# Ultimate Floor Cleaning Robot

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**Abstract:** Smart dust is collector as its name represent it works smartly or we can say that it is an automatic dust collector. The complete ground cleansing robotics is split into numerous parts, particularly together with an arduino Uno microcontroller, servo, and Dc motor with ultrasonic sensor, motor. This device works with the arduino Uno microcontroller strategies the ultrasonic sensor as a distance detector and a DC motor as a robotic driver, then the dc motor is pushed through the motor shield. As a result, a most efficient and cleaning system is developed to attain perfect cleaning rather than statisfactory cleaning achieved by a preexisting.

**Keywords**: Arduinouno controller, Ultrasonic sensor, Bluetooth module , Wheels, Battery, LCD display ,Motor Driver

## I.    INTRODUCTION

Robots are using for different purposes home automation. Flooring robot is the time consuming. it has two modes are the operate automatic mode and manual mode. Manual mode is the direct operated  by the mobile application for user automatic mode is all operation are the perform. In manual mode the robot can be also used the clean specific area. Their certain reduced the human effort save the time and work fast. The robot affordable people used to college, school, office, industry etc. This uses ultrasonic sensor can be used as the avoid the obstacle and change the direction. it is automatic control mode. Floor cleaning robot is based on ATMega 328 microcontroller. Robot can perform all operation without interface. In this technological era currently people have taken her linking to develop new designs related to low-cost flooring robots. One of the challenge has been to reduce the number of sensors as it contributes considerably to the cost of the robot.

## II.    METHDOLOGY

A.    *Hardware:*
I.    *Block diagram*:
An automatic floor cleaner robot has brushes attached to its sides to collect the dust. This robot  uses ultrasonic sensors to avoid obstacles and change is direction. And it has a suction unit that sucks in the dust while moving around the room freely.
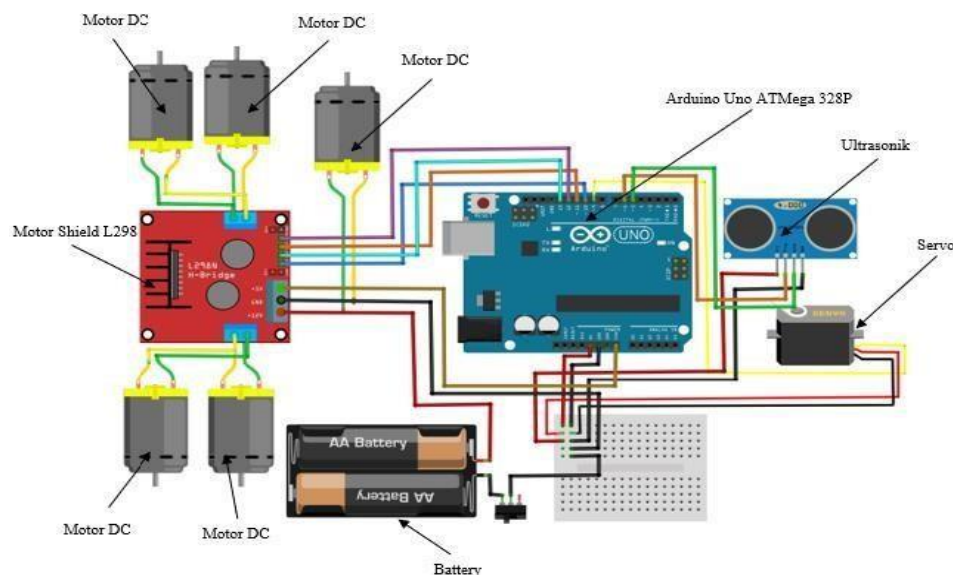


Fig.I. Block Diagram ultimate floor cleaning robot

I. Arduino uno:-The board has14digital I/O pins(six capable of pwm output).6 analog I/O pins, and is programmable. It can be powered by the USB cable or by an external 9-volt battery, inspite of the fact that it accepts voltages between 7 and 20 volts.

II. Ultrasonic sensor:-This sensor is high performance ultrasonic range finder. It is compact and measures an amazingly wide range form 2 cm to 4m.This sensor lines directly connected to the digital I/O lines of your microcontroller and distance can be measured the time.

III. Bluetooth(HC 06):-For the communication of the robot with the cell phone mobile we are using the Bluetooth device. The Bluetooth device (HC-06)is attached to the robot that receives the data form and also it can transmit the data. It is used for converting serial port to Bluetooth.

IV. Wheels:-This wheel is connect or to a motor and motor is fixed to a device.

V. Battery:-9 to 12 volt

VI. Motor:-Motor is 9 volt 100RPM evalution. Motor driver act as current amplifiers since they taken low current control signal and provide a higher – current signal .

