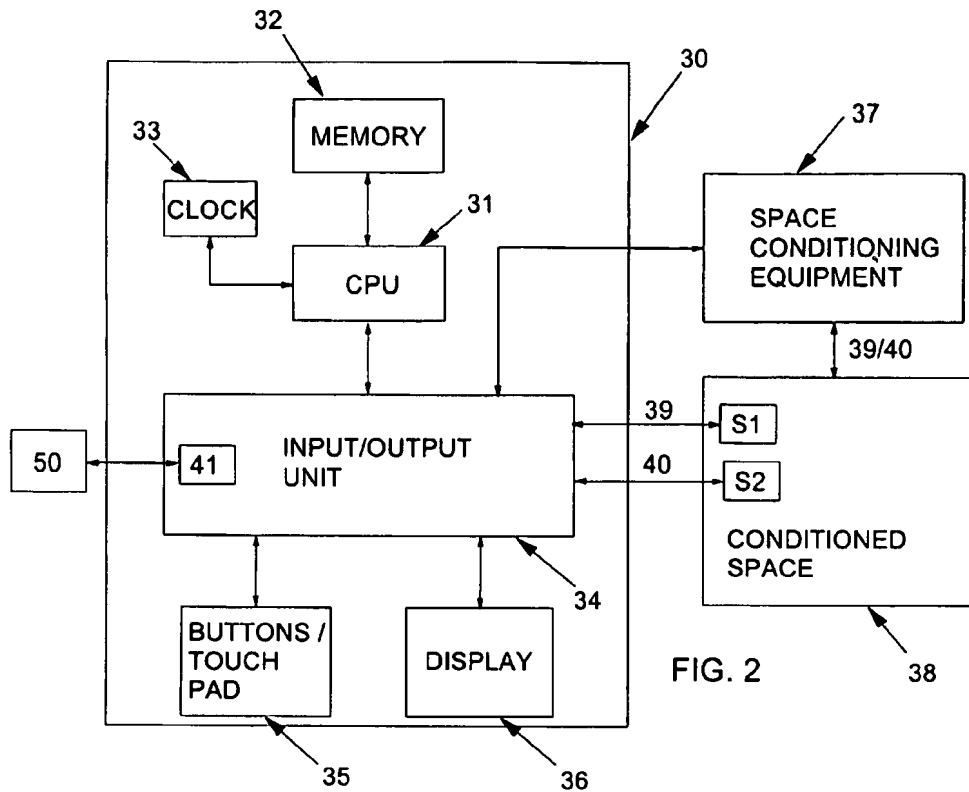


FIG. 2

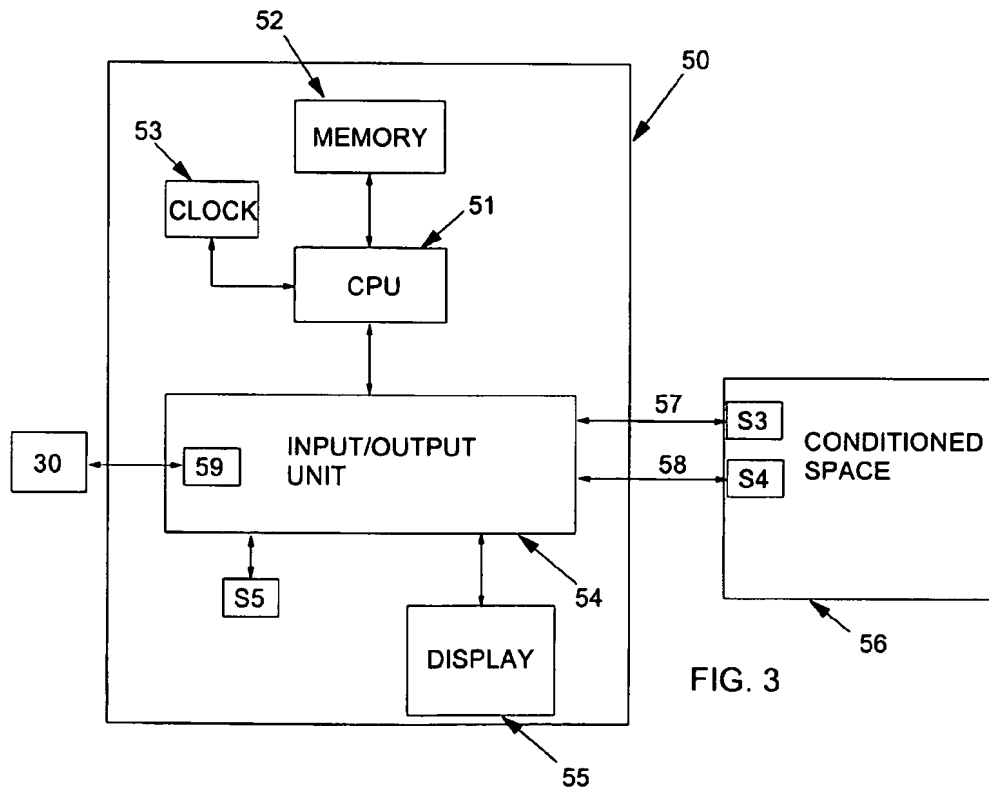


FIG. 3

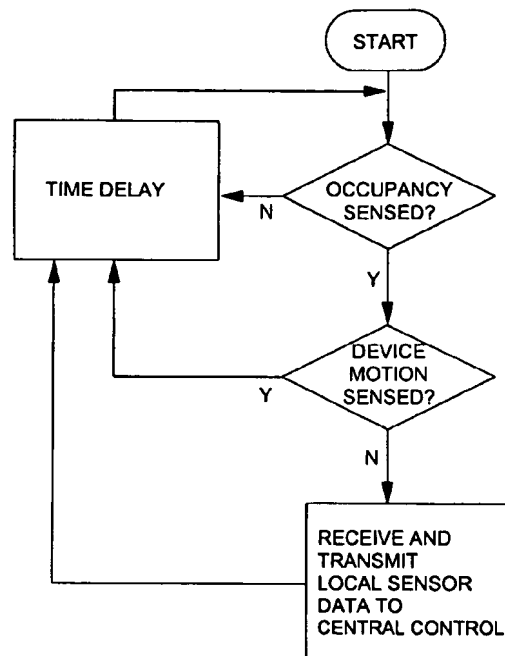


FIG. 4

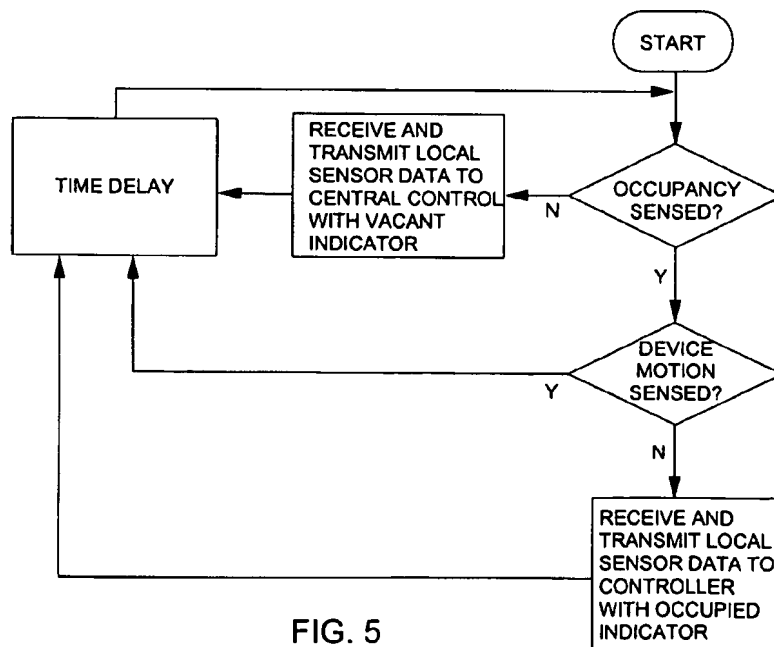


FIG. 5

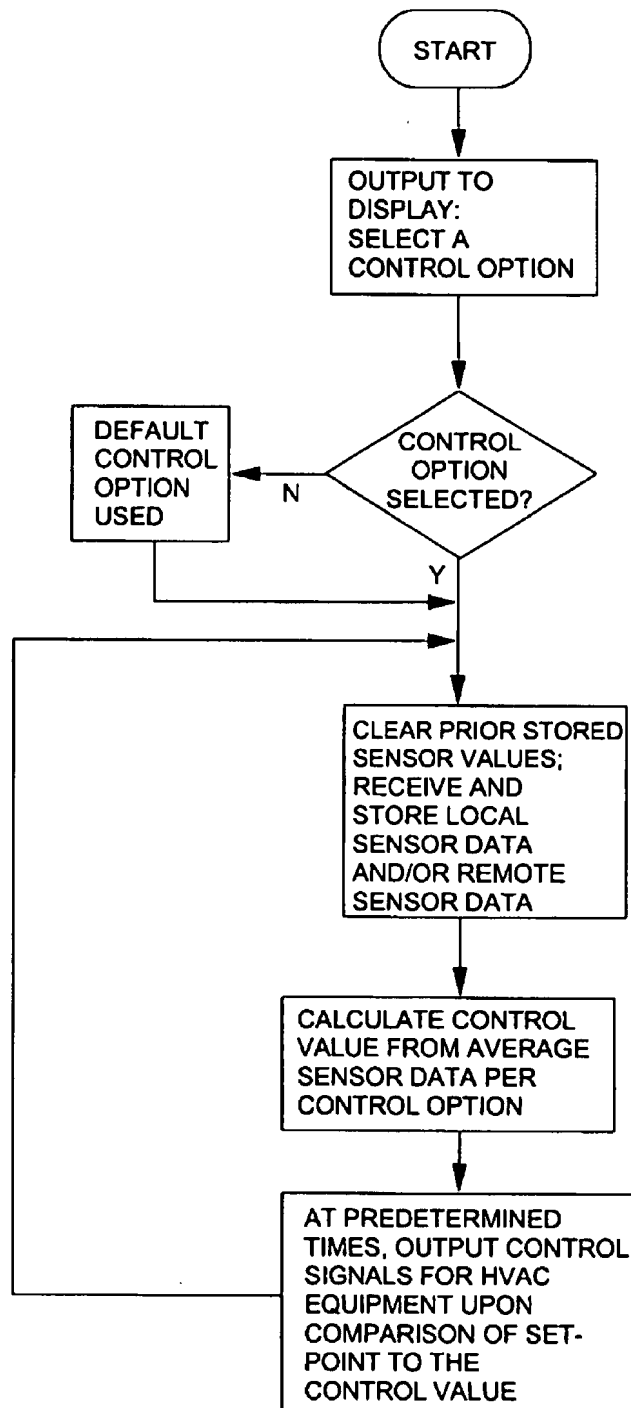


FIG. 6

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REISSUE APPLICATION DECLARATION BY THE INVENTOR

Docket Number (Optional)

HROSEN - Data Averaging Reissue

I hereby declare that:

Each inventor's residence, mailing address and citizenship are stated below next to their name.

I believe the inventors named below to be the original and first inventor(s) of the subject matter which is described and claimed in patent number 7,058,477, granted JUNE 6, 2006 and for which a reissue patent is sought on the invention entitled THERMOSTAT SYSTEM WITH REMOTE

DATA AVERAGING

the specification of which

☒ is attached hereto.

☐ was filed on _____ as reissue application number _____

and was amended on _____
