Robot Helping to Fight Covid-19

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ABSTRACT: This paper describes the unfolding role of robotics in healthcare and allied areas with special concerns relating to the management and control of the spread of the novel coronavirus disease 2019 (COVID-19). The primary use of such robots is to minimize person-to-person contact and to ensure cleaning, sterilization and support in hospitals. This will result in minimizing the risk of life to medical staff and doctors taking an active role in the management of theCOVID-19 pandemic. This project describes in hospital how to control a robot using mobile through Bluetooth communication, some features about technology of Bluetooth, components of the mobile and robot.We present a review of robots controlled by smartphone via moving the robot upward, downward, left and right side by the android application such as Arduino, bluetooth module. We are using Arduino software to interface the Bluetooth module which is wireless technology. According to commands received from android phone the robot motion can be controlled.

KEYWORDS: medical robots, COVID-19,coronaviruspandemic, multifunction, Bluetooth communication

1. INTRODUCTION

• The World Health Organization (WHO) on January 30, 2020 publicly announced the COVID-19 pandemic as a "global emergency" because of the rapidity at which it had spread worldwide [1].

• The virus COVID-19 has unereved worldwide economies leading to a stock market crash in many countries. Since, the first collection of cases identified in Wuhan City, China, in December 2019, the coronavirus pandemic has rapidly spread across China as well as over the borders, causing multiple incidents in nearly all countries of the world except Antarctica as shown in figure below.

Figure 1. Total worldwide deaths due to COVID-19 per million per people

• According to the WHO's condition report 127 published on May 26, 2020, so far, 5,404,512 confirmed cases have been reported worldwide with 343,514 casualties [5].

- This project paper aims to designing a robot that can be operated using smartphone. The controlling of a robot is done by wireless technology like bluetooth.

II.ROBOT FOR HOSPITAL SCOPE

- To avoid physical contact.
- To supply foods to various patients.
- For saving the time.
- To cleaning the hospital.
- This robot will helpful in hospital small clinic and pharmacy.
- Reduced the number of covid-19 patients.

III.METHODOLOGY

- In our project we are using four 12v 30 rpm dc motor which will help to give motion to are project, this four motor is drive by motor drive l298n which is motor driver this motor drive operate motor to move and motor drive is interface with Arduino.

- We are using 12v lithium-ion battery as power supply for the project.

- The motor drive has four pins which used to operate the motor is connect to Arduino the motor drive has twice power supply port which is 12v and 5v 12v and ground is for power supply to motor drive and 5v and ground is for providing power to Arduino.

- To operate our project wireless for that we are using hc05 Bluetooth module which help to operate are project wireless via Bluetooth, this module has a range of 10 meters as given by the description of the module hc05 has six pin in six pin we are using four out of six which as rx tx vcc gnd this pin is interface with Arduino the hc05 is operate on Bluetooth device we need download app in are handset and power on connect the hc05 now we can operate the hc05.

- Next we using UV light (ultraviolet light) this light emitting radiation will help to kill germs and bacteria's UV light whenever in contact with any bacteria's or germs is stop reproduce them UV light operate on220ac for this we are using 12v dc to 220 converter which convert 12vdc to 220 ac UV light we fix inside of front side of the project.

- Next is floor cleaning for that we are using 12v 100 rpm dc motor we connect with cleaning thing in touch with surface whenever the motor is rotate then the cleaning thing also will rotate due toCleaning thing is contact with surface the floor will clean.
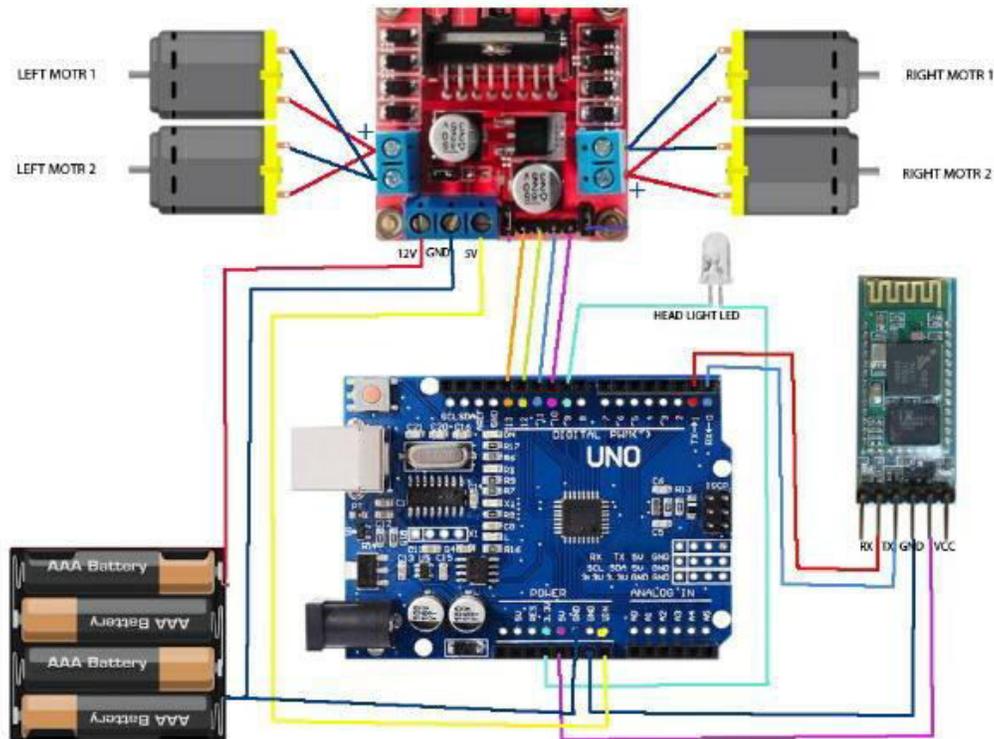
Figure 1 block diagram of purpose system

IV.ADVANTAGES

- Cost Effectiveness.
- Improve Quality Assurance
- Avoid person to person contact
- Cleaning the hospital
- Supply foods to various patients.
- Social distance maintenance during covid-19 pandemic.
- For saving the time.
- Easy of handling and maintenance

V.REQUIREMENTS OF ROBOT

- Safety:-Safety is the most important advantage of utilizing robotics.
- Speed:- Robots don't get distracted or need to take breaks.
- Consistency:- Robots never need to divide their consciousness between a multitude of things.
- Perfection:- Robots will always deliver quality.

