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IOT VIRTUAL DOCTOR ROBOT

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Abstract: At the time of COVID-19 situation whole world is facing the pandemic. Due to which there is less availability of doctors. Doctors are usually needed to work at every hospital and emergency Centre every now and then. But it is not possible for every doctor to be available at every place at desired time. This limits the doctor's capacity to view patient, so we here develop a robotic doctor which monitor the patient at any time anywhere using the technology. Doctors also have to maintain the social distances. To help or solve this issue we use this virtual doctor robot that allows a doctor to virtually move around at a remote location at will and even talk to people at remote location as desired.

Keywords: Arduino UNO, DC Motor, Wifi Module L293D, Motor Control Shield, Robotic Base Frame, Wheels, Battery

I. INTRODUCTION

In the world that is pacing up with technology and is witnessing some of the greatest innovations in various field, are we forgetting the medical line. As we have seen at the time of COVID-19, how far the world is behind in terms of medical. Keeping that in mind we have done this IOT VIRTUAL DOCTOR ROBOT project, in which we can treat or check the patient virtually and when doctors are not available in the remote area there, we can use this technology to check the patient. And Doctors also have to maintain the social distances.

The technology which we used in this project are combined with Hardware and Software some parts are used like Arduino, wifi module, Motor control shield these are embedded with software as well. And some components are like wheels, Battery, base frame these are the hardware things which we used in this project.

In this Research paper, you will get the information about the components which we used and the Motive of this project, that why we are working on this technology for those people who do not have access to medical facilities.

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II. TYPE OF PROJECT:

Hardware and Software

III. AIM OF THE PROJECT:

This paper helps in implementation the **a**vailability of doctors, Doctors are usually needed to work at every hospital and emergency Centre so using this technology it is easy to provide the availability of doctors as desired. And It can also store the patient data which help the doctors to examine them properly.

IV. FEATURES OF THE PROJECT:

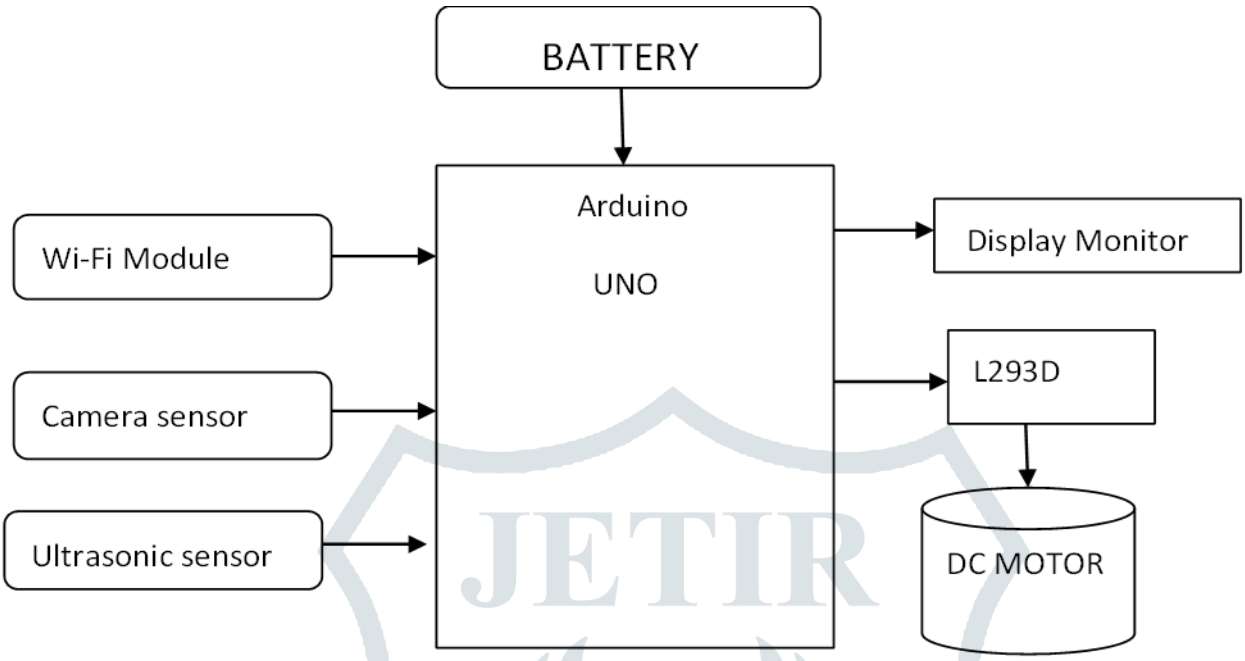
Doctors' ability to be at anyplace anytime, Doctors can also move or observe around in operation theatres without physically present. Doctors can move around the patient with ease. Doctors can see medical reports remotely via video calls. Doctors can move around in other patient rooms, also using this technology doctors can easily maintain the social distancing. And the most important IOT will help to record the patient records.

