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Artificial Intelligence Based Compact Sanitization Robot

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Abstract: Many researchers have been going on in recent years for the development of ultraviolet based sanitization. In this research contactless determination of Sanitization Robot system where in passing thorough confined space in constrain area, when said robotic system has to be placed in the closed room where no human is needed for further effective operation. The robot can be operated from the laptop or computer by running specific language coding instruction with a unique compiler system. The program has to be run from VNC viewer. It is also capable of live stream of surrounding using camera placed on robot for effective operation of robotic system. The present disclosure highlight System which is contact free and as no human energy is wasted in sanitization of particular compact area. In the present the research proposed an efficient way of sanitization system as the ultraviolet light of type C is able to kill different types of bacteria, viruses and germs. Thus, present disclosure will impact a traditional sanitization method thus giving a new perspective with ultra violet sanitization method, the innovative non invasive blood glucose sensor system place on the robot is placed to check the blood glucose of the user the present disclosure with interactive artificial intelligent problem-solving tool will also help the user to brainstorm the day to today activities.

Keywords: AI based sanitization robot, UV based sanitization, wirelessly controlled robot, and Machine learning based human detection.

I. INTRODUCTION

As of now the world is in danger of Covid 19 and due to that many people are getting affected by Covid 19 virus. It is very difficult to sanitize the rooms and other areas by physically going there as it increases the chance of getting affected by the virus while sanitizing. To overcome this major problem facing by people we came with this idea. The AI based UV sanitization robot has the power of ultraviolet radiation to kill almost all types of viruses and bacteria. The robot has capability to give a clear live video stream of the surrounding area using camera placed on the robot. Using the inbuilt Wi-Fi facility of the robot, anyone can control the robot and its graphical user interface permits to drive the robot in a room from outside of the room. The robot will be having machine learning technology to detect human using its camera and turn off the ultraviolet light as soon as the human gets detected. It also assists patients with artificial intelligence assistant present in the robot. Diabetes is the major challenge which is encounter by many people of 21st century. Which has been affecting millions of people in the world? So, to overcome with the painful method of diagnosing diabetes problem this robot has the arrangement to measure the blood glucose level without using needle or pricking method.

II. LITERATURE SURVEY

In the paper Raspberry Pi based voice-operated personal assistant by Piyush Vashistha, Juginder Pal Singh, PranavJain, Jitendra Kumar[1] the problem discussed was the current system experiences the downside that just predefined voices are conceivable and it can store just constrained commands. Subsequently, the client can't get full data lucidly.[4] In the paper Noninvasive optical diagnostic techniques for mobile blood glucose and bilirubin monitoring by Bahereh Javid, Faranak Fotouhi-Ghazivni, Fahime Sadat Zakeri the issue discussed was the people with diabetes need to monitor blood sugar levels constantly and attend health centers regularly for checkups so it was painful and time taking method to take blood and measure blood glucose regularly. The methodology in that paper includes a sensor for non-invasive blood glucose measurement using near infrared spectroscopy and optical method.

III. PROBLEM STATEMENT

There are many diseases are spreading very fast. Because of that humans may suffer the problems like fever, cold, etc.such bacteria need to control somewhere. And another problem in 21st century is diabetes out of 100 there are 70% peoples are suffering from diabetes. Diabetes can cause the dangerous problems on human's body. People with diabetes

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need to monitor blood sugar levels constantly and attend health centers regularly for checkups. And every time doctors pinch the needle for taking blood and this is painful process.

IV. PROPOSED SYSTEM WITH WORKING PRINCIPLE

The proposed system has two parts:-

1. AI based U.V. sanitization
2. Noninvasive blood sugar measurement

1) 1, AI based U.V. sanitization:-

The robot has to be placed in the closed room where no human is present. The robot can be operated from the laptop or computer by running python code on any python compiler. The VNC viewer will get open as soon as the program is run. It will show the live stream of surrounding using camera placed on robot. The another window will get open in which the buttons can be seen to control the movements of wheels of robot. There will be five buttons to control robot movement. The robot can be moved forward, backward, left, right, and stop.

The UV light placed on robot works on 12v battery which is also placed on the robot. The ultraviolet light used is the U.V.C light which has the wavelength of 100 to 280nm. Therefore, it can kill germs, bacteria and viruses with the accuracy of 99.9%. The ultraviolet light of type C is capable of killing viruses, bacteria and germs in very less time. IT has to be move all around the room, to all possible places in the room to make it more efficient.

