

Municipal Garden Insect Repellent Device Based on Internet of Things

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Abstract

When summer arrives, mosquitoes can cause problems in our lives. But what is more worrying is that there are thirty to forty kinds of diseases transmitted by mosquitoes. It will take the bite of healthy people after taking the blood of the patients. Bacteria and viruses have spread. It is particularly noteworthy that mosquitoes have strong ability to move, spread diseases quickly, and have relatively large distances and ranges. Therefore, it is relatively difficult to rectify them. Repel mosquitoes and reduce the risk of disease. Blood-sucking harassment is the need to create a comfortable living environment and the need to improve the investment environment. The mosquito index is one of the symbols of civilization and health.

Keywords

Internet of Things; insect repellent device; municipal garden; ultrasonic.

1. Overview

In order to improve the comfort of people walking in the municipal garden, an insect repellent device will be set up in the municipal garden to avoid more mosquitoes and affect people's use of the garden. After searching, the Chinese application patent number is cn201820643581.4, which discloses a The municipal garden insect repellent device based on the Internet of Things has the following shortcomings: 1. The insect repellent device cannot be conveniently installed on the garden tree or the street lamp pole, so the range of installation of the insect repellent device cannot be improved, and thus the full range cannot be achieved. Deworming; 2 When the ultrasonic mosquito repellent inside the insect repellent device fails, the staff cannot be promptly and effectively reminded to repair it. Therefore, it is necessary to design a new type of municipal garden pest repellent device based on the Internet of Things to solve the above problems. .

2. Device Assembly Process

A municipal garden insect repellent device based on the Internet of Things, comprising a protective casing 3, the outer side wall of the top side of the protective casing 3 is connected with a curved support plate 4 by bolts, and the outer wall of one side of the curved support plate 4 is opened first a groove, and the inner wall on both sides of the first groove is connected by bolts with the same curved rail 5, the top outer wall of the curved rail 5 is slidably connected with the sliding block 21, and the top central outer wall of the sliding block 21 is threaded by bolts a rod, and the top outer wall of the threaded rod is connected with a support rod 9 by bolts. The circumferential outer wall of the threaded rod is threadedly sleeved by the limit threaded pipe 19, and the top outer wall of both sides of the limit threaded pipe 19 is connected by a bolt with a rotating block. 20, the top central inner wall of the protective casing 3 is connected by a bolt, and the top and bottom outer walls of the other side of the protective casing 3 are respectively connected with a fixing plate 11 by bolts, and an ultrasonic mosquito

repellent is installed inside the protective casing 3. 6, by the ultrasonic mosquito repellent 6 to drive out the mosquitoes inside the garden,

The top and bottom central outer walls of the ultrasonic mosquito repellent 6 are respectively connected to the support column 16 by bolts, and the circumferential top outer wall of one of the support columns 16 is slidably connected to the circumferential inner wall of the sleeve 10, and the bottom central outer wall of the protective casing 3 is opened. An opening, and the inner wall of the first opening is connected to the support tube 1 by screwing, and the inner peripheral wall of the circumferential top of the support tube 1 is connected to the support web 17 by bolts, and the top central outer wall of the support web 17 is passed through the bolt and the other support post 16. The bottom outer wall is connected, and the outer bottom wall of the circumferential side of the support tube 1 is connected by bolts with a rubber array 2 distributed in an annular array. The inner wall of the other side of the protective casing 3 is connected with an ultrasonic sensor 15 by bolts, and the outer wall of the protective casing 3 is opened. A second opening having an equidistant distribution, and an inner wall of the second opening is connected to the filter panel 18 by bolts, and an outer wall of one side of the protective casing 3 is connected with an alarm by bolts, and the top outer wall of the support rod 9 is connected by bolts. The top plate 7 is protected, and the top outer wall of the protection top plate 7 is provided with an annular array of drainage grooves 8. In use, in the idle portion of the device, all of the above-mentioned driving members are referred to. The force component, the electrical component, and the adapted power source are connected by wires, and the electrical components are sequentially connected to each other to complete electrical connection. The detailed connection means is a well-known technology in the art. The following mainly introduces the working principle and process, and is not in the right. The electrical control is explained. Then, the fixing clamp arm 12 can be clamped on the lamp pole of the garden street lamp, and the two adjacent fixing clamp arms 12 are fixed by the fixing bolts 13, thereby realizing convenient installation of the insect repellent device, and also. The two fixed clamp arms 12 and the support block 14 are opened, a support plate is installed in the bush of the garden, and the opened support block 14 is horizontally placed on the support plate, and fixed by the fixing bolt 13 to further realize the drive. The insect device is conveniently installed, and the ultrasonic insect repellent emits ultrasonic waves to complete the deworming work during use.

3. The Device Benefits

The other outer side wall of the two fixing plates 11 is connected with two fixing clip arms 12 by a hinge, and the other outer wall of the fixing clip arm 12 is connected with a supporting block 14 by bolts, and the central outer wall of one end of the four supporting blocks 14. Threaded holes are provided, and the inner walls of two adjacent threaded holes are screwed to the same fixing bolt 13. The ultrasonic mosquito repellent 6 and the alarm are electrically connected to the controller through the switch, and the ultrasonic sensor 15 passes the signal. The line is connected with the controller, and the ultrasonic mosquito repellent 6, the alarm device and the ultrasonic sensor 15 are electrically connected to each other through a wire, and the model of the controller is at89c52.

