FORM 2
THE PATENTS ACT, 1970
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COMPLETE SPECIFICATION
(See section 10 and rule 13)

Title of the Invention

A SMART AND INTERNET OF THINGS ENABLED DESERT COOLER SYSTEM

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The following Specification particularly describes and ascertains the nature of this invention and the manner in which it is to be performed.

FIELD OF THE INVENTION

The present disclosure relates to a smart and Internet of Things (IoT) enabled desert cooler system that enables the user to effortlessly adjust the speed of the fan, temperature, and humidity. Moreover, the system allows the user to remotely control the desert cooler with the help of a mobile application.

BACKGROUND OF THE INVENTION

Desert Cooler is a popular appliance used to cool air during dry and hot summers. It works on the principle of Evaporative Cooling to cool the air. The construction of the Desert Cooler is very simple and it contains only two running parts i.e., the Fan Motor, and the Water Pump. Compared to Air Conditioners, Desert Coolers are cheaper to manufacture and operate. However, Desert Coolers cannot maintain the climate in a closed environment which is found in Air Conditioners. Also, Desert Coolers require manual supervision to avoid any damage from happening to them e.g., the pump running in dry mode.

Desert Coolers work on the principle of evaporative cooling. The water filled in the tank is pumped to the roof of the desert cooler, from where it trickles down on the grass mats. The water absorbed by the grass mats evaporates by taking "latent heat of evaporation" from the air, resulting in an instant temperature drop ranging between 5°F to 15°F (up to 8°C), depending upon the relative humidity in the environment. This rate of evaporation increases when air is sucked in through the wet grass mats and for higher speeds, the rate of evaporation increases, resulting in faster cooling of the air.

The Desert Cooler is a manually operated appliance without any automation whatsoever. If the pump of the cooler is left on under continuous usage, the Humidity in the room will reach uncomfortable levels until the air gets saturated with water vapor. The Water Level of the Tank is required to be maintained manually to ensure the Tank does not run out of water. Fan Speed Control is not part of a standard Desert Cooler. If the Water Tank gets empty, Water Pump will run dry, which results in overheating and eventually failure of the Water pump.

In view of the foregoing discussion, it is portrayed that there is a need to have a smart and internet-of-things-enabled desert cooler system.

SUMMARY OF THE INVENTION

The present disclosure seeks to provide a smart and internet-of-things-enabled desert cooler system to effortlessly adjust the speed of the fan, temperature, and humidity automatically and/or remotely. The system includes a humidity and temperature sensor to sense the climate parameters (relative humidity and temperature) and a water level sensor to sense the water level in the water tank. The voltage control circuit is also implemented to allow smooth variation in fan speed. The operation of the water pump and motor will be controlled with the use of the relay and voltage control circuit respectively. A solenoid valve is used to fill the water tank. this valve can be remotely opened and closed thereby giving control and automation on the water level.

In an embodiment, a smart and Internet of Things-enabled desert cooler system is disclosed. The system includes a temperature sensor attached to an outer surface of a cooler for detecting the real-time temperature of the room.

The system further includes a humidity sensor attached to the outer surface of the cooler for detecting the real-time humidity of the room.

The system further includes a water level sensor disposed into a water tank for detecting the water level inside the water tank of the cooler.

The system further includes a control circuit connected to the temperature sensor and the humidity sensor for controlling the humidity and temperature of the room upon controlling the speed of a fan motor and switching on/off a pump upon receiving real-time detected temperature and humidity of the room, wherein the fan speed is controlled by tuning the voltage applied to the fan motor received from a power supply circuit, wherein the control circuit is connected to the water level sensor for receiving the detected water level for switching on/off the pump, and a solenoid valve using a plurality or relays.

The system further includes a graphical user interface coupled to the control circuit for controlling the fan motor, pump, and solenoid valve of the desert cooler manually and remotely, wherein the graphical user interface is wirelessly connected to the control circuit via a communication device for controlling the desert cooler, wherein the communication device is selected from one of Bluetooth, Wi-Fi, or RFID for enabling remote control of the cooler.

The system further includes a display unit connected to the control circuit enclosure for indicating the temperature and humidity, wherein the display unit has a plurality of buttons for adjusting the settings of the control circuit from the box.

An object of the present disclosure is to control the temperature and humidity of the room automatically.

Another object of the present disclosure is to modify the cooler into an energy-efficient and fully automated cooler.

Another object of the present disclosure is to prevent damage to the water pump of the cooler upon controlling the water level of the cooler water tank.