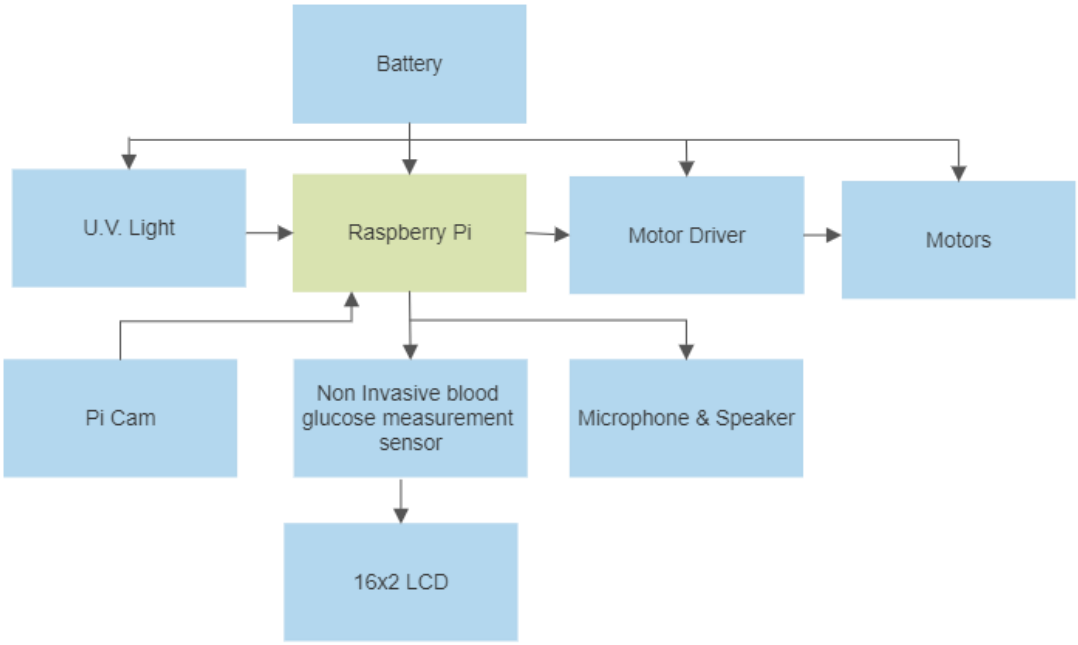

Figure 1. Block diagram of Artificial intelligence based compact sanitization robot

2. Non invasive blood sugar measurement:-

The non-invasive blood glucose sensor system place on the robot is placed to check the blood glucose of the user. The user can measure blood glucose level just by placing the finger in between the system. The glucose can be measured painlessly and will be displayed on the LCD display placed on robot.

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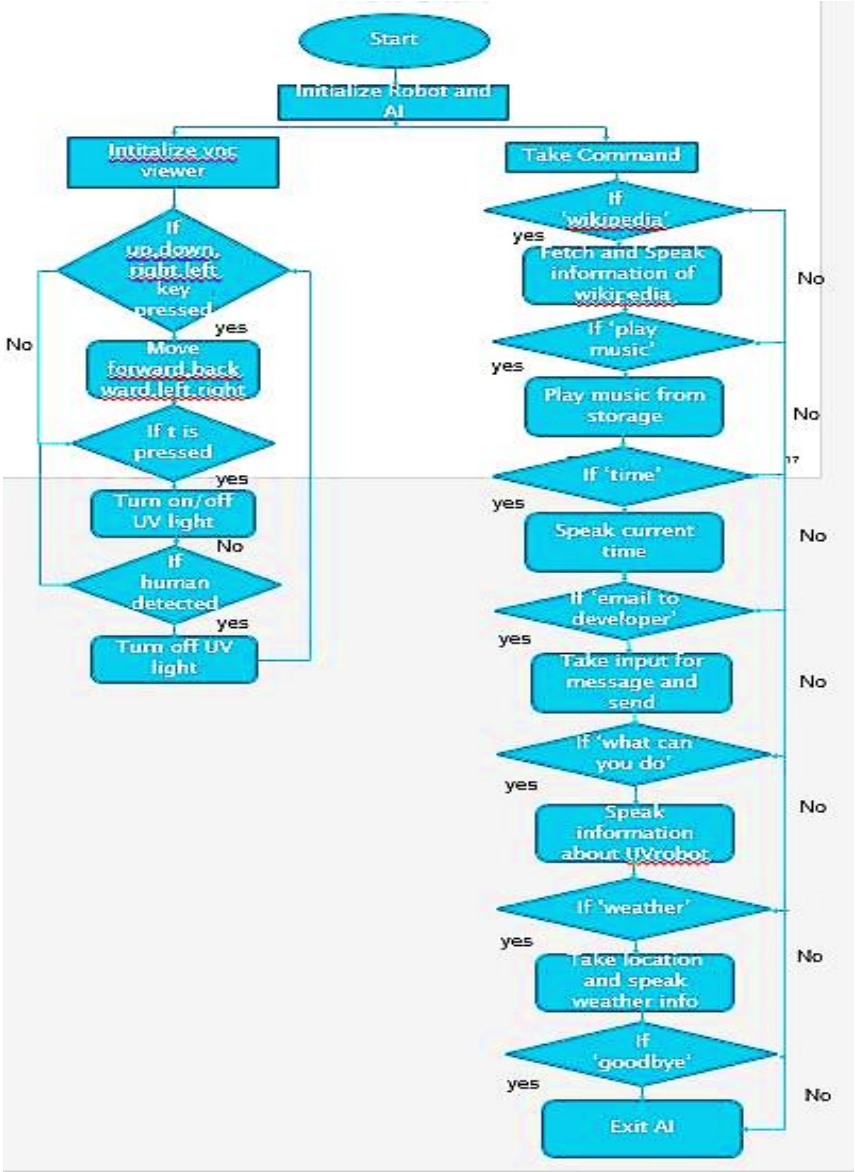
V. DESIGN FLOW



