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A Review Paper on Floor Cleaning Robot

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ABSTRACT-

A floor cleaning machine with wireless Bluetooth control. Basically its just a set of DC motors hooked into a plastic container on wheels, with a scrub connected to one of the motors at the bottom and a cleaning solution on top. With the help of the CPU fan, the brush dries and cleans the floor. Anyone may easily run this equipment. As a result, it is highly helpful in homes, hospitals, schools, and other places. Using a remote control or mobile device,the Bluetooth module is utilized to control the complete system. For the purpose of connecting the system and mobile using Bluetooth, there is an application on the phone. The system may be turned and directed by the user with the help of a Bluetooth module.It functions well and is carefully adjusted to the user preference. definitely makes cleaning more enjoyable and easier while allowing everyone to construct something instead of purchasing. Modern households are becoming increasingly mechanized and intelligent. Automation makes life easier and frees up time for humans.

Keywords **-----** Bluetooth, Floor Cleaning Machine

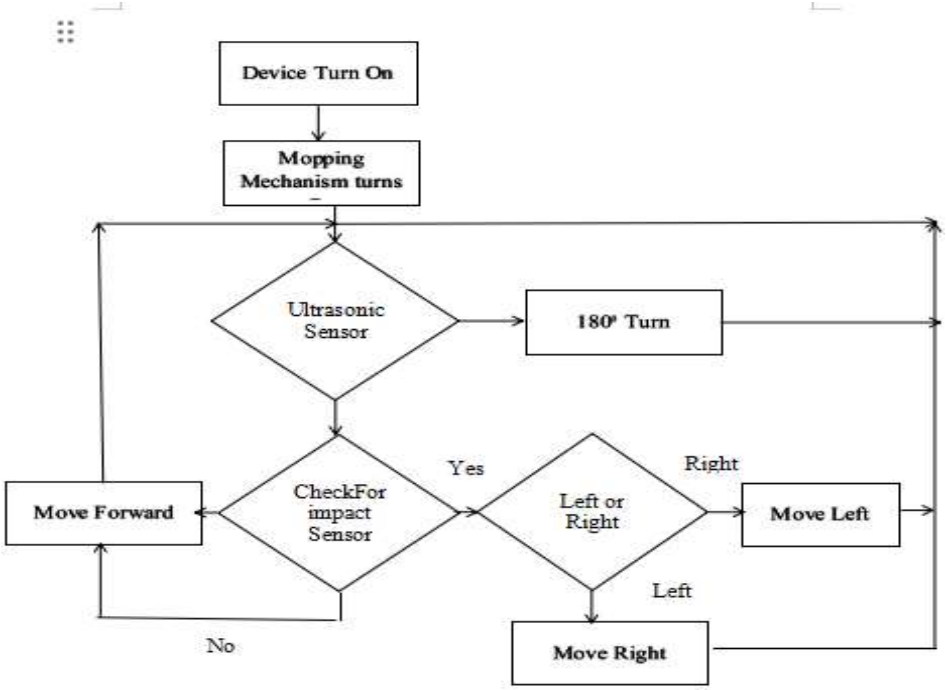
1.INTRODUCTION

The design and construction of a floor cleaning machine is the focus of our project.The development of a contemporary wet and dry floor cleaning proc edure is the goal of this effort.It works wonders for floor cleaning.You can use it both wet and dry.A floor cleaning system is quite helpful for cleaning floors in places like computer centers, auditoriums, homes,and hospitals. It is also quite easy to use and has a straightforward design.Anyone may easily run this equipment.It is made out of a damp cotton brush that uses a tiny blower to dry the floor after cleaning it.As a result, it is highly helpful in home s, hospitals, colleges, and schools.

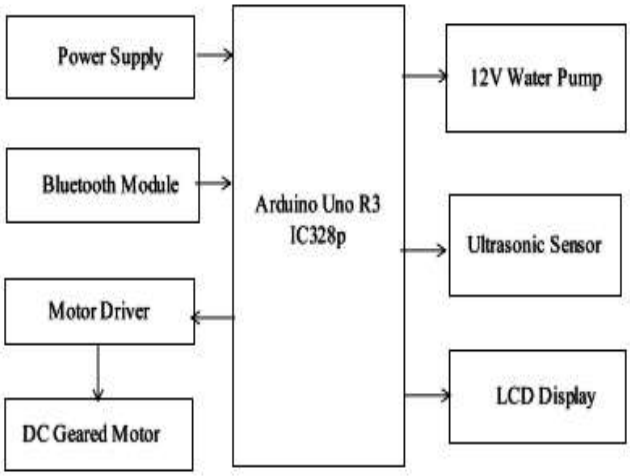
II.PROBLEM STATEMENT

Developed the Bluetooth based floor cleaner machine reason that because of long cable is needed also electricity has large amount of required that why we develop the floor cleaner machine.Develop a Bluetooth-based floor cleaner machine capable of autonomously navigating and cleaning indoor spaces. The machine should be controllable via a smart phone app using Bluetooth connectivity, allowing users to start,stop and control its movement.