Another object of the present disclosure is to prevent the overflowing of the water from the cooler water tank.

Another object of the present disclosure is to specify the required temperature, fan speed, and humidity range for automated operation, as well as to manually control the Desert Cooler using a graphical user interface.

Yet another object of the present invention is to deliver an expeditious and cost-effective smart and Internet of Things-enabled desert cooler system.

To further clarify the advantages and features of the present disclosure, a more particular description of the invention will be rendered by reference to specific embodiments thereof, which are illustrated in the appended drawings. It is appreciated that these drawings depict only typical embodiments of the invention and are therefore not to be considered limiting of its scope. The invention will be described and explained with additional specificity and detail in the accompanying drawings.

BRIEF DESCRIPTION OF FIGURES

These and other features, aspects, and advantages of the present disclosure will become better understood when the following detailed description is read concerning the accompanying drawings in which like characters represent like parts throughout the drawings, wherein:

Figure 1 illustrates a block diagram of a smart and Internet of things-enabled desert cooler system in accordance with an embodiment of the present disclosure;

Figure 2 illustrates a block diagram of the inputs and outputs of the control circuit in accordance with an embodiment of the present disclosure;

Figure 3 illustrates a block diagram of humidity control in accordance with an embodiment of the present disclosure;

Figure 4 illustrates a block diagram of a water tank level control in accordance with an embodiment of the present disclosure;

Figure 5 illustrates a block diagram of temperature control in accordance with an embodiment of the present disclosure; and

Figure 6 illustrates a block diagram of a control program in accordance with an embodiment of the present disclosure.

Further, skilled artisans will appreciate those elements in the drawings are illustrated for simplicity and may not have necessarily been drawn to scale. For example, the flow charts illustrate the method in terms of the most prominent steps involved to help to improve understanding of aspects of the present disclosure. Furthermore, in terms of the construction of the device, one or more components of the device may have been represented in the drawings by conventional symbols, and the drawings may show only those specific details that are pertinent to understanding the embodiments of the present disclosure so as not to obscure the drawings with details that will be readily apparent to those of ordinary skill in the art having the benefit of the description herein.

DETAILED DESCRIPTION:

To promote an understanding of the principles of the invention, reference will now be made to the embodiment illustrated in the drawings and specific language will be used to describe the same. It will nevertheless be understood that no limitation of the scope of the invention is thereby intended, such alterations and further modifications in the illustrated system, and such further applications of the principles of the invention as illustrated therein being contemplated as would normally occur to one skilled in the art to which the invention relates.

It will be understood by those skilled in the art that the foregoing general description and the following detailed description are exemplary and explanatory of the invention and are not intended to be restrictive thereof.

Reference throughout this specification to “an aspect”, “another aspect” or similar language means that a particular feature, structure, or characteristic described in connection with the embodiment is included in at least one embodiment of the present disclosure. Thus, appearances of the phrase “in an embodiment”, “in another embodiment” and similar language throughout this specification may, but do not necessarily, all refer to the same embodiment.

The terms "comprises", "comprising", or any other variations thereof, are intended to cover a non-exclusive inclusion, such that a process or method that comprises a list of steps does not include only those steps but may include other steps not expressly listed or inherent to such process or method. Similarly, one or more devices or sub-systems or elements or structures or components proceeded by "comprises...a" does not, without more constraints, preclude the existence of other devices or other sub-systems or other elements or other structures or other components or additional devices or additional sub-systems or additional elements or additional structures or additional components.

Unless otherwise defined, all technical and scientific terms used herein have the same meaning as commonly understood by one of ordinary skill in the art to which this invention belongs. The system, methods, and examples provided herein are illustrative only and not intended to be limiting.

Embodiments of the present disclosure will be described below in detail concerning the accompanying drawings.

Referring to **Figure 1**, a block diagram of a smart and Internet of things-enabled desert cooler system is illustrated in accordance with an embodiment of the present disclosure. System 100 includes a temperature sensor (102) attached to an outer surface of a cooler for detecting the real-time temperature of the room.

In an embodiment, a humidity sensor (104) is attached to the outer surface of the cooler for detecting the real-time humidity of the room.

In an embodiment, a water level sensor (106) is disposed into a water tank for detecting the water level inside the water tank of the cooler.

