

## A MECHANISED ROBOT FOR ELDER PEOPLE ALERT AND RESCUE SYSTEM

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### ABSTRACT

This project represents an assistive robotic technology to assist elderly people who are unable to move frequently and walk properly and also forget to take medicine. The goal is to implement a prototype and test its capability for helping the elder people to make their life easy and live better. The working prototype has been designed for four features. First, it has a heartbeat sensor where doctors or nurses will easily measure the patient's heartbeat rate. second, an individual patient has an individual box that will open only by punch RFID. And lastly, the moving part of this robot where wheels are used including motors and sensors. This sensor follows the line and reaches the patient in proper time. This proposed robot is a design based on Arduino Uno. The proposed human assistive robot provides 96% to 99% accuracy to determine heart rate compared to ECG heart rate for smokers and nonsmoker persons in two different seasons- winter and summer. The prototype is developed to help the elderly people to make their life easy and reduce the nurse's work and make the digital hospital.

### I. INTRODUCTION:

This project represents an assistive robotic technology to assist elderly people who are unable to move frequently and walk properly and also forget to take medicine. The goal is to implement a prototype and test its capability for helping the elder people to make their life easy and live better. The working prototype has been designed for four features. First, it has a heartbeat sensor where doctors or nurses will easily measure the patient's heartbeat rate.

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### II. POWER SUPPLY

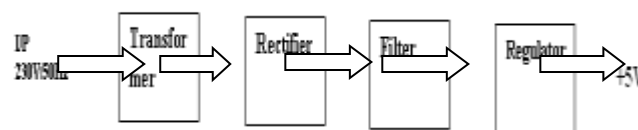


Figure Power Supply

### III. HARDWARE

#### 3.1 Arduino

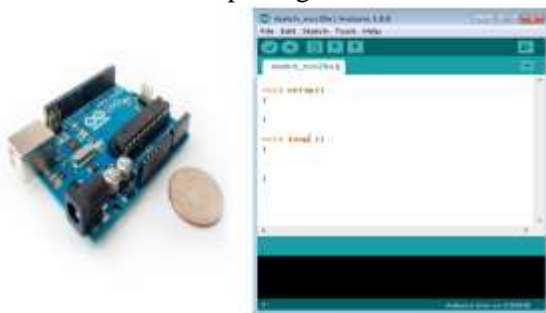
Arduino is a prototype platform (open-source) based on an easy-to-use hardware and software. It consists of a circuit board, which can be programmed (referred to as a microcontroller) and a ready-made software called Arduino IDE (Integrated Development Environment), which is used to write and upload the computer code to the physical board.

The key features are –

- Arduino boards are able to read analog or digital input signals from different sensors and turn it into an output such as activating a motor, turning LED on/off, connect to the cloud and many other actions.
- You can control your board functions by sending a set of instructions to the

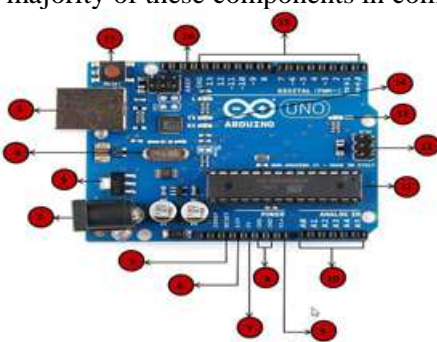
microcontroller on the board via Arduino IDE (referred to as uploading software).

- Unlike most previous programmable circuit boards, Arduino does not need an extra piece of hardware (called a programmer) in order to load a new code onto the board. You can simply use a USB cable.
- Additionally, the Arduino IDE uses a simplified version of C++, making it easier to learn to program.
- Finally, Arduino provides a standard form factor that breaks the functions of the micro-controller into a more accessible package.



**Board Description:**

In this chapter, we will learn about the different components on the Arduino board. We will study the Arduino UNO board because it is the most popular board in the Arduino board family. In addition, it is the best board to get started with electronics and coding. Some boards look a bit different from the one given below, but most Arduinos have majority of these components in common.



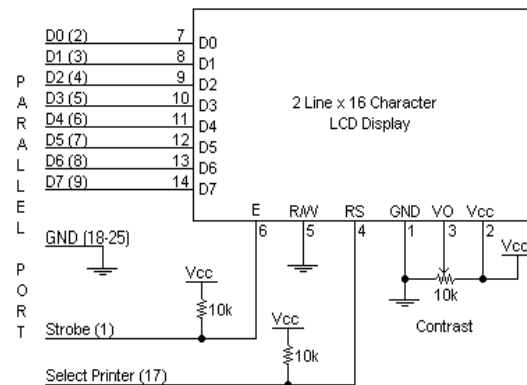
**3.2 Liquid Cristal Display**

A liquid crystal display (LCD) is a thin, flat display device made up of any number of color or monochrome pixels arrayed in front of a light source or reflector. Each pixel consists of a column of liquid crystal molecules suspended between two transparent electrodes, and two polarizing filters, the axes of polarity of which are

perpendicular to each other. Without the liquid crystals between them, light passing through one would be blocked by the other. The liquid crystal twists the polarization of light entering one filter to allow it to pass through the other.

A program must interact with the outside world using input and output devices that communicate directly with a human being. One of the most common devices attached to an controller is an LCD display. Some of the most common LCDs connected to the contollers are 16X1, 16x2 and 20x2 displays. This means 16 characters per line by 1 line 16 characters per line by 2 lines and 20 characters per line by 2 lines, respectively.