VI.RESULTS

- This device can run anyone just need to on the power supply and connect to smartphone.
- Before you connect you should download the app which is already available on Google appstore after complete the download open the app.

- Turn on the bluetooth of your smartphone and connect hc05 bluetooth module.
- Now device is ready to use.
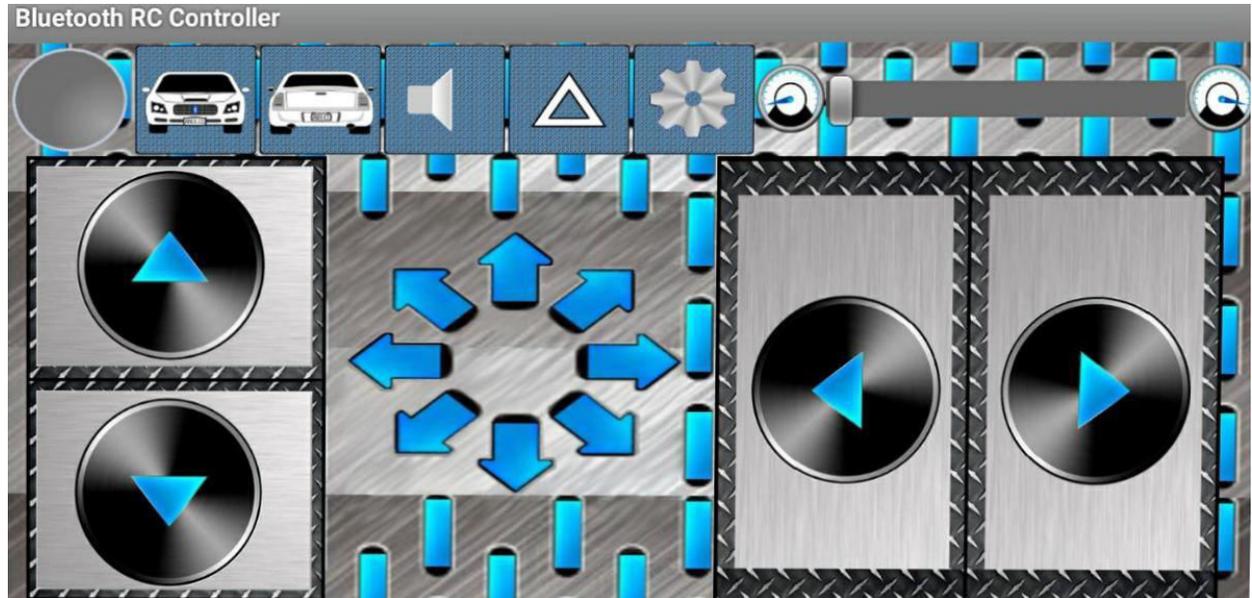
FIGURE 2 BLUETOOTH RC CAP APP INTERFACE

```
1 #include int val;
2 int nb;
3 void setup() { // put your setup code
  here, to run once:
4     Serial.begin(9600);
  pinMode(9,OUTPUT); pinMode(8,OUTPUT);
  pinMode(7,OUTPUT); pinMode(6,INPUT);
5     } // put your main code here, to
  run repeatedly:
6  void loop()
  { if(Serial.available()>0) { int
  data= Serial.read(); Stop();
  if(data=='R') { digitalWrite(9,HIGH);
  digitalWrite(8,LOW);
  digitalWrite(6,HIGH);
  digitalWrite(7,LOW); } else
  if(data=='L') { digitalWrite(9,LOW);
  digitalWrite(8,HIGH);
  digitalWrite(6,LOW);
  digitalWrite(7,HIGH); } else
   digitalWrite(6,LOW);
   digitalWrite(7,HIGH); } else
   if(data=='F') { digitalWrite(9,LOW);
   digitalWrite(8,HIGH);
   digitalWrite(6,HIGH);
   digitalWrite(7,LOW); } else
   if(data=='B') { digitalWrite(9,HIGH);
   digitalWrite(8,LOW);
   digitalWrite(6,LOW);
   digitalWrite(7,HIGH); } } } void
   Stop() { digitalWrite(9,LOW);
   digitalWrite(8,LOW);
   digitalWrite(6,LOW);
   digitalWrite(7,LOW);
7 }
```

Figure 3:- coding used in the project

Figure 4 :- FINAL OUTPUT OF THE PROJECT

Figure 5:- WORKING MODEL OF PROJECT

VII.CONCLUSION

The current pandemic reveals how much our activities are contingent on human-to-human physical contact. Effective management of COVID-19 can significantly decreasing the number of infected patients and casualties as witnessed in the case of the Chinese outbreak. Since, it has currently extinguish to be a global challenge, technologically advanced countries can aid others by donating support equipment and robotic infrastructure to enable a good outcome in controlling this disease. This project reduced the number of COVID-19 patients. It also provide to cleaning the hospital and supply foods to various patients.

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