In an embodiment, a control circuit (108) is connected to the temperature sensor (102) and the humidity sensor (104) for controlling the humidity and temperature of the room upon controlling the speed of a fan motor (110) and switching on/off a pump (112) upon receiving real-time detected temperature and humidity of the room, wherein the fan speed is controlled by tuning the voltage applied to the fan motor (110) received from a power supply circuit, wherein the control circuit (108) is connected to the water level sensor (106) for receiving the detected water level for switching on/off the pump (112), and a solenoid valve (116) using a plurality or relays (118).

In an embodiment, a graphical user (120) interface is coupled to the control circuit (108) for controlling the fan motor (110), pump (112), and solenoid valve (116) of the desert cooler manually and remotely, wherein the graphical user (120) interface is wirelessly connected to the control circuit (108) via a communication device (122) for controlling the desert cooler, wherein the communication device (122) is selected from one of Bluetooth, Wi-Fi, or RFID for enabling remote control of the cooler.

In an embodiment, a display unit (114) is connected to the control circuit (108) enclosure for indicating the temperature and humidity, wherein the display unit (114) has a plurality of buttons for adjusting the settings of the control circuit (108) from the box.

In another embodiment, the control circuit (108) is connected via three digital outputs to three Photo-TRIACS to adjust the value of resistance in a modified TRIAC-based voltage control circuit (108) by bypassing them, wherein the modified TRIAC-based voltage control circuit (108) is preferably TRIAC voltage regulators configured to provide higher voltage output for higher resistance.

In another embodiment, the modified TRIAC-based voltage control circuit (108) contains a BT134/BT136 TRIAC with DB3 DIAC, a 2A104J Capacitor of 0.1uF and 400V, a plurality of resistances, and MOC3020/MOC3021 Opto-TRIACS.

In another embodiment, from the plurality of relays (118), a first relay is deployed for switching on/off the fan motor (110), a second relay is deployed for switching on/off the pump (112), and a third relay is deployed for switching on/off the solenoid valve (116).

In another embodiment, the humidity is controlled by the control circuit (108) upon receiving the real-time detected humidity of the room from the humidity sensor (104) thereby switching on the pump (112) if the detected humidity is not greater than 30% and switching off the fan motor (110) if the detected humidity is greater than 60%.

In another embodiment, the water level of the water tank is classified into HIGH and LOW levels for maintaining the water level inside the water tank, wherein the water level is maintained by the control circuit (108) upon receiving the real-time detected water level inside the water tank of the cooler from the water level sensor (106) thereby switching on the solenoid valve (116) in case the water level ranges in LOW level and switching off the solenoid valve (116) in case the water level ranges in HIGH level.

In another embodiment, the temperature range is classified into HIGH and LOW levels according to users’ comfort, wherein the temperature is controlled by the control circuit (108) upon receiving real-time detected temperature from the temperature sensor (102) thereby gradually adjusting the fan motor speed to full speed if the detected temperature is HIGH level or adjusting fan motor speed according to the temperature of the room and switching off the fan motor (110) if the temperature is less than the LOW level.

In another embodiment, if the Humidity touches the HIGH level, the control circuit (108) turns off the water pump (112) causing the fan motor (110) to run without the pump (112), and under proper ventilation resulting in a reduction in the humidity of the room.

In another embodiment, the LOW water level is set barely above the pump’s level to ensure adequate water supply to the pump (112), and the HIGH water level is set below the maximum capacity of the water tank to avoid the tank from overflowing.

In another embodiment, if the detected water level consistently remains below the LOW level for 2 minutes, the water pump (112) is switched off to protect it from running dry and remains switched off until the water level reaches the HIGH level.

Figure 2 illustrates a block diagram of the inputs and outputs of the control circuit (108) in accordance with an embodiment of the present disclosure. The control circuit (108) is designed to implement Automation and Control in Desert Coolers. The control circuit (108) is wirelessly connected to a Smartphone from where it can be used to enquire Temperature and Humidity of the room, as well as to set the desired values of the required parameters. It aims to enhance human comfort under the usage of a Desert Cooler by automating Temperature and Humidity Control in the Desert Cooler and enabling remote control of the Cooler from the convenience of a mobile device. The control circuit (108) takes input from multiple sensors, as well as from Wi-Fi / Bluetooth, and from the given input the circuit ensures automated operation of the Desert Cooler. If the user wants to manually operate the Desert Cooler, the user can manually turn on/off individual relays (118) using the Mobile Application, and the user can also control the speed of the Fan motor (110) through the application. This circuit also ensures the safe operation of the Water pump (112) to avoid it from overheating and damaging itself.

