COMPONENTS AND IT'S DESCRIPTION

HARDWARE

1. ARDUINO UNO

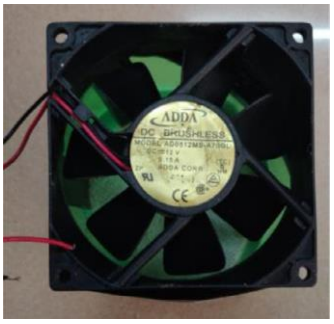
The key hardware of the prototype, Arduino Uno is shown in figure below . This is a microcontroller which is used for interfacing hardware and software . To do the same, USB cable is required. Once the board is embedded with the code, it can be operated by a battery supply without using any PC or laptop.

2. BATTERIES

Battery is the heart of the prototype, 9V batteries. These are rect- angular in shape and have positive and negative terminals at the top which supplies 9V so as to make the prototype run.

3. CPU FAN

The CPU fan used in the prototype. This is used in the vacuum cleaner which has a rating of 12 volts. It rotates at maximum of 200 rpm. As the voltage increases, rpm increases until the value reached up to 200.

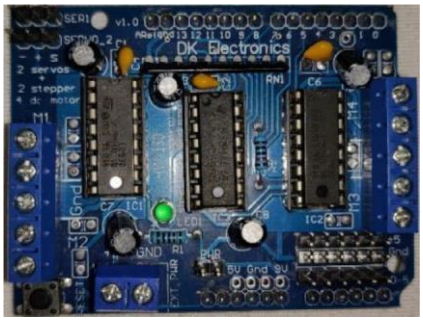


4.DC MOTOR

The DC Motors used in the prototype. These mo- tors essentially are the key components in this prototype. To make the machine move, these are required. As the voltage increases, rpm also increases. The least rpm will be at 6V and maximum at 12V.

5.MOTOR DRIVER SHIELD

Motor Driver Shield is used to run different types of motors. L293D IC is the main IC present in this shield . The direction and speed of motors depends on the motor shield, as the shield is embedded on Arduino UNO board and the speed and direction can be controlled by coding in Arduino IDE.



6.ULTRASONIC SENSOR

The Ultrasonic sensor used in the prototype. This HC- SR04 sensor is used for measuring distance. It uses sound waves to calculate the same. There are 4 pins – Echo, Ground, Trigger and VCC. External controller is triggered by Trigger pin that sends ultrasonic waves whereas echo pin sends ultrasonic waves and duration it takes to travel decides the distance between the car and obstacle. VCC will take up to 5V and gives the voltage so that the sensor can run

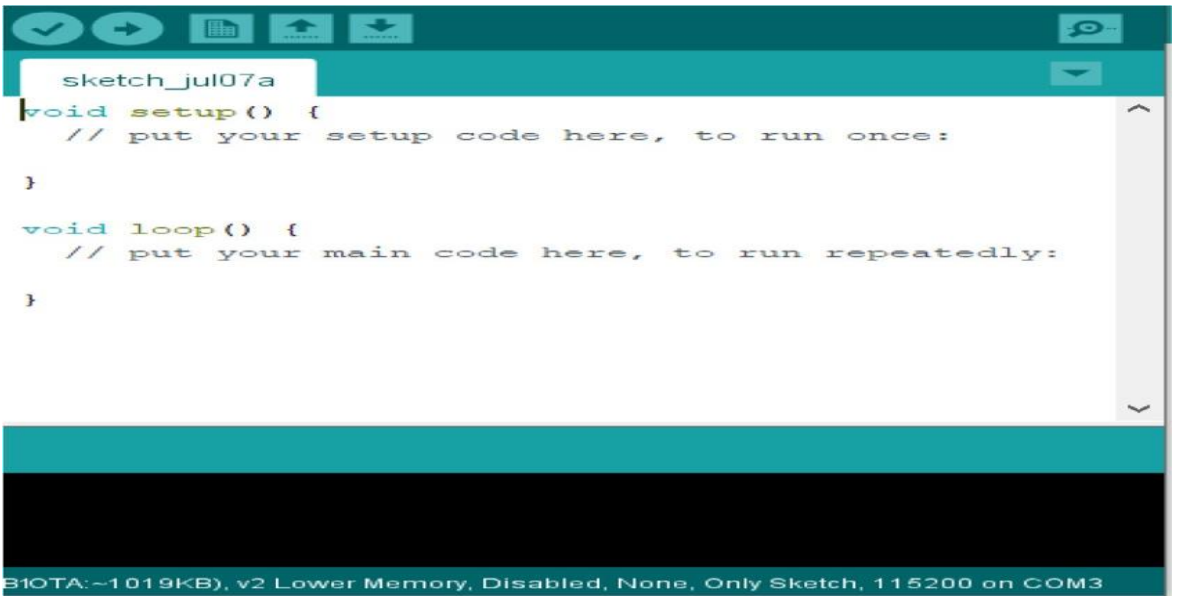
7. WHEELS

The wheels which are responsible for the movement of RC car. These are used to move in any specified direction. Wheels are run by a DC Motor with a pre-defined RPM. Wheels rotate in the same direction as DC Motor.

SOFTWARE

1.ARDUINO IDE

The software used in this project, Arduino IDE. This is an application written in C and C++. Programs can be written and uploaded to Arduino boards. The version used in here is 1.8.9.



Arduino IDE