CORONAVIRUS STERILIZER BOX

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Abstract: It is an box type sterilizer. A c band uv light is used in the hollow rectangular wooden box for sterilizing. One side of the box is a door. Uv led is placed at oneside of the box. The object to be sterilized is placed inside the box. The led is powered only when the door is closed. any DNA OR RNA based organism present on the surface of the object will be killed by the uvc radiation.

Index Terms: corona virus, sterilizer box, Arduino uno board, radiation, uvc leds, ultra violet light.

1. INTRODUCTION

Corona virus sterilization box is a multi-functional disinfection box that can be used to sterilize rings, watches, keys, mobile phones, earphones etc.it uses uvc sterilizer which is a band of uv light with viral effect. The ultraviolet c radiations emitted by the special uvc leds acts as a surface disinfectant and can inactivate virus, bacteria and other microbes by attacking their DNA OR RNA effectively ends its ability to reproduce. UVC radiation has maximum germicidal effect. The present invention relates to sterilization using ultra violet radiation and more particularly, to a box type uv sterilizer . designed considering three factors, energy applied which is affected by uvc exposure time and distance from the light source, maximum surface exposure, safety and convience in operation.

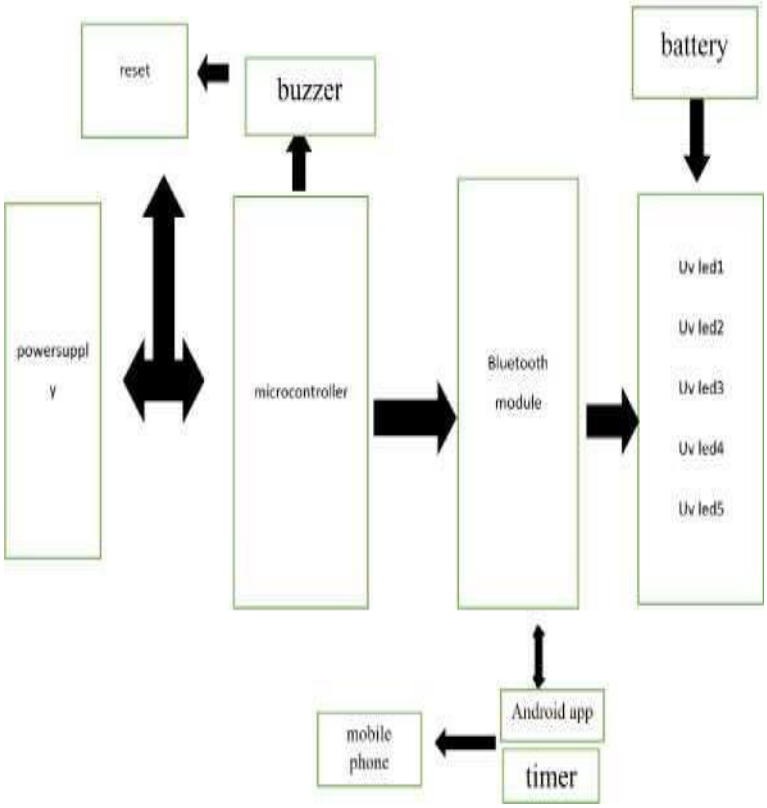
A cardboard box is used to create an insulated chamber for UVC radiation. The inside walls of the box is covered with aluminium foil to create maximum amount of reflection. One side of the box is a door to place the objects to be disinfected. We have used an Arduino UNO to control the entire function of the device. The UV leds provides the UV light for the sterilizing function. The instructions for setting the time and starting the device is done automatically using ardruino Bluetooth controller app. An android app display is provided to show the remaining time of sterilizing. To control the ON and OFF of the UVC led, a 3.3v DC HC-05 BLUETOOTH MODULE is used. A ON/OFF switch is placed in the Arduino

Bluetooth controller app to control the UV light is produced. A 9v DC adapter powers the Arduino uno board. The entire device works on 5V DC supply

2. Proposed System

When we click the on option on the app and it communicates with the bluetooth module and it turns in uv leds on . we have the inbuilt timer option in app which is used to set the on timing of uvleds and after that Arduino is mainly used to give the

BLOCK DIAGRAM:



signals to Bluetooth module . when the wavelength exists above 280 nm wavelength microcontroller opens up the circuit to buzzer by which buzzer is on and it is the alarming signal after we can use reset button to reset the state of buzzer. By using the mobile phone we can get output of timer running. The maximum it takes 30 minutes to sterilize any kind of material except fungus . for fungus it takes about 2 hours to disfection time The components are connected as shown in block diagram. Arduino is programmed to perform the whole function. Open the box and place an object inside the box and close the door. Press the start button. The UV led starts to emit UVC light for a predetermined time limit. When the timer in the display shows zero in the mobile app, we can take back the object. If the door is opened during the sterilizing process, the UV led turns OFF to ensure the safety of the used.

From the above paper, we know that any DNA or RNA based organisms present on the object will be killed by UV-C radiation. The paper talks about the importance of sterilizing the daily use devices and objects like Mobile phone, Purse, Money and keys. This device is also helpful to sterilize masks and face shields faster.

CONLUSION

Our UV Sterilizer box allows the disinfection of the objects placed inside the box. The default exposure time programmed in the device is 30 MINUTES. The user can change to an require exposure time. It can kill any DNA or RNA based organism by the exposure of UV light to the objects.

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