SMART FLOOR CLEANING ROBOT USING ANDROID

Mrs .Shritika Wayker(Asst.Proffesor)[1], Prashant Tiwari[2], Vishal Kumar[3], Kunal Limbu[4], Amay Tawade[5]

[1-5]Deparatment of Electronics and Telecommunication, Dr D.Y. Patil Institute of Engineering Management and Research Akurdi, Pune, Maharashtra, India.

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ABSTRACT- The development contrived in technology of robotics have made life of Humankind excessively effortless and congenial.This paper presents a Costeffective robot that can be used by people who can't be able to enjoy comfort .There is heterogeneity of autonomous robots provided in the market and they all performs excellently according to their requirements but none of them are costeffective..this system comprised of a transmitter application that works on an android mobile app which permit the robot to follow the instruction given by the user through the transmitter app. this system made up of Microcontroller(Ardunio UNO) that has fourteen input/output pins and cleaning ,robotic arm. The microcontroller,on getting the instructions from android device from Bluetooth receiver decodes the given instructions and commands the motors to acquire the desired path and direction.

**KEYWORDS-** Aurduino UNO,Bluetooth Module,IR Sensors and Motor drivers.

INTRODUCTION-   In past few years, Robots are used for many cleaning works. It is designed to consume less time and reduce manworks, It has different kind of washing uses such as,mopping, picking the waste up,to remove the strain dirt ,litter and obstruction, to prevent injuries due to tripping and slipping. It may have many advantages and disadvantages. It is made for home and office environments , this robot uses water storage with antiinfection. After getting commands from the android application cleans the area using cleaning pad through spraying water on the floor , it cleans the floor after that it drains the water in the container. The action of the the robot controlled by the android applications that is described by the user and it works manually.

Thesedays, All of us leads a life where we don't have much time. Persons in cities have atypical and lengthy working hours . In those situation people always find ways of saving time .generally in cleaning floors with the use of dry or wet mopped by hand as a base tool ,they need to be brushed hard on the surfaces which have irregular areas like cemented floors are filled with heavy dusts takes much time to clean, it is hard to handle for those womes who are career oriented to take care of home and work place at the same time.

COMPONENTS –

- Ultrasonic Sensor
- Buzzer
- Motor
- L293D
- Bluetooth Module
- Arduino UNO

Ultrasonic Sensor - Ultrasonic Sensor is used as a distance detector, when an ultrasonic sensor detects a barrier in front of it, the robot will automatically search for a direction that is not a hurdle to the floor cleaning robot.
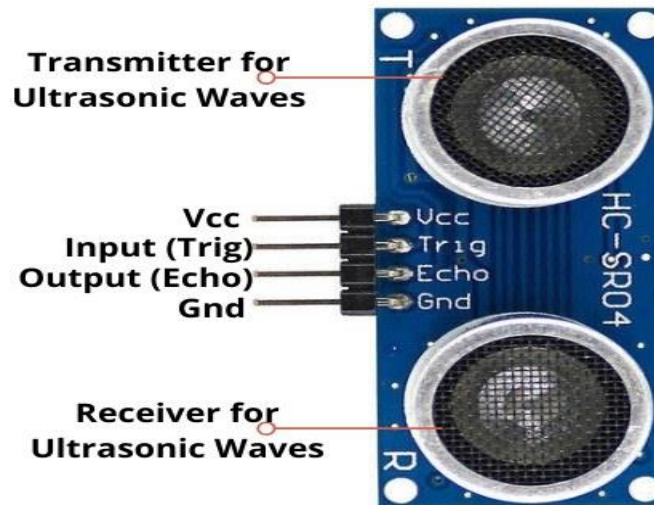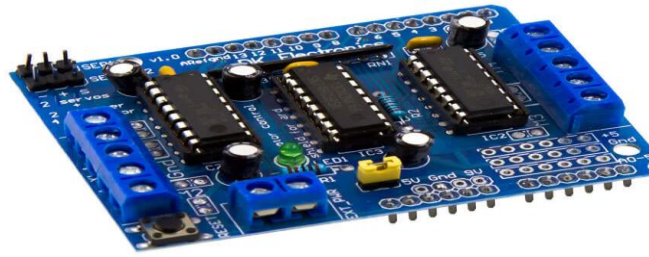
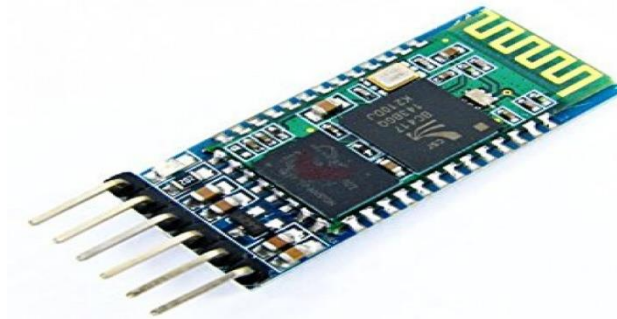**Buzzer -** Buzzers gives indications of an obstacles.