III.FLOWCHART



IV.BLOCK DIAGRAM



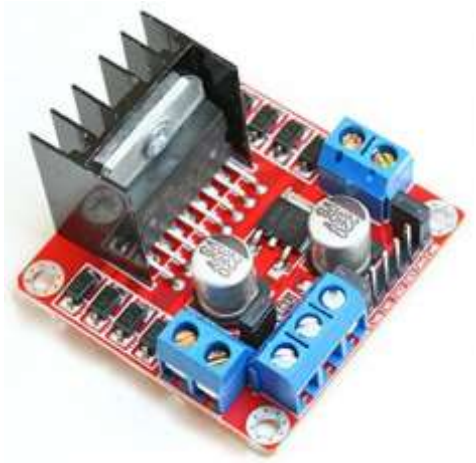
V.SYSTEM HARDWARE

- **Arduino Uno R3 IC328p**
  - ***Technical Specification***

- Microcontroller: ATmega328P.
- Operating Voltage: 5V.
- Input Voltage : 7-12V.
- Inout Voltage (limit): 6-20V.
- Digital I/O Pins: 14

❖ **Motor Driver L298N**

- Driver Model: L298N
- Driver Chip: Double H Bridge L298N
- Motor Supply Voltage (Maximum): 46V
- Motor Supply Current (Maximum): 2A
- Logic Voltage: 5V
- Driver Voltage: 5-35V
- Driver Current:2A



❖ **HC-SR04Ultrasonic Sensor**

- Power Supply -5V DC
- Dimension- 45mm x 20mm x 15mm
- Operating Current- 15mA
- Measuring Angle- 30 degree
- Resolution - 0.3 cm
- Operating Frequency Range - 40Hz
- Accuracy - 3 mm

❖ **HC05 Bluetooth Module**

- Bluetooth version: 2.0 + EDR (Enhanced Data Rate)
- Frequency: 2.4 GHz ISM band
- Modulation: GFSK (Gaussian Frequency Shift Keying)
- Transmit power: Class 2 (up to 4 dBm)
- Sensitivity: -80 dBm typical
- Range: approximately 10 meters (or 33 feet) in open air
- Profiles supported: SPP (Serial Port Profile), HID (Human Interface Device) and others
- Operating voltage: 3.3V to 5V DC

❖ **LCD display 16*2**

- The operating voltage of this LCD is 4.7V-5.3V
- It includes two rows where each row can produce 16-characters.
- The utilization of current is 1mA with no backlight
- Every character can be built with a 5×8 pixel box
- The alphanumeric LCDs alphabets & numbers
- Is display can work on two modes like 4-bit & 8-bit
- These are obtainable in Blue & Green Backlight
- It displays a few custom generated characters

CONCLUSION

The very inventive invention of the Bluetooth-based floor cleaning machine operated by an Arduino UNO and mobile application has the potential to completely change the way that floors are cleaned. The goal of this project was to solve the problems with typical floor cleaning equipment, which is frequently heavy, hard to use, and necessitates physical labor. With the help of a smartphone application, customers may remotely operate and modify the settings of the Bluetooth-enabled floor cleaning machine as needed.Because consumers can download the mobile application and begin cleaning their floors from the convenience of their own smartphones, this feature makes the machine incredibly convenient and easy to operate. This project's usage of an Arduino UNO microcontroller guarantees the machine's extreme dependability and efficiency. The industry makes extensive use of the open-source Arduino UNO microcontroller because of its affordability, portability, and ease of use. This project's usage of an Arduino UNO means that the device is incredibly responsive and easily customizable to meet the various needs of different users.

MOTIVATION

Mannual cleaning is an exrremely demanding and labor-intensive task, particularly when it comes to hospital and college corridors. Some dust and dirt particles may linger on the floor after the hand cleaning process, requiring further physical labor. It is impossible to completely remove all of the water from the floor's surface when washing by hand, which leaves a drowsy surface and raises the possibility of accidents. This idea was inspired by the goal of creating an autonomous, manual, and user-friendly cleaning robot.There is too much pressure on staff at hospitals, colleges, and schools to maintain spotless floors all the time. We are coming up with the concept of a floor-cleaning robot that can operate both manually and automatically to lessen their stress. As a result,employees' workloads will decrease and they will have the option of operating it manually or automatically. Anyone may easily rum this equipment.

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