Remote Controlled Sweeping Machine

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Abstract— There has been inconvenience in sweeping under the tables, chairs in home and offices. To overcome this prototype has been developed, that sweeps and collects the dust by remote control system is the main objective of this paper. The remote controlled sweeping machine can be done with the help of RF transmitter and receiver. The ATmega8 microcontroller is interfaced with arm module using the driver IC. The waste which is less than considerable size is collected using brush roller. The wheel motor is subjected to move in a path feed to the ATmega8 microcontroller. This paper improves the Employee productivity, since the operator rides instead working, fatigue is reduced meaning they are physically able to maintain a more productive rate of work after they have finished cleaning the floor. The basic advantage of this system is that it will be cost effective and no human control is needed.

Key words: Sweeping Machine

I. INTRODUCTION

Environment such as office cleaning, robots will save the cost of manual labour that is estimated at 5 USD per hour. Floor robotics has developed the robotic technology for these market segments with an optimum balance of functionality, ease-of-use, performance and cost Automatic floor cleaner is a system that enables cleaning of the floor by the help of highly stabilized and rapidly functionalized electronic and mechanical control system. This paper targets use automatic floor cleaner for large floor in house-hold purposes and office floors. The cleaning purpose is specifically carried out by continuous relative motion between a scrubber and the floor surface. They can clean floors, collect dusts and guard homes and will also assist old and handicapped people, do some surgeries, inspect pipes and sites that are hazardous to people, fight fires and defuse bombs. In this paper to overcoming the above problem and makes life more sophisticated. In technical development of types and advanced robots, one will notice many papers. Many advanced robots have powerful functions however still an enormous gap to commercialization. This module of automatic floor cleaning machine by ATmega8 micro controller is run to clean the floor and sweeps the dust away. In this the module a remote controlled car has gear motor is attached at front axis in between the front wheels. This motor is attached with a cleaning brush at front and the gear motor is connected to 12volts battery. The remote car is controlled by the ATmega8 microcontroller which can cover up to 20m range in distance. When the remote controlled car is operated the DC gear motor is manually operated in switch type, the motor runs in clockwise direction at high speed of 1000rpm and the brush below the motor cleans the floor. The movement of the motor can be controlled by ATmega8 microcontroller. This makes it possible to get more done in the same or even less time than a walk behind a machine, generating savings in labour cost. Changes have been made in the proposed work which can move with the function of a remote control. This enables the workers to clean the floor by operating the machine with a simple remote control. In this work the operator doesn't need much skill and it is looks very simple and economical.

II. LITERATURE REVIEW

A. Existing Method

The classical method used by sanitary workers for collecting dust is the use of sweeper. This system is practiced since ancient days. Removal of dust from the floor is not efficiency by this method and it is a human power consuming one. Invention of vacuum cleaners contributed a little towards solving the problem but it still requires human effort to achieve the task. This is followed by remote controlled robot for collecting dust but it also needs human effort.

B. Problems Identified

- They need human work to accomplish the task
- Heavy dust are not difficult to remove
- Remote controlled robots are costlier
- Lot of money is spent as wages for workers

To overcome these limitations, remote controlled sweeping robot for collecting dust with brushing roller arrangements can be used.

III. PROPOSED METHOD

In this paper, remote controlled sweeping machine collects the wastes present in the surface using brush roller whose movements are controlled by ATmega8 microcontroller. The principle of the remote controlled sweeping machine is the AC voltage typically 220V RMS is connected to a transformer, which steps that AC voltage down to the level of the desired output. A diode rectifier is provide a full wave rectified voltage that is initially filtered by a simple capacitor filter to produce a DC voltage. This resulting DC voltage usually has some ripple or AC voltage variation. A regulator circuit varies or the load connected to the output DC voltage changes. Permanent magnet is used to create magnetic field in a DC motor, the motor is referred as permanent magnet DC motor or PMDC motor.