The control circuit (108) is made with the help of a popularly available microcontroller board, Arduino Nano, and the Circuit is also being developed to utilize ESP32 in place of Arduino Nano. The microcontroller board is connected to the water level sensor (106) and DHT11/DHT22 for input. The water level sensor (106) gives an analog output to the Arduino Nano, and DHT11/DHT22 gives a digital output. Both sensors operate on a 5V DC supply. From the given input, Arduino Nano will Switch on/off the Fan, pump (112), and solenoid valve (116) using 5V relays (118). For Fan Speed Control, the user will control the Voltage applied to the Fan motor (110). The Arduino Nano will be connected via three digital outputs to three Photo-triacs which will adjust the value of resistance in the TRIAC-based Voltage control circuit (108) by bypassing them. The TRIAC-based Voltage control circuit (108) is like the TRIAC voltage regulators commonly found in the market, which gives higher Voltage Output for higher resistance.

The multiple control systems are implemented to ensure the desired working of the Desert Cooler to mitigate the issues of the Desert Cooler. Temperature Control, Humidity Control, and Water Level Control are required to be implemented. The Control Program will take input from the water level sensor (106) and the Temperature and humidity sensor (104).

Figure 3 illustrates a block diagram of humidity control in accordance with an embodiment of the present disclosure. To maintain the Humidity of the room in a fixed range, the user is required to define the 'High' and 'Low' values of Humidity. The Humidity in the room is introduced by the water which evaporates in the cooling pads of the Desert Cooler. If the Humidity touches the 'High' level, the Circuit will turn off the Water pump (112). This will cause the Fan to run without the pump (112), and under proper ventilation, this will result in a reduction in the humidity in the room. When the Humidity reaches the 'Low' level, the Water pump (112) will be turned on and the cooling effect of the cooling pads will be restored. The pump (112) will be turned on and off through a relay.

Figure 4 illustrates a block diagram of a water tank level control in accordance with an embodiment of the present disclosure. To Control the Water Level in the Tank, the user requires a Normally-Closed solenoid valve (116) with Water Supply. The 'Low' and 'High' levels will be defined for the water level sensor (106). The 'Low' level will be set barely above the pump’s level to ensure adequate Water Supply to the pump (112), and the ‘High’ level will be set below the maximum capacity of the Tank to avoid the tank from overflowing. When the Water Level in the Tank reaches the ‘Low’ level, the Valve will be opened to allow water to flow into the tank. When the Tank gets adequately full and reaches the ‘High’ level, the Valve will be turned off. The solenoid valve (116) will be turned on and off through a relay.

Figure 5 illustrates a block diagram of temperature control in accordance with an embodiment of the present disclosure. To maintain the Temperature of the room in the specified range, the user is required to define ‘High’ and ‘Low’ levels. The Temperature of the room will be reduced when both Water pump (112) and Fan are running. The speed of the Fan can be controlled by the Circuit, both manually and automatically. The Fan can be turned ‘OFF’, or it can run at 8 different speeds. When the Temperature of the room increases closer to ‘High’, the Fan Speed will increase gradually. The Fan Speed will decrease gradually as the Temperature gets lower and lower towards ‘Low’. If the temperature goes below ‘Low’, the Fan will be turned off through a relay.

Figure 6 illustrates a block diagram of a control program in accordance with an embodiment of the present disclosure. To protect the Water pump (112) from running dry and overheating, the above-defined ‘Low’ level is used to compare the present Water Level in the Tank, by counting the number of cycles for which the Water Level has remained below the ‘Low’ level. If the recorded Water Level consistently remains below the ‘Low’ level for 2 minutes, the Water pump (112) will be turned off to protect it from running dry, and it will not turn on until the Water Level reaches the 'High' level.

To Control the Desert Cooler manually through the circuit or to control its working parameters, a Mobile Application can be used to control the Cooler remotely. The control circuit (108) will be connected via Bluetooth and/or Wi-Fi. Also, a display will be attached to the circuit enclosure to indicate the Temperature and Humidity, and buttons will be provided to adjust the settings of the control circuit (108) from the box.

The Desert Cooler becomes a device connected to the Internet of Things (IoT). The working of the Desert Cooler is automated. Humidity is not allowed to rise to uncomfortable levels. Climate Control can be achieved with the help of this circuit. With the help of a Mobile Application, the Desert Cooler can be controlled remotely through the Circuit. The reliability of the Desert Cooler is increased by turning down the Fan Speed when possible and ensuring the Water pump (112) does not run dry. Operation of the Desert Cooler will become more energy-efficient.