**Motor -** DC Motors are used as robot drivers.

L293D - L293D is a 16 pin motor driver IC, L293D is a dual channel H-Bridge motor driver IC, used to controle to motors.

Bluetooth Module - Bluetooth module is used to controle the robot using android application within its range.

Arduino - This arduino UNO microcontroller processes the ultrasonic sensor as a distance detector and a DC motor as a robot driver.
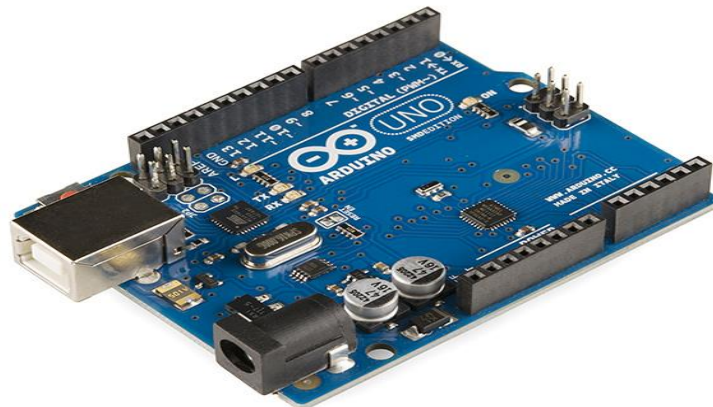

LITRATURE SURVEY -

Nowdays , Smart floor cleaner robots are trending concept. After seen different research papers and procedures of using many cleaning robots, a smart floor cleaning robot is an independent robotic cleaner which runs through mobile application. This robot consist of brusher, water container, camera etc. It had few disadvantages like hitting with obstacles and stopped at a shorter space from walls and other objects, to avoid obstacles it uses ultrasonic sensors.

Vinod Thomas, made a cleaning robot for households applications. It is made in order that may capable of cleaning every space and every corner of the room. Rupinder kaur, made a automatic robot which is absolutely fine for cleaning purposes mostly in homes, industries, malls ,this robot can sweep and mop the hidden area.

The aim of this Project is to make a fully automated home cleaning robot, which is fully automatic and tio do tasks like mopping ,brushing ,cleaning floors, After checking we find that it can do all tasks well with no any hurdle, we have tested it in many parameters like obstacle avoiding ,mopping ,navigation and vaccum mechanism.