V. WORKING:

The design makes use of a robotic vehicle with 4- wheel drive for easy navigation. The robot also includes a regulator box for circuitry and a mounting to hold a mobile phone or tablet. The mobile or tablet is used to hold live videotape calls. The croaker can use an IOT grounded panel to control the robot. The control commands transferred online are entered by the robot regulator.

The robot regulator operates over wifi internet. The entered commands are entered in real time and the robot motors are operated to achieve the asked movement commands. Also, the root has other functions including battery status alert to remind of battery are needed to plug for charging. Now one by one you see the details of the components which we used in this project.

A. GENERAL BLOCK DIAGRAM:



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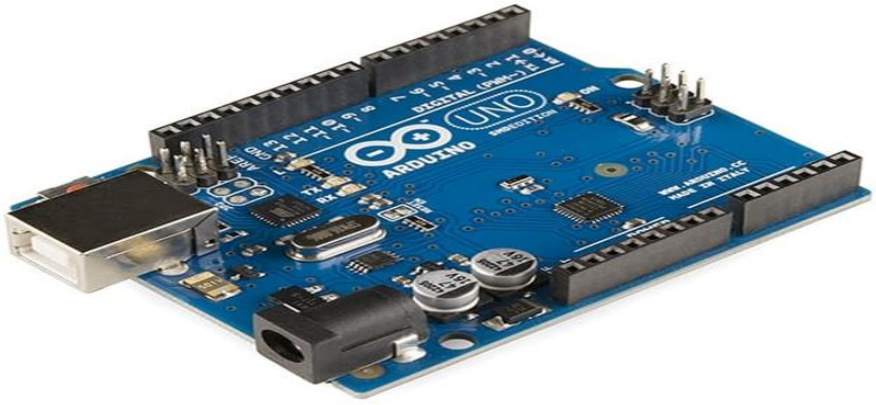
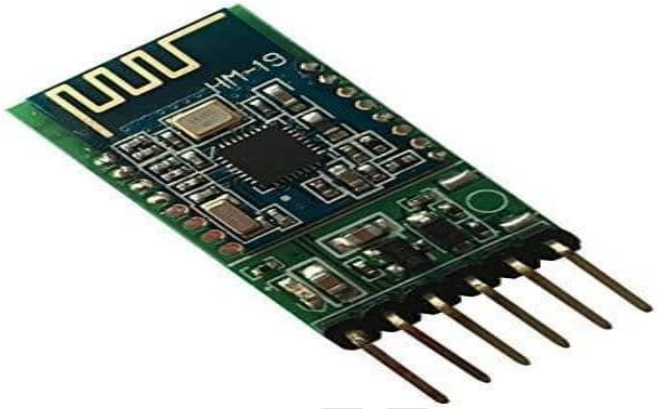
B. ARDUINO UNO:

It is an open source, computer hardware and software project, Generally Arduino is divided into two parts first one is Hardware and second one is Software, in hardware system we have the board which has 14 digital input output pins, in which 6 pins can be worked as analog inputs and 6 pins as PWM outputs. Also, there is a USB port present for connecting with the Arduino board to a computer system with the help we can program our Arduino UNO, a power jack, and also an ICSP (In-circuit serial programming).