The invention is better than the standard coolers in the sense that it can operate automatically (Fan Speed Control, Pump Control, and Automatic Water Tank Filling) as well as manually to ensure the desired climate control according to the input received from the sensors and the user's preferred settings. The invention also features a protection mechanism for the water pump (112) in the event of the water pump (112) running dry due to an empty water tank.

The Humidity and temperature sensor (102) will be placed outside to measure the room’s temperature and humidity for more accurate readings and better climate control.

The novel features of the invention are:

I. The invention is a connected and automated device, enabling remote control and manual control of the desert cooler if required.

II. This cooler will have higher reliability than the standard cooler as the control circuit (108) ensures intermittent operation of the Fan as well as the pump (112), avoiding them from overheating.

III. Speed Control will allow the user to reduce the fan speed when the target temperature is reached, resulting in power saving.

IV. This invention will result in an overall lower operational cost of the cooler by reducing electricity usage and preventing motor (110) failure.

V. The control circuit (108) in the invention can be installed on any standard desert cooler to improve its working.

The key inventive features provided in the cooler, along with the novel features mentioned above, beyond the standard desert cooler are I. Bluetooth/Wi-Fi Connectivity to the user's smartphone (Mobile Application has been developed), II. Smooth Fan speed control, III. Ability to change temperature and humidity settings according to the user's preferences, and IV. Automated intermittent operation of the desert cooler to improve the reliability of the pump (112) and motor (110).

The Cooler used to demonstrate the control circuit (108) is a standard cooler connected to the control circuit (108). The control circuit (108) can be divided into three different parts including I. Power Supply Circuit, II. Microcontroller Circuit, and III. Modified Triac Voltage control circuit (108). Apart from this, an NC solenoid valve (116) (+12V) is also required to control the water flow.

The Power Supply circuit aims to provide +12V or +5V DC voltage to the different components in the circuit. The components used are I. 220V-12V transformer, II. Power Diodes (6A), III. Filter Capacitors (10uF and 100uF, 25V), and IV. Voltage Regulator ICs (7805 and 7812).

The Microcontroller Circuit consists of Sensors and relays (118). The components used are I. Arduino Nano/ESP-WROOM-32, II. DHT11/DHT22 sensor, III. water level sensor (106), and IV. Bluetooth Module (AT-09 or HM-10).

The Modified Triac Voltage Control circuit (108) is like the commonly found Triac Voltage Control circuits. The components used are I. BT134/BT136 Triac with DB3 Diac, II. 2A104J Capacitor (0.1uF, 400V), III. Multiple resistances, and IV. MOC3020/MOC3021 opto-triacs.

The drawings and the forgoing description give examples of embodiments. Those skilled in the art will appreciate that one or more of the described elements may well be combined into a single functional element. Alternatively, certain elements may be split into multiple functional elements. Elements from one embodiment may be added to another embodiment. For example, orders of processes described herein may be changed and are not limited to the manner described herein. Moreover, the actions of any flow diagram need not be implemented in the order shown; nor do all of the acts necessarily need to be performed. Also, those acts that are not dependent on other acts may be performed in parallel with the other acts. The scope of embodiments is by no means limited by these specific examples. Numerous variations, whether explicitly given in the specification or not, such as differences in structure, dimension, and use of material, are possible. The scope of embodiments is at least as broad as given by the following claims.

Benefits, other advantages, and solutions to problems have been described above about specific embodiments. However, the benefits, advantages, solutions to problems, and any component(s) that may cause any benefit, advantage, or solution to occur or become more pronounced are not to be construed as a critical, required, or essential feature or component of any or all the claims.

WE CLAIM:

1. A smart and internet of things enabled desert cooler system, the system comprises:

a temperature sensor (102) attached to an outer surface of a cooler for detecting the real-time temperature of the room;

a humidity sensor (104) attached to the outer surface of the cooler for detecting the real-time humidity of the room;

a water level sensor (106) disposed into a water tank for detecting the water level inside the water tank of the cooler;

a control circuit (108) connected to the temperature sensor (102) and the humidity sensor (104) for controlling the humidity and temperature of the room upon controlling the speed of a fan motor (110) and switching on/off a pump (112) upon receiving real-time detected temperature and humidity of the room, wherein the fan speed is controlled by tuning the voltage applied to the fan motor (110) received from a power supply circuit;

wherein the control circuit (108) is connected to the water level sensor (106) for receiving the detected water level for switching on/off the pump (112), and a solenoid valve (116) using a plurality or relays (118);

a graphical user (120) interface coupled to the control circuit (108) for controlling the fan motor (110), pump (112), and solenoid valve (116) of the desert cooler manually and remotely, wherein the graphical user (120) interface is wirelessly connected to the control circuit (108) via a communication device (122) for controlling the desert cooler, wherein the communication device