VII. LCD:-A Liquid crystal display(LCD) is a flat panel display. electronic visual display that uses the light modulating properties of liquid crystals. Liquid crystals do not emit light directly.
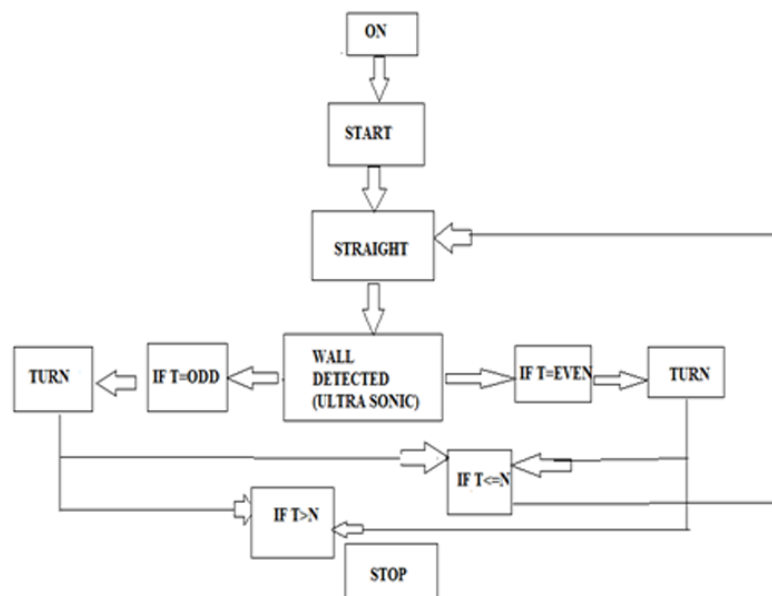
*Software:*

II. *Flowchart:*



Fig. II. Flowchart of proposed system

C. *Result:* *Design Calculations:*

I.
1. Battery- 9-12 volt
2. Wheels- 4 approx 45 to 12mm.
3. Motor Driver – L93
4. LCD Display -16x2
5. Ultrasonic Sensor - 3x HC-SR04
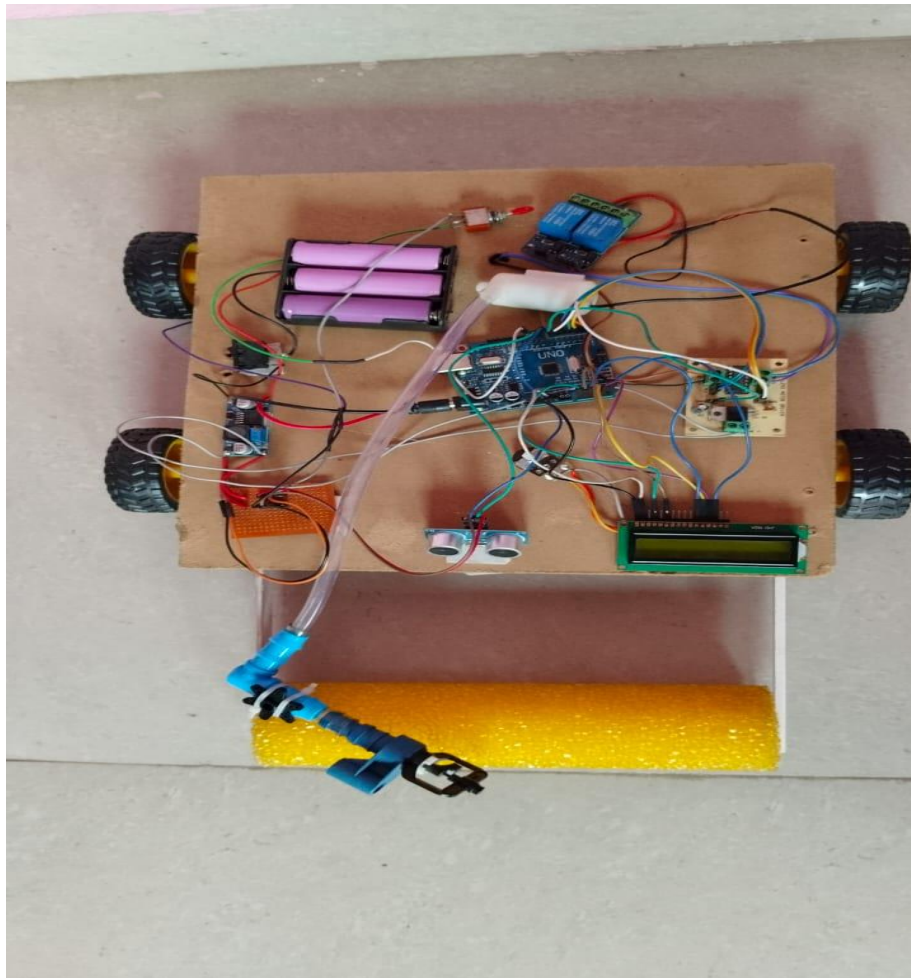6. Bluetooth Module – HC 06

Fig:-Ultimate Floor Cleaning Robot

## III. CONCLUSION

A user friendly floor cleaning robot can be developed    with to different mode of controlling (manual and automatic mode) using arduino board with more electronic funcationality. create an automatic floor cleaning robot prototype using the arduino uno microcontroller a data processor and an ultrasonic sensor a distance controller o that if someone block floor cleaning prototype ill automatically run in the opposite direction.

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