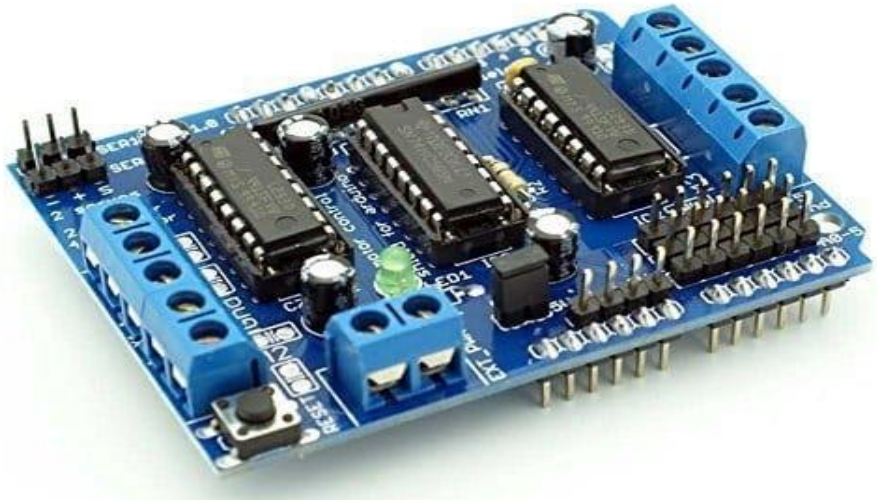
C. WIFI-MODULE:

Wifi modules also termed as WLAN modules are electronic components used in many products to achieve a wireless connection to the internet.
Wireless modules find its applications in variety of scientific, commercial, industrial and consumer applications. With Wi-Fi modules, utility providers, as well as the consumers, can easily communicate directly with air conditioning systems, thermostats, water heaters and other electrical appliances in the home.



D. MOTOR CONTROL SHIELD:

The L293D motor control shield is a dual-channel H-Bridge motor driver with the ability of driving a pair of DC motors or single stepper motor. It's supposed to be a full-featured motor shield – perfect for many robot and CNC projects. The full-featured L293D motor driver shield can control up to four bi-directional DC motors with 8-bit speed selection, two servo motors and two stepper motors.



E. DC MOTOR:

A direct current (DC) motor refers to a form of an electrical motors that converts the direct current electrical energy to mechanical energy. The most commonly used types of DC motor depend on the forces produced by magnetic fields. Almost, all types of DC motors have some internal mechanism. The working principle of a DC machine is that when a current-carrying conductor is put in a magnetic field a force is produced on it.

F. BATTERY:

A battery is a device which works on the principle of storing chemical energy and converting it into electrical energy. The chemical reactions happening in a battery includes the flow of electrons from one electrode to another, through an external circuit. This flow of electrons yields an electric current that can be further used to do work. To balance the flow of electrons, charged ions also flow through an electrolyte solution that is in contact with both electrodes.

Different chemical reactions are produced from different types of electrodes and electrolytes that influence how the battery works, how much energy it can store and its voltage.