(122) is selected from one of Bluetooth, Wi-Fi, or RFID for enabling remote control of the cooler; and

a display unit (114) connected to the control circuit (108) enclosure for indicating the temperature and humidity, wherein the display unit (114) has a plurality of buttons for adjusting the settings of the control circuit (108) from the box.

2. The system as claimed in claim 1, wherein the control circuit (108) is connected via three digital outputs to three Photo-TRIACS to adjust the value of resistance in a modified TRIAC-based voltage control circuit (108) by bypassing them, wherein the modified TRIAC-based voltage control circuit (108) is preferably TRIAC voltage regulators configured to provide higher voltage output for higher resistance.

3. The system as claimed in claim 1, wherein the modified TRIAC-based voltage control circuit (108) contains a BT134/BT136 TRIAC with DB3 DIAC, a 2A104J Capacitor of 0.1uF and 400V, a plurality of resistances, and a MOC3020/MOC3021 Opto-TRIACS.

4. The system as claimed in claim 1, wherein from the plurality of relays (118), a first relay is deployed for switching on/off the fan motor (110), a second relay is deployed for switching on/off the pump (112), and a third relay is deployed for switching on/off the solenoid valve (116).

5. The system as claimed in claim 1, wherein the humidity is controlled by the control circuit (108) upon receiving the real-time detected humidity of the room from the humidity sensor (104) thereby switching on the pump (112) if the detected humidity is not greater than 30% and switching off the fan motor (110) if the detected humidity is greater than 60%.

6. The system as claimed in claim 1, wherein the water level of the water tank is classified into HIGH and LOW levels for maintaining the water level inside the water tank, wherein the water level is maintained by the control circuit (108) upon receiving the real-time detected water level inside the water tank of the cooler from the water level sensor (106) thereby switching on the solenoid valve (116) in case the water level ranges in LOW level and switching off the solenoid valve (116) in case the water level ranges in HIGH level.

7. The system as claimed in claim 1, wherein the temperature range is classified into HIGH and LOW levels according to users comfort, wherein the temperature is controlled by the control circuit (108) upon receiving real-time detected temperature from the temperature sensor (102) thereby gradually adjusting the fan motor speed to full speed if the detected temperature is HIGH level or adjusting fan motor speed according to the temperature of the room and switching off the fan motor (110) if the temperature is less than the LOW level.

8. The system as claimed in claim 1, wherein if the Humidity touches the HIGH level, the control circuit (108) turns off the water pump (112) causing the fan motor (110) to run without the pump (112), and under proper ventilation resulting in a reduction in the humidity of the room.

9. The system as claimed in claim 1, wherein the LOW water level is set barely above the pump’s level to ensure adequate water supply to the pump (112), and the HIGH water level is set below the maximum capacity of the water tank to avoid the tank from overflowing.

10. The system as claimed in claim 1, wherein if the detected water level consistently remains below the LOW level for 2 minutes, the water pump (112) is switched off to protect it from running dry and remains switched off until the water level reaches the HIGH level.

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ABSTRACT

A SMART AND INTERNET OF THINGS ENABLED DESERT COOLER SYSTEM

The system comprises a temperature sensor(102) for detecting the real-time temperature of the room; a humidity sensor(104) for detecting the real-time humidity of the room; a water level sensor(106) for detecting the water level inside the water tank; a control circuit(108) for controlling the humidity and temperature of the room upon controlling the speed of a fan motor(110) and switching on/off a pump(112), wherein the control circuit is connected to the water level sensor for receiving detected water level for switching on/off pump, and a solenoid valve(116) using a plurality or relays(118); a graphical user(120) interface for controlling the fan motor, pump, and solenoid valve of the desert cooler manually and remotely, wherein the graphical user interface is wirelessly connected to the control circuit via Bluetooth, Wi-Fi, or RFID for controlling the desert cooler; and a display unit(114) connected to the control circuit enclosure for indicating the temperature and humidity. **Figure 1.**