(If applicable)

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

I acknowledge the duty to disclose information which is material to patentability as defined in 37 CFR 1.56.

☐ I hereby claim foreign priority benefits under 35 U.S.C. 119(a)-(d) or (f), or 365(b). Attached is form PTO/SB/02B (or equivalent) listing the foreign applications.

I verily believe the original patent to be wholly or partly inoperative or invalid, for the reasons described below. (Check all boxes that apply.)

☒ by reason of a defective specification or drawing.

☒ by reason of the patentee claiming more or less than he had the right to claim in the patent.

☒ by reason of other errors.

At least one error upon which reissue is based is described below. If the reissue is a broadening reissue, such must be stated with an explanation as to the nature of the broadening:

Please see the attached Statement

[Page 1 of 2]

This collection of information is required by 37 CFR 1.175. 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 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, 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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PETITIONER ECOBEE
EX. 1006

(REISSUE APPLICATION DECLARATION BY THE INVENTOR, page 2)

Docket Number (Optional)

H. Rosen - Data Averaging Reissue

All errors corrected in this reissue application arose without any deceptive intention on the part of the applicant.

Note: To appoint a power of attorney, use form PTO/SB/81.

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The address associated with Customer Number:

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I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine and imprisonment, or both, under 18 U.S.C. 1001, and that such willful false statements may jeopardize the validity of the application, any patent issuing thereon, or any patent to which this declaration is directed.

