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Smart & Automatic Floor Cleaner BOT

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Abstract *— In the present era, people live a very busy life. People in cities have long and irregular working schedules. For career oriented and working women it becomes challenging to handle home and office work together. For saving the time the requirement was of House Cleaning Robot, which is an automatic system that works and cleans on its own without human control/intervention.Households of today are becoming smarter and more automated. Home automation delivers convenience and creates more time for people. domestic robots are entering the homes and people's daily lives, but it is yet a relatively new and immature market. however, a growth is predicted and the adoption of domestic robots is evolving. several vacuum cleaners are available on the market but only few ones implement wet cleaning of floors. In the modern era, the Automatic Floor Cleaner is required. Thus, the cleaner is designed in such a way that it is capable of cleaning the area reducing the human effort just by starting the cleaning unit. In the paper, main focus is to build and program it in such a way, that it can move around freely and clean a specific area by the vacuuming process.Brushes are attached at its side in order to collect the dust while moving. It uses Ultrasonic sensors to detect the obstacles and hence change its direction while moving and also preventing the cleaner to fall from height .*

Keywords- Arduino(UNO), Ultrasonic & IR Sensors, Bluetooth Module, LCD Display, Motors

I. INTRODUCTION

In this propose system we are going to design an automated smart floor cleaning robot; which will be able to clean any floor area by switching it once. Automatically by following ZIG ZAG manner it will completely clean that whole area. This robot will provide user mode of operation: 1) Manual 2) Automatic Also user friendly control interface i.e. smart phoneGUI based application control. It is going to provide as a independent from power source i.e. has a rechargeable battery unit.

II. EXISTING SYSTEM

We are inspired with the propose system named as 'Automated Floor Cleaner Robot'; from IEEE explore liabrary; in which it is going to drive on manual mode of operation .Also on public areas the local mop cleaner machines are available.

III. DISADVANTAGES OF EXISTING SYSTEMS

As mentioned above in Automated floor cleaner robot there is GUI based manual control ; in which operator is required at site.They have used spunch roll which is not sufficient to clean stain on floor.The local mop based cleaning machines consumes lot of power and also costly.

IV. ABOUT OUR PROPOSE SYSTEM

In this propose system we are going to design an automated smart floor cleaning robot; which will be able to clean any floor area by switching it once. ***Automatically by following ZIG ZAG manner*** *it will completely clean that whole area.*
This robot will provide user mode of operation:1) Manual 2) Automatic
Also user friendly control interface i.e. smart phone GUI based application control.
It is going to provide as a independent from power source i.e. has a rechargeable battery unit.

V. OBJECTIVES OF OUR PROPOSE SYSTEM

To save a time as well as reduce efforts require than manual floor cleaning.To give combo function i.e. Vacuum+ Mop cleaning (i.e. Dry as well as wet cleaning) at the time in one machine.To overcome the human error; without leaving any portion to completely clean whole floor area with less amount of time.In industries (also in hazardous area)the robot is very cost effective as compared to manual labor involved. The flexibility, time saving and efficiency makes the robot best choice for cleaning the floor.Also it will be specially beneficial for elder peoples or those who has back problems for them as a ideal appliance for floor cleaning.