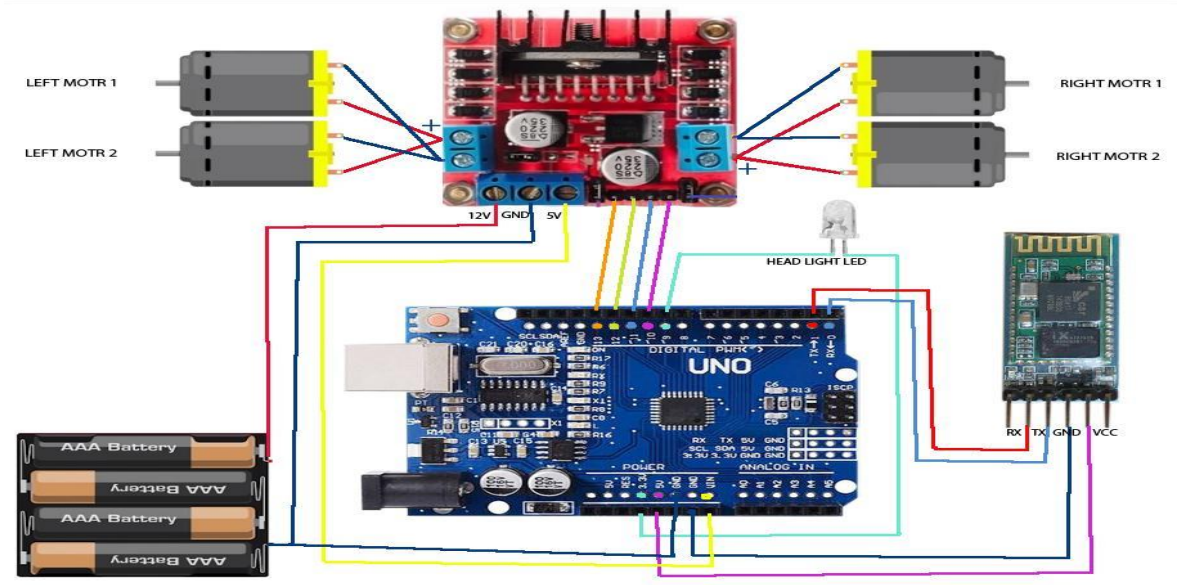


Fig. a - DC Motor and Wheels



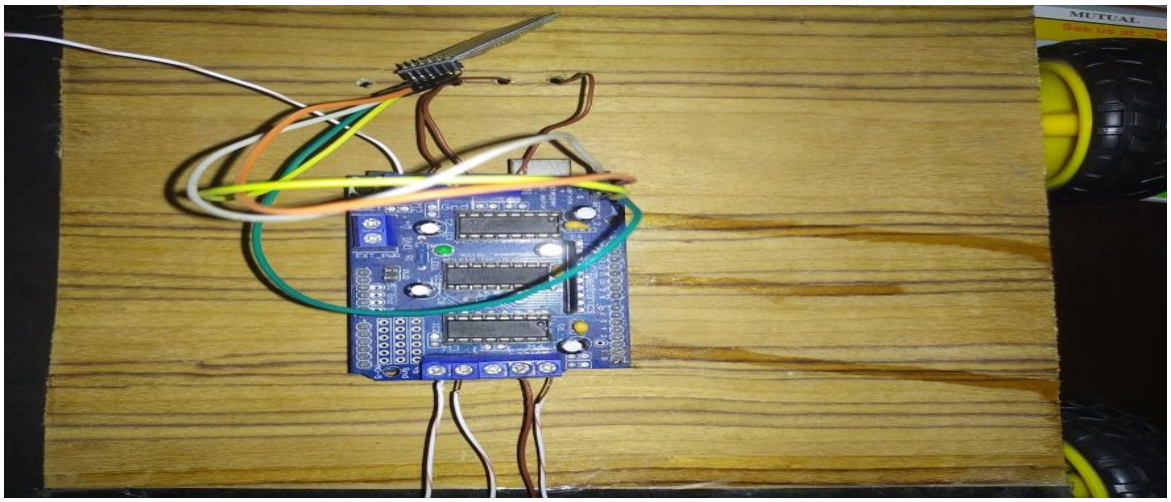
Fig. b – Battery

VI. GENERAL CIRCUIT DIAGRAM:



This diagram is general circuit for the project, in which all components are connected through wires and Arduino is programmed according to desired pins which is connected by wires.

The below picture is of the time when we were working on this project.



VII. CONCLUSION:

This project is based on the IOT and Automation as it helps the doctors to talk to patients, check reports and store the information of patient.

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