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Design and Implementation of Automation Floor Cleaning Robot Using GSM

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ABSTRACT

Now a days we are using 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 evoking. Several robotic vacuum cleaners are available on the market but only few ones implement wet cleaning of floors using water. The purpose of this project is to design and implement a GSM based automatic floor cleaning robot. GSM based automatic floor cleaning robot is designed to make cleaning process become easier rather than by using manual vacuum. The main objective of this project is to design and implement by using Arduino uno, arduino shield, ultrasonic Sensor, Sensor shield version E5, NODE MCU EXP 8266, Damping sponge wiper, motor Shield L293D, and other component to achieve the goal of this project. GSM based automatic floor cleaning robot will have several criteria that are user-friendly.

Keyword: Arduino, GSM, Sensor, BLDC Motor

I. INTRODUCTION

In the recent years, robots have been used for various cleaning purposes. Robots have various cleaning expertise like mopping, picking up the waste, wet floor cleaning, dry vacuum cleaning etc., Depending on the cleaning mechanism, these robots may have some advantages and disadvantages.

Smart floor cleaning robot has been designed for home and office environments. This robot will be using water storage with anti-infection solution which is pumped with water pump motor. This robot on receiving the commands from the android device cleans a area using a cleaning pad by spraying water on the floor. After cleaning the wet floor, it can drain the dirty water into the required container as per the commands given to it. The robotic arm is used for efficient and effective wet floor cleaning purpose.

II. EXISTING MODEL

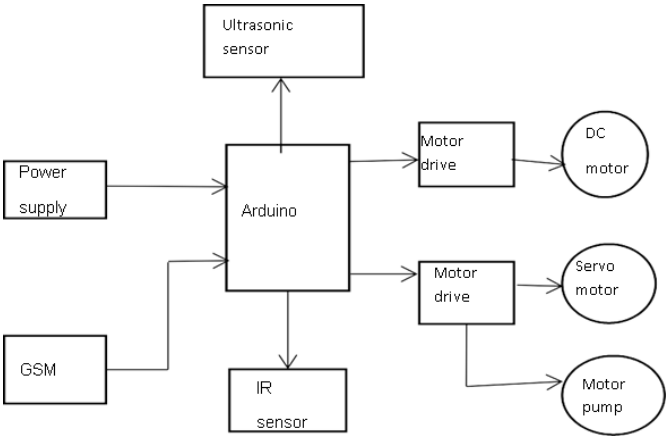
Manual work is taken over the robot technology and many of the related robot appliances are being used extensively also. Here represents the technology that proposed the working of robot for Floor cleaning. Households of today are becoming smarter and more

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 robotic vacuum cleaners are available on the market but only few ones implement wet cleaning of floors. The purpose of this project is to design and implement a Vacuum Robot for Autonomous dry and wet cleaning application using mop. Vacuum Cleaner Robot is designed to make cleaning manual vacuum.

III. PROPOSED MODEL

-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 robotic vaccum cleaners are available on the market but only few ones implement wet cleaning of floors. The purpose of the project is design and implements a Vaccum Robot Autonomous and Manual via phone application. Vaccum cleaner robot is design to make cleaning process become easier rather than by using manual vaccum. The main objective of this project is to design and implement a vaccum robot prototype by using Arduino Mega, Arduino shield, LDR sensor, Realtime clock, Motor shield L293D,Ultrasonic sensor and IR sensor and to achieve the goal of this project. Vaccum robot will have several criteria that are user-friendly. The research and development of an autonomous mobile robot and a manual phone application control prototype able to vacuum cleaning a room or even an entire house is not a trivial challenge.

IV. BLOCK DIAGRAM



Thus GSM based Automation system consist of a servers and sensors.

The GSM based servers can be configured to control and monitor multiple sensors installed at the desired location.

Arduino uno connected with the Arduion sensor sheild and put the pograme code.The components of Dc motor,servo motor,motor pump to connect with the motor drive.The function of motor drivers is to take a low-current control signal and then turn it into a higher-current signal that can drive a motor,then connect to Arduino sensor sheild.Node MCU EXP 8266 is an open-source firmware and development kit that helps you to prototype or build IoT product is a put certain program code to operation and then connect to Arduino sensor sheild and also ultrasonic sensor connect with them. And ultrasonic sensor connect with the servo motor is used to movement of operation.The damper sponge wiper is connect with the dc motor to operation of wipping .motor pump is used to flish the water to spong.

When power supply is given to Arduino UNO to operate a check the that componet of Ultrasonic sensor ,Motor pump,spong wiper then we have to give the instruction of GSM plateform and then get instruction to operate the function.

V. EXPERIMENTAL SETUP

VI. CONCLUSION

The project proposed here is an automated android based floor cleaning machine. The system is capable of cleaning the floor cleans using a cleaning mop. The system can work without much loss of human physical energy. The system is provided with an android control which uses Bluetooth communication.

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