VI. BLOCK DIAGRAM AND COMPONENTS

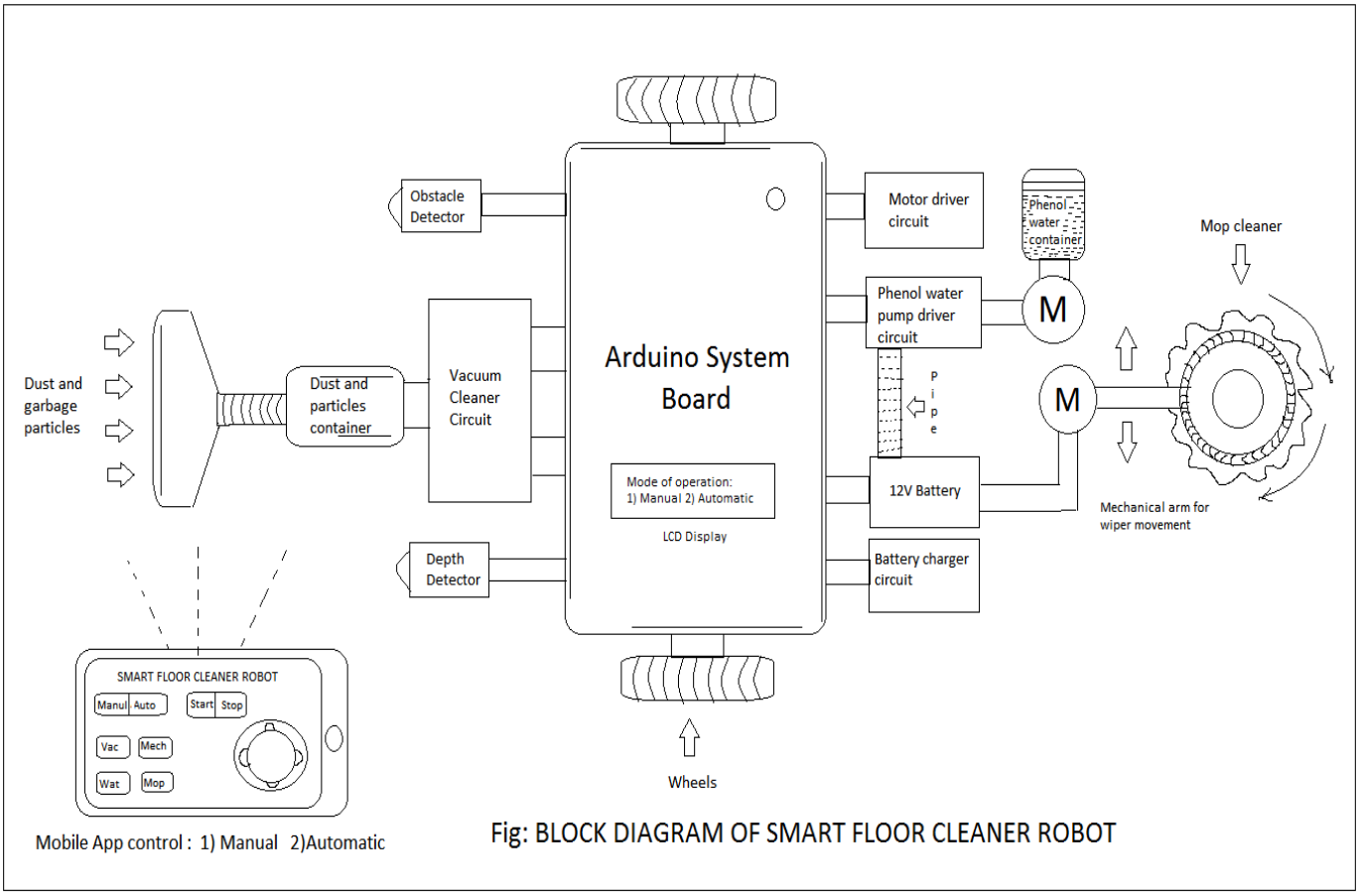
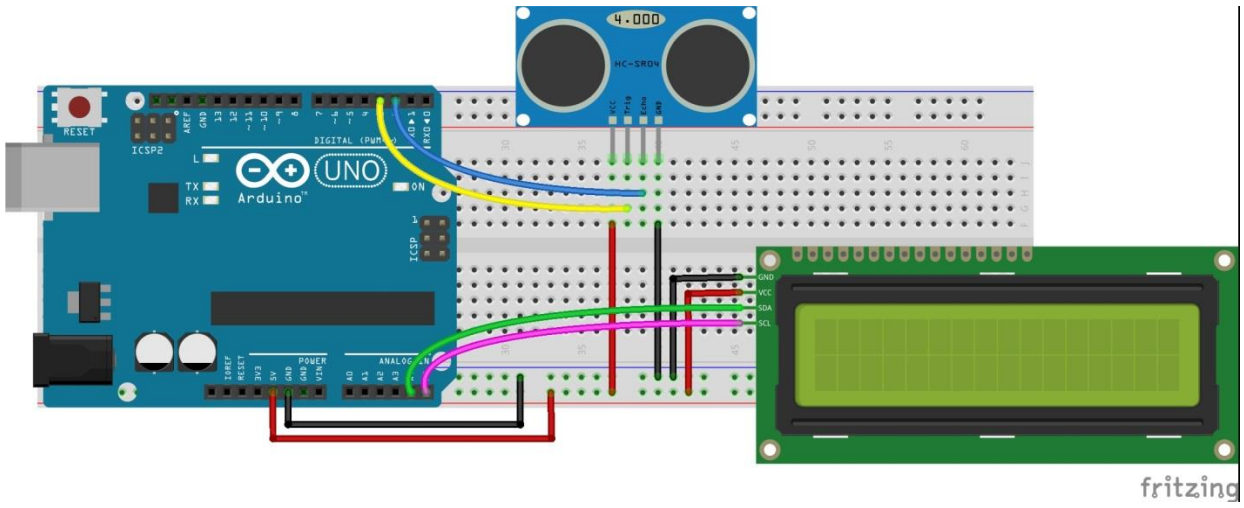
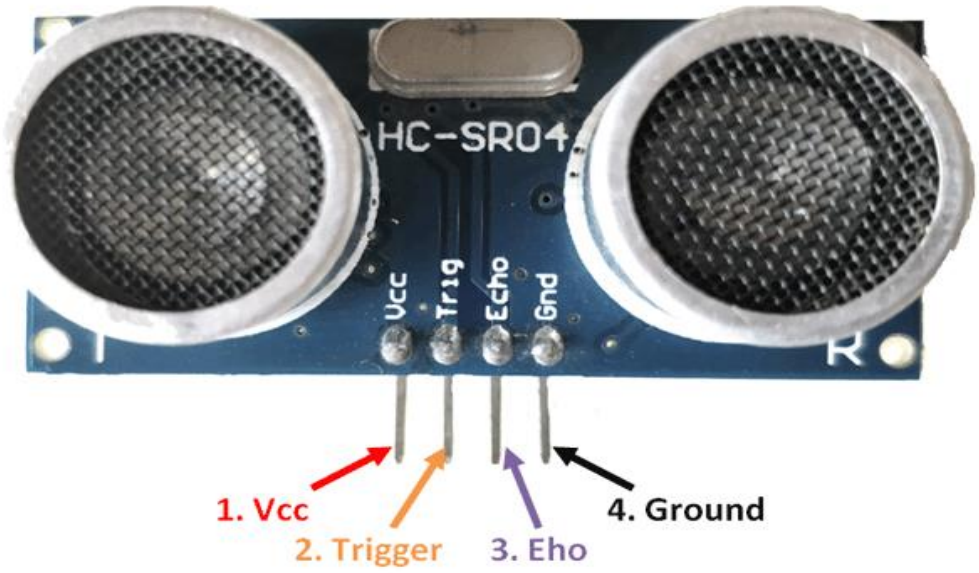