Full name of sole or first inventor (given name, family name)

Howard Rosen

Inventor's signature

Date

May 16, 2007

Residence

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Citizenship

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Mailing Address

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Full name of second joint inventor (given name, family name)

Inventor's signature

Date

Residence

Citizenship

Mailing Address

☐ Additional joint inventors or legal representative(s) are named on separately numbered sheets forms PTO/SB/02A or 02LR attached hereto.

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Reissue Application no.:
of U.S. Patent No. 7,058,477

ROSEN, HOWARD

Application No.:

Filed:

For: THERMOSTAT SYSTEM WITH
REMOTE DATA AVERAGING

Examiner:

Art Group:

Mail Stop REISSUE
Commissioner for Patents
P.O. BOX 1450
Alexandria, VA 22313-1450

STATEMENT ACCOMPANYING REISSUE APPLICATION DECLARATION
EXPLAINING THE NATURE OF THE BROADENING

Due to an oversight, a real time clock was included as an element of the remote processor for the remote sensors, in independent claims 1 and 6 and one sentence in the specification. The intention, however, was to include a clock, as used in processors, not a real time clock. Thus, this Reissue Application seeks to remove the modifier "real time" from the clocks in the remote processors for the remote sensors, broadening the scope of patent number 7,058,477, but not adding new matter.

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 and CORRESPONDENCE ADDRESS INDICATION FORM

Application Number	
Filing Date	
First Named Inventor	Rosen, Howard
Title	THERMOSTAT SYSTEM WITH REMOTE DATA AVERAGING
Art Unit	
Examiner Name	
Attorney Docket Number	HRosen - Data Averaging Reissue

I hereby revoke all previous powers of attorney given in the above-identified application

I hereby appoint:

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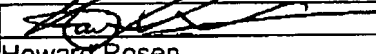
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I am the:

☒ 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)

SIGNATURE of Applicant or Assignee of Record

Signature		Date	May 16, 2007
Name	Howard Rosen	Telephone	
Title and Company			

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 _____ forms are submitted.

This collection of information is required by 37 CFR 1.31, 1.32 and 1.33. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 3 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

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02 FC:2114	250.00 OP
03 FC:2314	300.00 OP

PTO-1556
(5/87)

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Reissue Application no.:
of U.S. Patent No. 7,058,477 of:

Rosen, Howard

Application No.:

Filed:

For: THERMOSTAT SYSTEM WITH
REMOTE DATA AVERAGING

Examiner:

Art Group:

Mail Stop REISSUE
Commissioner for Patents
P.O. BOX 1450
Alexandria, VA 22313-1450

REQUEST TO PRELIMINARILY AMEND REISSUE APPLICATION
UNDER 37 C.F.R. § 1.173(b)

Dear Sir/Madam:

Applicant hereby requests to preliminarily amend the above referenced Reissue Application by making the following numerous but important changes to the specification and claims as set forth below.

1. Amendments to the Specification

Applicant hereby requests to preliminarily amend the paragraph starting at column 5, line 49, as follows:

The processor **50** includes a central processing unit (CPU) **51** in communication with a memory **52** which stores data and program information and also, via an input/output unit (I/O unit) **54**, and a liquid crystal or other type display (LCD) **55**. The memory **52** may include a read-only part which is factory-programmed and a random-access part which stores data subject to change during operation. A settable [real time] clock **53** is used to keep time in the remote sensor to facilitate diverse operations, such as receiving and transmitting sensor signals. The remote sensor may be suitably powered by a battery (not shown) and/or from power supply integral with structure **10**. The I/O unit **54** includes a wired or wireless communications interface **59** for coordinating communications between the CPU **50** and the central control device.

2. Amendments to the Claims:

Applicant also hereby requests to preliminarily amend the claims as follows:

1. (Amended) An occupancy response system with a central control device adapted to control space conditioning equipment affecting a conditioned space, the central control device located at a single physical location in one of multiple rooms comprising the conditioned space, where remote sensors are located in physical locations substantially apart from the central control device, the improvement comprising:

A) two or more environmental sensors adapted to measure a local environmental condition and generate signals indicating its value;

B) two or more occupancy sensors adapted to detect occupancy of space around an environmental sensor and generate signals indicating occupancy;

C) either the central control device and one or more of the remote sensors or two or more of the remote sensors each comprise an environmental sensor and an occupancy sensor;

D) a central processor for the central control device including:

1) a central processing unit;

2) a real time clock;

3) a memory coupled to said central processing unit for storing a central control program and data, said data including at least one of the values of the environmental conditions sensed by the environmental sensors; and