When we start the VNC viewer and run the program the GUI will open. If we pressed the forward button the robot will move forward. If backward button is pressed then the robot will move backward, if left key is pressed the robot will move towards left direction, if the right direction is pressed then the robot will move towards right direction. When we run the AI program the AI will greet us and will take command. If we asked to tell some information from Wikipedia then the AI will fetch the information from Wikipedia. If we say play music then it will play music which is stored in SD card. If we ask time to robot then it will tell the current time. If we want to email to developer than it can email to the developer whatever message we say. If we ask what you can do then it will tell all the things which it can do. If we speak the weather then it will tell the weather information of the city told by us. If we say good bye then it will turn off.

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VI. IMPLEMENTATION

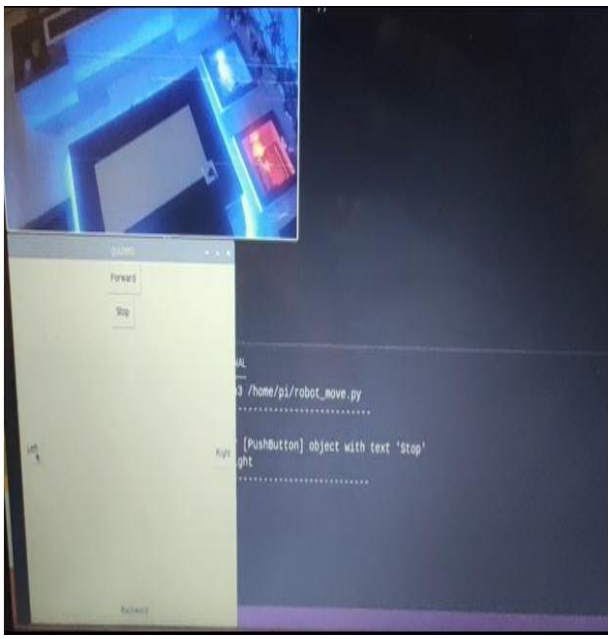

Figure.2.1

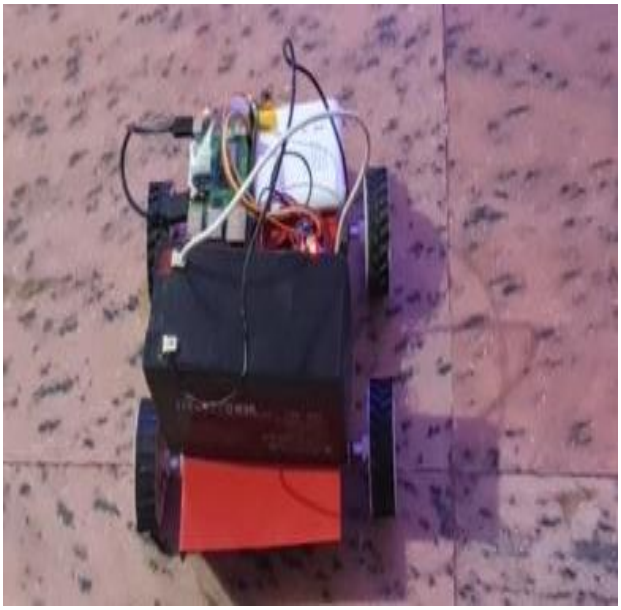

Figure2.2

CONCLUSION

This paper provides some important points; it talks about the sanitization of objects using ultraviolet light. It also talks about noninvasive method of blood sugar measurement. This project mainly focuses on sanitizing the floor, objects wirelessly using ultraviolet radiation so that the germs and bacteria along with the viruses can be killed effectively and measure the blood glucose of the patient painlessly through noninvasive method.

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BIOGRAPHY

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