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Food and Medicine Serving Robot

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Abstract- his project describes the design and development of a Serving Robot which is considered as a possible solution to address the lack of human resource and to introduce Automation. The role of robotics in healthcare and allied areas with special concerns relating to the management and control of the spread of the hazardous diseases like corona virus disease 2019 (COVID-19). The pandemic covid-19 have brought a vast change to the world and made us distant socializing rather than social distancing. The medical sectors are facing a crucial stich on this. Moreover a Bluetooth based remote controlled robot for navigating ,delivering food and Medicines can limit the interactions of medical professionals to patients. Ensuring the safety and low expansion of covid-19, the robot can be controlled anywhere from the hospital.

Keywords : Arduino UNO, Bluetooth Module(HC-05), Contactless Temperature Sensor (MLX90614), IR Sensor, Wireless Camera, Servo Motor, DC Motor Driver, DC Motor Pump, Relay, LCD, Arduino Bluetooth Controller and V380 Pro Mobile Applications.

I. INTRODUCTION

As the world is emerging towards new trends and technologies, there is a need to invent something that is more attractive and useful for the citizens. In the present approach we are introducing Automation into picture which makes things much simple. Basically, Robotic Process Automation is a technology that uses robots to automate monotonous tasks and manual processes. The entities which emulates certain actions are called Robots. Automation is any process which is done by minimal human assistance.

A global emergency (COVID-19) was declared by the World Health Organization (WHO) due to the outbreak of the novel corona virus SARS-CoV-2 on January 30, 2020. This COVID-19 pandemic adversely affected almost all countries worldwide, placed great strain on healthcare facilities, and resulted in economic crises. Frontline health workers have a higher risk of getting infected, as they are in close contact with patients. The only way to stop the spreading of Corona Virus is to maintain Social Distancing. In Hospitals it may not possible to maintaining the social distance. So, In our Proposed System the robot is proposed which is controlled through a android phone and a camera is installed on Robot.

II. LITERATURE SURVEY

Voice Controlled Robot: [1] In today's modern world the use of robot is rapidly increasing. Robots are capable of doing work more effectively and efficiently than humans. One such example can be VOICE CONTROLLED ROBOT. The Robot is controlled according to the instructions (Right, Left, Forward, Backward) that are given by humans. Social Service Robots in Public and Private Environments: Research on service robots majorly in hospital industries has been increased nowadays due to this covid-19 pandemic. Possible solutions are to be addressed to overcome the problems faced by the health care professionals in the treatment of their patients without being infected themselves in treating the patients

III. METHODOLOGY

The proposed system contains both hardware and software tools as components. The robot serves the patient needs and medicine and is controlled from remote location. Health worker can check the patient condition through camera from remote location. The robot is used to carry food and medicines without creating direct contact between humans and thereby maintaining social distancing. Before Controlling the Robot the person who is operating has to Sanitize their hands with the help of DC Pump Motor on the Robot. In this system ,the Person will check the temperature and then place the food and medicine. If the temperature is high , buzzer will make sound and the box door will not open to take the food. If the temperature is low, box door will open and food and medicine will be placed. The door lock is also controlled from remote location.The robot is controlled by using Bluetooth through an android app.