4) an input/output unit coupled to the central processing unit, to the space conditioning equipment for issuing control signals thereto, and to a reception interface adapted to receive signals representing environmental conditions at a remote sensor;

- E) a remote processor for each of the remote sensors including a central processing unit, a [real time] clock, a memory coupled to said central processing unit for storing a transmission control program, and an input/output unit coupled to the central processing unit and to a transmissions interface adapted to send to the central control device signals representing environmental conditions from a coupled environmental sensor; and
- F) for the central control device or remote sensors having environmental sensors and occupancy sensors, their input/output units further including a sensor input coupled to an environmental sensor and an occupancy input coupled to an occupancy sensor;
- G) the control programs causing a coupled central processing unit to selectively:
 - 1) detect occupancy or vacancy of a nearby space from signals from a coupled occupancy sensor;
 - 2) read current signals from a coupled environmental sensor and transmit them for storage in the memory of the central control device only if occupancy is detected;
 - 3) for the central control program, calculate an average of the received environmental sensor values and use the average result as a control value which is compared with a setpoint stored in the memory of the central control program to determine actuation of the space conditioning equipment.

6. (Amended) An occupancy response system with a central control device adapted to control space conditioning equipment affecting a conditioned space, the central control device located at a single physical location in one of multiple rooms comprising the conditioned space, where remote

sensors are located in physical locations substantially apart from the central control device, the improvement comprising:

- A) one or more environmental sensors adapted to measure a local environmental condition and generate signals indicating its value;
- B) one or more occupancy sensors adapted to detect occupancy of space around an environmental sensor and generate signals indicating occupancy;
- C) either the central control device and one or more of the remote sensors or two or more of the remote sensors each comprise an environmental sensor and an occupancy sensor;
- D) a central processor for the central control device including:
 - 1) a central processing unit;
 - 2) a real time clock;
 - 3) a memory coupled to said central processing unit for storing a central control program and data, said data including at least one of the values of the environmental conditions sensed by the environmental sensors; and
 - 4) an input/output unit coupled to the central processing unit, to the space conditioning equipment for issuing control signals thereto, and to a reception interface adapted to receive signals representing environmental conditions at a remote sensor;
- E) a remote processor for each of the remote sensors including a central processing unit, a [real time] clock, a memory coupled to said central processing unit for storing a transmission control program, and an input/output unit coupled to the central processing unit and to a transmissions interface adapted to send to the central control

device signals representing environmental conditions from a coupled environmental sensor; and

F) for the central control device or remote sensors having environmental sensors and occupancy sensors, their input/output units further including a sensor input coupled to an environmental sensor and an occupancy input coupled to an occupancy sensor;

G) the control programs causing a coupled central processing unit to selectively:

- 1) detect occupancy or vacancy of a nearby space from signals from a coupled occupancy sensor;
- 2) read current signals from a coupled environmental sensor and a coupled occupancy sensor and transmit them for storage in the memory of the central control device so that values of environmental conditions are associated with their source of occupied or unoccupied rooms;
- 3) for the central control program, calculate an average of the received environmental sensor values and use the average result as a control value which is compared with a setpoint stored in the memory of the central control program to determine actuation of the space conditioning equipment.

STATUS OF CLAIMS AND SUPPORT FOR CLAIM CHANGES UNDER §1.173(c)

Claims 2-5 and 7-15 are as issued in Patent No. 7,058,477 and are pending in this application, and claims 1 and 6 have been amended. One sentence in the specification has been amended as well. The support for these amendments can be found in Figure 3, Column 5 Line 56, and elsewhere throughout Patent No. 7,058,477. Figure 3, a block diagram of a remote sensor, shows a clock coupled to the remote processor (CPU). This clock is clearly a processor clock and not a real time clock. Column 5 line 56 recites "... is used to keep time in the remote sensor to facilitate diverse operations, such as receiving and transmitting sensor signals." As is well known in the art, it would be a processor clock, not a real time clock, that would perform this function. Thus, there is adequate support for the amendments.

CONCLUSION

In reviewing these amendments please note that these are submitted for the purposes of clarity and completeness and not to add any new matter to the patent. In conclusion, please reissue Patent No. 7,058,477 to include these amendments. Thank you very much for your attention to these matters and to this Reissue Application. If you have any questions or comments, please do not hesitate to contact the undersigned.

Sincerely,

Hankin Patent Law, A Professional Corporation

Dated: MAY 15, 2007



MARC E. HANKIN

Reg. No. 38,908