OBJECTIVES –

❖ Objective of this project to design the automatic floor cleaning robot to develop an autonomous robotic system.
❖ To design a floor cleaning robot without humen to the driving.
❖ To achieve simultaneous dry and wet cleaning in a single run.
❖ To make the machine cost effective.
❖ To reduce the maintenance cost of manually operated floore cleaning as far as possible.
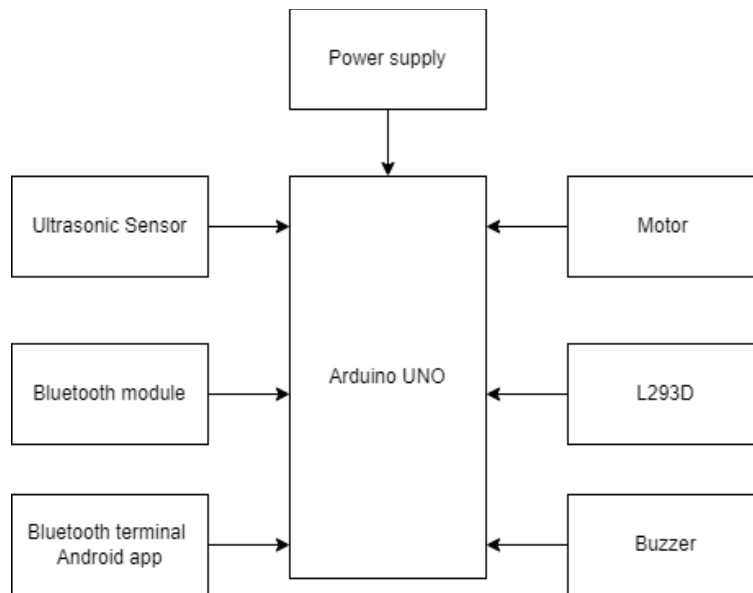
: Block Diagram

Explanation-

This project deals with the designing and fabrication of floor Cleaning robot. The aimof project work is to develop and modernized process for cleaning. The main objective of this project is to achieve simultaneously dry and wet cleaning In single run. It is used in houses, hospitals, shops, schools, collages, malls, etc. Cleaning of floor is very important for our health and reduces the major power necessity. This project work in manually andautomatic. all hardware and software operations are controlled by Arduino. It consist of moisture cotton brush, the brush cleans the floor and dried with the help of blower.

Software Implementation - The order of implementing preferd model is shown below in the form of flow chart.
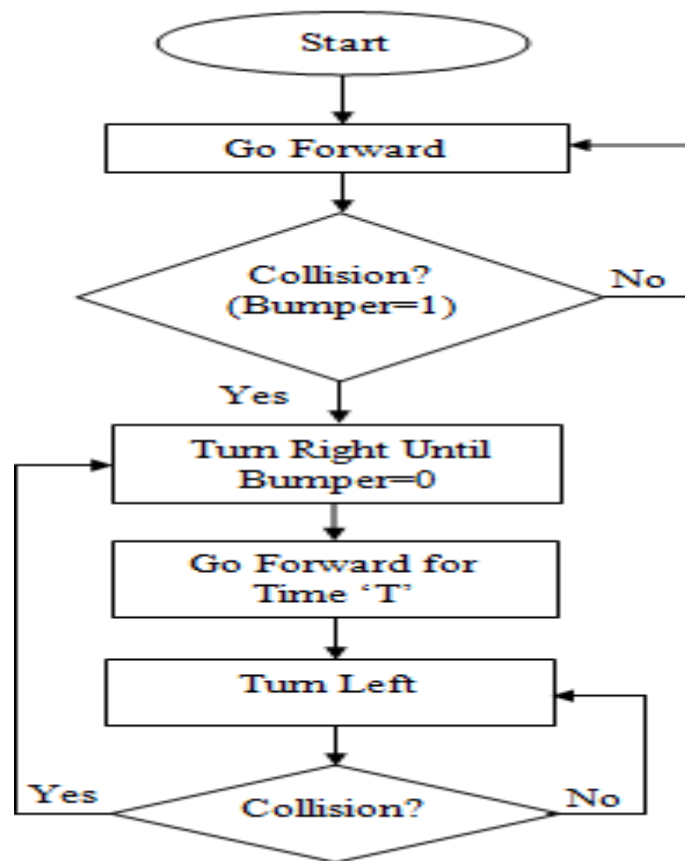
: Flow Chart

RESULT - a hard ware model has been made with the plan of making floor cleaning easy, quickly and congenial android mobile applications for giving commands.

CONCLUSION- This research paper introduces that floor cleaning Process can be done in an easy manner and much expeditiously by robot taking advantage of wireless robotic system. This preferred robot saves the time and cost of labour. In the earlier research papers, robot had few drawbacks like hitting other obstacles in front of it and this brush cleaners couldn't reach to small areas and left those area unclean . This two problems have been solved in this robot.

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