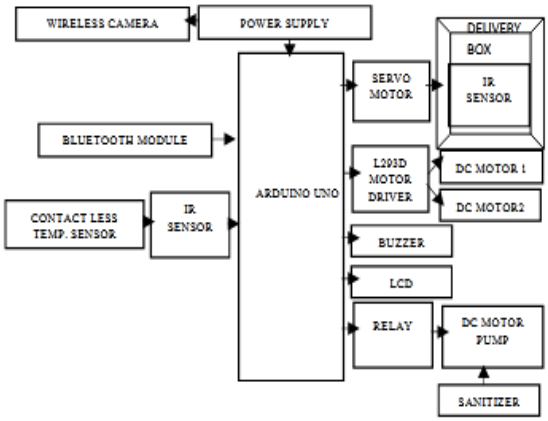

Fig.1 Connection Of Devices

Fig.2 Components Images

IV. RESULTS AND DISCUSSIONS

The System uses a RPA, is a Process that is used instinctively Performing certain Tasks or Actions.The Person need to install Arudino Bluetooth Controller and V380 Pro Applications in his Android Mobile before controlling the Robot.The Arduino Bluetooth Controller App is used to give the commands and receiving the messages from the Robot, V380 Pro App is used to See the directions as well as Monitoring the Patient. The Person Should Pair his Mobile Bluetooth to the Bluetooth Module (HC-05) which is On the Robot. Before Placing the Food and Medicine in the Box the Person has to Sanitize his Hands by entering the Command "8" in Command Prompt of Aruduino Bluetooth App. After Placing the Food or Medicine the door lock has to be closed with the help of Servo Motor by entering the Command "7". Now the Person has to take the Robot to desired Patient Location with the help of Commands (Listed below). The Person has to open the Door lock with the help of Servo Motor by entering the Command "6". The Person will also knows whether the food is taken or Not with the help of IR Sensor placed inside the Box. If the Patient has taken the food by opening the door,in command prompt it shows Food is taken....and also the same message will be displayed in LCD.Suppose, If the Patient has not taken the food within Certain Period (30 Sec) the Buzzer beeps and it shows Food is not taken.If the Person wants to know the temperature of the Patient, the Robot should be taken closer to the Patient and it automatically measures the temperature with the help of IR Sensor Placed under the Contact Less Temperature Sensor (MLX90614).If the Temperature greater than 38°C the Buzzer beeps and also it shows Temperature is too High...along with the Measured Temperature of the Patient.

The Following are the list of Commands

1-Forward Direction
2- Backward Direction
3- Left Direction
4- Right Direction
5- Halt Condition
6- Box Door Open
7- Box Door Close } Servo Motor
8- DC Pump Motor ON
9- DC Pump Motor OFF

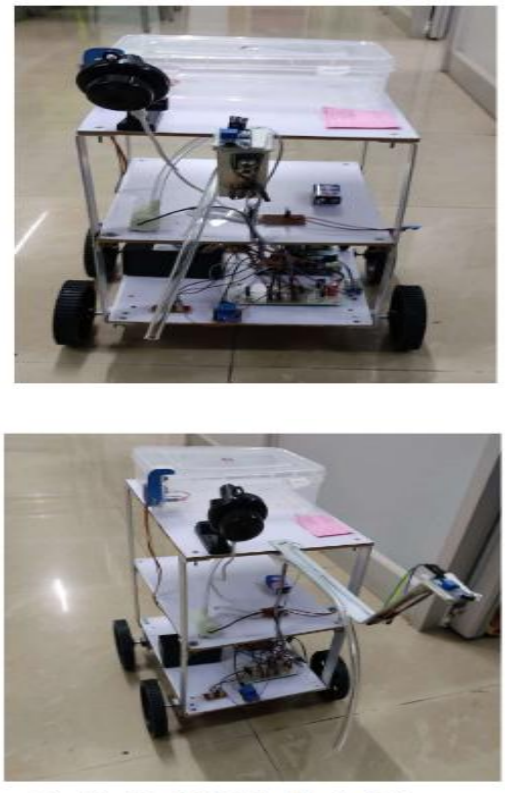

Fig.3 Food and Medicine Serving Robot

V. CONCLUSION

This Project Redues the Lack of Human Resources to serve in Hospitals.The Robot is Cost effective once we built later just Maintenance is required. In Future this Robot Can be used as Half Duplex Mode of Communication.This Model can be used in the Restaurants to serve a food for the customers and in the apartments or in some gated communities to deliver food or food items. To be more clear and precise the present project is not for a specific use rather it has multiple uses as well. So, with the help of RPA it is easy to achieve time efficiency, cost reduction, efficiency in work and also it addresses the requirement of man power.

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