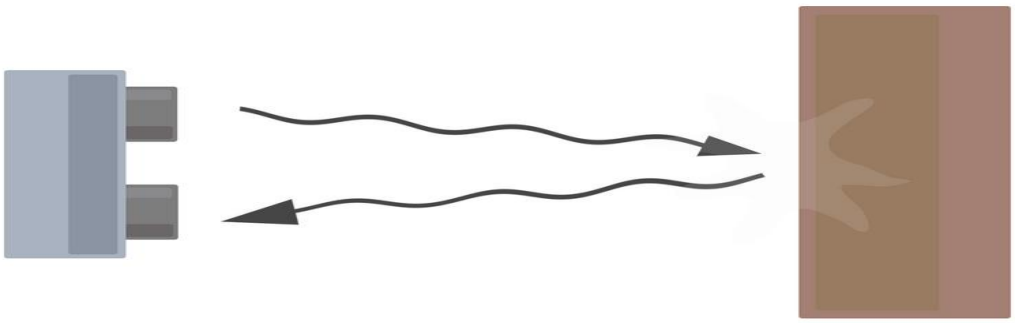
Fig: BLOCK DIAGRAM OF SMART FLOOR CLEANER ROBOT



VII. ULTRASONIC SENSOR



An **Ultrasonic sensor** is a device that can measure the distance to an object by using sound waves. It measures distance by sending out a sound wave at a specific frequency and listening for that sound wave to bounce back. ... It is important to understand that some objects might not be detected by **ultrasonic sensors**.



Since it is known that sound travels through air at about 344 m/s (1129 ft/s), you can take the time for the sound wave to return and multiply it by 344 meters (or 1129 feet) to find the total round-trip distance of the sound wave. Round-trip means that the sound wave traveled 2 times the distance to the object before it was detected by the sensor; it includes the 'trip' from the sonar sensor to the object AND the 'trip' from the object to the Ultrasonic sensor (after the sound wave bounced off the object). To find the distance to the object, simply divide the round-trip distance in half.

Distance = (speed of sound * time taken)/2

VIII. ADVANTAGES & APPLICATIONS

Ideal appliance for house floor cleaning purpose and Also it will be specially beneficial for elder peoples or those who has back problems for them as a ideal appliance for floor cleaning.Due to flexibility, time saving and efficiency these makes the robot a **best choice for cleaning the large floor in industries**; also in colleges, school, hospitals, airport, offices etc.**At industries also in hazardous areas where human labor i.e. manual cleaning is not possible; but the robot can reach there.**It is portable & compact in size so can be placed in anywhere .Low power consumption but powerful performance.Save your time as well as human efforts.Rechargeable battery unit makes it portable.Heavy duty performance and good durability.

IX. CONCLUSION

In this propose system we are designing and implementing a "Smart floor clean robot", which will overcomes all the drawbacks of currently available domestic floor cleaning machines in the market.

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