A. Block Diagram

This battery operated motor is nothing but a permanent magnet DC motor or PMDC motor. Battery (12volts) is the main source of power for the entire electrical circuit design. Relays and switches are used for effective working of the circuit. A voltage regulator is used to regulate the voltage as per the requirement. RF transmitter and receiver are used for remote control operation. The RF transmitter consists of a remote switch. The signal transmitting is directly proportional to the button switch as it pressed. The corresponding pin energies the relay and it in turn energizes the magnetic coil. The collected waste is transmitted to the

bin attached to the back of the setup and dust is removed periodically. Battery is used to drive the whole setup. The brush roller setup is used for sweeping and collecting the dust. In this work also provides the possibility of reducing the money, spend as wages for sanitary workers. The problem of maintenance will be eliminated as this is robust and manpower will be saved. The remote controlled sweeping machine can be implemented in theatres, classrooms, industries, etc. Since, the setup is compact in size, consumes less power, accurate, uses only affordable components and its cost is low.

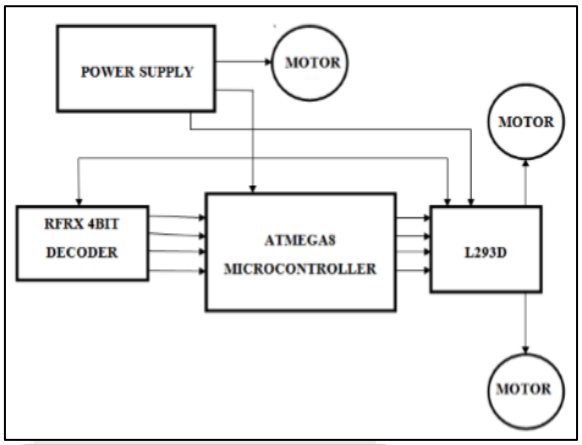

Fig. 1: Block Diagram

IV. Result and Discussion

A. *Result Analysis*

This paper replaces the manual cleaning method and eliminate the disease caused to sanitary workers. This work has economic benefits as its uses only affordable components such as DC motors and ATmega8 microcontroller, it provides advantages and also neglect daily payment of workers. Battery is the main source of power for the entire electrical circuit design. Relays and switches are used for effective working of the circuit. A voltage regulator is used to regulate the voltage as per the requirement. RF transmitter and receiver are used for remote control operation. Thus, the complete electrical set up the efficiency is high thus reduces the labour cost and provides efficient cleaning in figure 2.

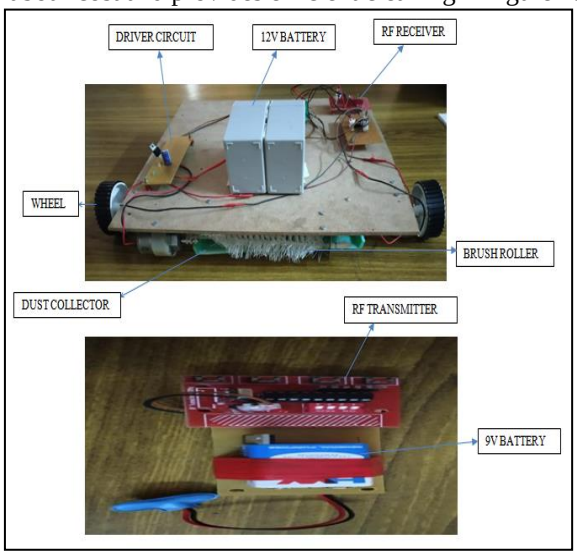

Fig. 2: Remote Control Sweeping Machine

The remote controlled sweeping machine is applicable for many floor cleansing activities and considering the realm and access of the ground to be clean, this floor cleansing machine is ready to handle a load of cleansing activity

V. Conclusion and Future Scope

A. *Conclusion*

This machine facilitates efficient floor cleaning with sweeping and mopping operations. This robot works in automatic and manual for user convenience. This planned work provides the hurdle detection just in case of any obstacle that comes in its means. The obstacle detection range is 1feet. RF modules provide wireless communication between remote and robot CAR and their range is 50m. It reduces the labour price and saves time additionally and provides economic improvement. In remote controlled mode, the robot operates based on manual control. Our planned robotic application could serve in useful eventualities like providing access to confined and humanly inaccessible areas. The development can be made in the field of sensing. This system has the capability to detect as well as move in the direction of dust and thus resulting in better cleaning of floors.

B. *Future Scope*

In India, sewage drains are open. So people throw waste in sewage drains. Plastic bottles are used in most places and are thrown as such into the sewages. This paper going to be terribly helpful in cleanup these areas. In future, it is attainable to create it a totally machine controlled system by the implementation of management algorithms. Thus, this project helps in making our nation and healthy.

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