By providing a fixed clamp arm, a support block and a fixing bolt on one side of the protective casing, the fixed clamp arm can be clamped on the lamp pole of the garden street lamp, and the adjacent two fixed clamp arms are fixed by the fixing bolts, thereby realizing Easy installation of the insect repellent device. In addition, the two fixed clamp arms and the support block can be opened, a support plate is installed in the garden bush, and the opened support block is horizontally placed on the support plate, by the fixing bolt pair. It is fixed to further facilitate the installation of the insect repellent device, and the insect repellent device can be installed at

various locations in the garden to improve the comprehensiveness of the insect repellent. By providing a curved support plate and a curved shape at the top of the protective casing The guide rail is driven by the sliding block to protect the top plate from sliding on the curved guide rail, which can effectively protect the insect repellent device from sunshade and rain, improve the service life of the insect repellent device, and at the same time, when the insect repellent device is installed vertically The sliding block can be slid to the top of the protective casing, and the protective top plate is fixed by the rotating limit threaded pipe. When the insect repellent device is horizontally installed, the sliding block can be slid to one side of the protective casing, and also rotated limitThe threaded pipe fixes the top plate to further improve the installation and use of the device.

By installing an ultrasonic sensor on one side of the protective casing, when the ultrasonic sensor fails to detect the ultrasonic signal, it will give the controller a control signal, and the controller activates the alarm, which not only reminds the staff to perform timely maintenance. At the same time, the alarm device is installed on the protective casing, so that the maintenance personnel can quickly and accurately find the faulty insect repellent device, repair it, and improve the convenience of maintenance.

4. The Working Principle of the Device

In use, in the idle position of the device, all the driving components mentioned above, which refer to the power component, the electric device and the adapted power source are connected by wires, and the electrical devices are sequentially connected in sequence to complete the electrical connection, and the detailed connection is completed. Means, which are well-known in the art, the following mainly introduces the working principle and the process, and does not explain the electrical control. Then, the fixing clamp arm 12 can be clamped on the lamp post of the garden street lamp, and the two adjacent fixings are fixed by the fixing bolts 13. The clamp arm 12 is fixed to realize convenient installation of the insect repellent device, and the two fixed clamp arms 12 and the support block 14 can be opened, a support plate is installed in the garden bush, and the open support block 14 is horizontal. It is placed on the support plate and fixed by the fixing bolts 13, which further realizes the convenient installation of the insect repellent device. In use, the ultrasonic mosquito repellent emits ultrasonic waves to complete the deworming work.

5. The Device Benefits

(1) By fixing the clamping arm, the supporting block and the fixing bolt on one side of the protective casing, the fixing clamping arm can be clamped on the lamp pole of the garden street lamp, and the two fixing clamp arms are fixed by the fixing bolts. It realizes convenient installation of the insect repellent device. In addition, two fixed clamp arms and support blocks can be opened, a support plate is installed in the garden bush, and the opened support block is horizontally placed on the support plate. The fixing bolt fixes it, further realizes the convenient installation of the insect repellent device, and can install the insect repellent device in various places of the garden, thereby improving the comprehensiveness of the deworming.

(2) By providing an arc-shaped support plate and an arc-shaped guide rail at the top of the protective casing, and sliding the protective top plate to slide on the curved guide rail by the sliding block, the sunshade can be effectively protected from the insect-repellent device by the protective top plate. Improve the service life of the insect repellent device. At the same time, when the insect repellent device is installed vertically, the sliding block can be slid to the top of the protective casing, and the protective roof plate is fixed by the rotating limit threaded pipe, when the insect repellent device is horizontal When installing, the sliding block can be slid to

one side of the protective casing, and the protective top plate is fixed by the rotating limit threaded pipe, thereby further improving the convenience of installation and use of the device. (3) By installing an ultrasonic sensor on one side of the protective casing, when the ultrasonic sensor fails to detect the ultrasonic signal, a control signal is given to the controller, and the controller activates the alarm, which not only reminds the staff of the ultrasonic signal Timely maintenance, at the same time, the alarm is installed on the protective casing, so that the maintenance personnel can quickly and accurately find the faulty insect repellent device, repair it, and improve the convenience of maintenance.

6. Device Components

(1) support tube, (2) rubber bump, (3) protective housing, (4) curved support plate, (5) curved guide rail, (6) ultrasonic mosquito repellent, (7) protective top plate, (8) Drainage trough, (9) support rod, (10) casing, (11) fixing plate, (12) fixing clamp arm, (13) fixing bolt, (14) support block, (15) ultrasonic sensor, (16) Support column, (17) support stencil, (18) filter screen, (19) limit threaded pipe, (20) rotating block, (21) sliding block.

7. The Conclusion

Through the research and development of the insect repellent device, it can better realize the deworming of the municipal garden, avoid excessive mosquitoes, affect people's use of the garden, and reduce the disease infection caused by mosquito bites, and increase people in the municipality. The comfort of walking in the garden provides a guarantee for people's lives.

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