**3.3 Schematic Diagram**



**3.5 L293D**

L293D is basically a high current dual motor driver/controller Integrated Circuit (IC). It is able to drive load having current up to 1A at the voltage ranging from 4.5V to 36V. Motor driver usually act as current amplifier because they receive a low current signal as an input and provides high current signal at the output.

Motors usually operates on this higher current. L-293D has to builtin H-Bridge driver circuits and is able to control two DC motors at a time in both clockwise and counter clockwise direction. It has two enable pins and they should be kept high in order to control the motor. By changing the polarity of applied signal motor can be rotated in either clockwise or counter clockwise direction. If L 293D enable pin is high, its corresponding driver will provide the desired out. If the enable pin is low, there will be no output. L-293D has different features including internal ESD protection, large voltage supply range, large

output current per channel, high noise immunity input etc. L 293D plays a vital role in electronics era and has several different applications e.g relay drivers, DC motor drivers, stepping motor drivers etc. The further detail about L 293D motor driver/controller will be given later in this tutorial.

**L293D Motor Driver**



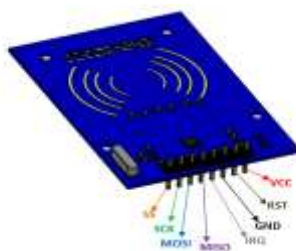
**3.6 DC Motors**

The brushed DC motor is one of the earliest motor designs. Today, it is the motor of choice in the majority of variable speed and torque control applications.

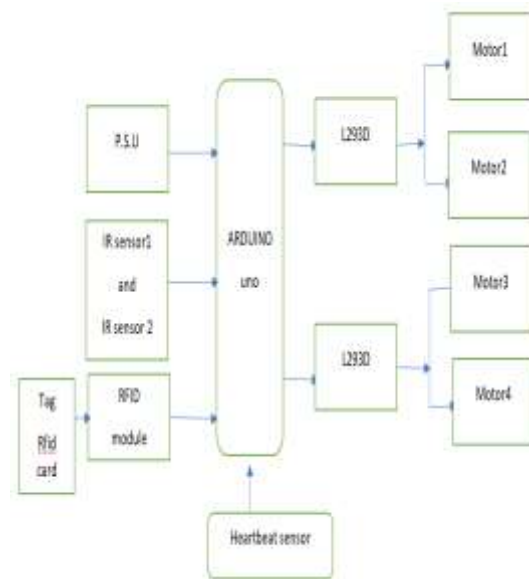
**Advantages**

- Easy to understand design
- Easy to control speed
- Easy to control torque
- Simple, cheap drive design

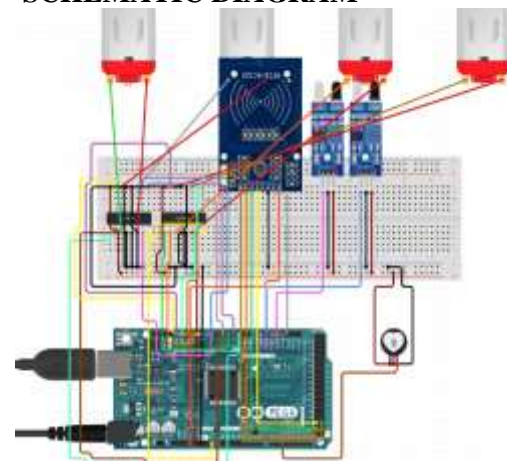
**3.7 RC522 RFID Module**



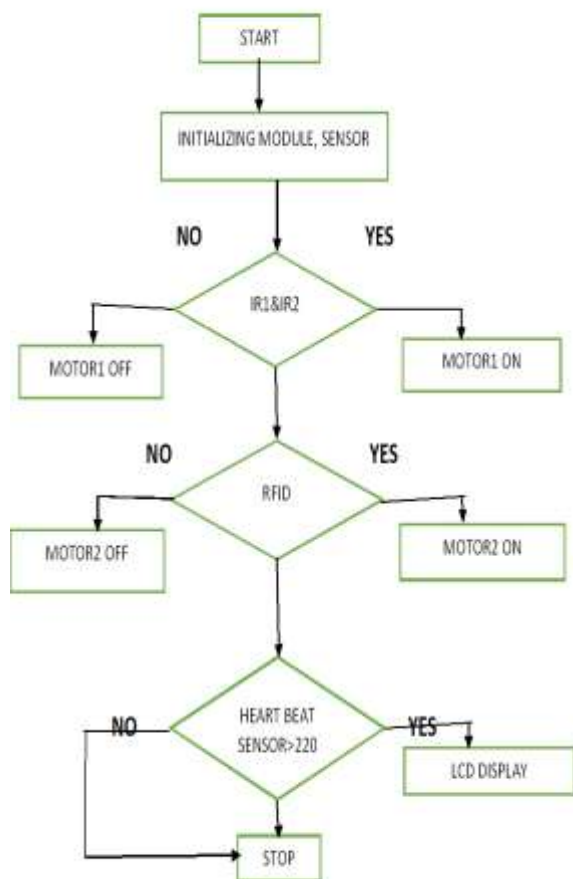
**IV. Result:  
BLOCK DIAGRAM**



**SCHEMATIC DIAGRAM**



**FLOW CHART**



**Working**

Ir1 & ir2 then motor1 on otherwise motor1 is off .rfid then motor 2on otherwise motor 2 off.heartbeat sensor is greater than 220 then lcd display .

**V. CONCLUSION**

In this project, we have developed the unman robot using Arduino developer board and l293d. Two l293d drivers are used, one is for the movement of the robot then second for robotic arm to pick and place the medicines. We have successfully developed the heart rate sensors to determine the heart rate of the elder people. We have determined the RFID technology for the desired medicines for desired person only.

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