

OPTIMIZED MOPPING AND DRYING SYSTEM

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Abstract - This Remote control floor cleaning vehicle is the set-up which enables floor cleaning by the assistance of highly balanced and quickly operationalized control system. This control system is made up of mechanical and electronic equipment. It aids in several cleansing and mopping activities of floors in day to day life. This work aims at for using automatic ground cleaner for huge floored space for our household purposes, office and work places grounds. The motive of cleaning is pursued by the continual relative motion of the surface to be floored and vehicles scrubber.

The inventive system has been evolved for sanitizing the floors in medical institutions, college building etc.; this brand new system removes the conventional method of day to day dusting and then mopping with the wet cloth piece and adopted the new method using an antiseptic, antibacterial and detergent solutions with the regular polishing. This inventive method is dependent on the procedural processes comprises of mopping of dust and foreign particles by using chemically aided dust mopper, system wiping of a sprayed polymer treatment is done. Its productiveness the course of actions are assessed by the medium of sampling of surface via bacterial contagions and for bacteria's which are air borne and dust by air sampling. The dissemination of result of sanitizing process is same as that of beginning. Likewise, the amount air dust and bacteria after sanitizing process doesn't significantly varied from initial. It is found that when it is equalized to the conventional methods cleansing by moist technique of mopping, then it is inferred that this newly developed method was additionally productive than conventional ones.

Key Words: Remote control floor cleaning device, Automatic version, Cost effective, for handicapped person, DC motor, Low cost fabrication

1. INTRODUCTION

The project focuses on new, smart and simplified cleaning applications. It presents the necessary items and needs for cleaning the floor such as the supply of the water, scrubs for cleaning the surface and fan to dry the surface instantly. This vehicle is equipped with turning wheels that are responsible for managing motion, its motion can be controlled with the help of remote.

This ground cleansing vehicle is equipped with various direct current (DC) motors that operates the wheels of vehicle and scrubs by driving its rotating part. The cable work of the motor is carried out and designed correctly, so that the wheels are positioned upwards taking into account that the command comes with the 2 double dual keys. The button is positioned like of an opening and closing key for turning items such as swabber.

Our project is pertinent to various tasks of cleansing the floors. In view of area and approach of floor we want to clean, this machine can manage a large amount of cleaning and polishing tasks. In this project, we show how we can control the movement of any vehicle with the help of the logic of wireless RF controls. In this project we check the bases of all management.

1.1 DEFINING PROBLEM

- Time consuming.
- Difficult for bachelors and students studying or doing jobs outside their home.
- Regular mopping by traditional methods like using a piece of cloth in a bucket full of water and bending again and again causing problems in back and lower side.
- Takes time in drying.
- Existing methods in market are not that much effective and feasible and preferable for long term use.
- Conventional mopping is difficult task for old aged people who live alone.

- It is not possible for physically challenged people.
- Available options are not much economical and especially they are for mopping drying system is still a challenge.

2. METHODOLOGY

This remote control module of the gear motor floor cleaning vehicle works to clean the floor and sweep away the dust. In this module, a remote control has a gear motor connected on the front axle between the front wheels, this motor is connected with a cleaning brush on the front and the gear motor is connected to a battery of 12 volt and remote vehicle connected with 12 volt battery. The remote vehicle is controlled by the gear motor which can cover a distance of up to 20 m.

When the vehicle is remotely operated, the DC gear motor is manually operated on the type of switch, the motor turns clockwise at a high speed of 1000 rpm and the brush under the motor cleans the floor. We can control the movement of the car using a microcontroller and we can rotate the directions using it to clean the floor. In this way, the module performs and cleans the floor.

2.1 MATERIALS REQUIRED

- 12 volt DC 100 rpm gear motor
- Large container
- Small container
- PVC pipes
- Two double two-way switches
- A push button switch to turn on
- RF module
- Wheel
- Connector
- HT12E encoder IC
- IC HT12D decoder
- IC 7805 power regulator
- RF transmitter module
- 433 MHz RF receiver module
- 12 MHz crystal
- Micro switch
- Capacitors
- Resistances
- Diodes
- Transistors
- LED indicator
- 12 volt battery
- Ponchos • Flexible cable • P.C.B.

2.2 OPERATING PRINCIPAL

This work is completely focuses on the cleansing activities. That has the necessary prerequisite of cleansing the floor, like as follows reservoir or tank for water furnishing, swabber and fans. This is that system which is employed by motion command. This ground cleansing vehicle is made up of various DC driven motor that drive the trundle and turns articles or

items for washing.

The work is pertinent to various ground cleansing applications. The twist needed for rotating the group is approximately. The engine provides 100 RPM. Therefore, the engine will run without charging it. The present work aims to design the compressed/small ground cleanser which is needed for domestic purposes.

Maintaining hygiene and cleanliness is the need of the hour for everyone in this time in which we are vulnerable to various deadly disease recently like COVID-19. Generally, on domestic grounds, grounds should mopped routinely. There are various methods to mop distinct types of grounds.

Below are the stated purposes for cleaning the floor:-

1. Embellishes the grounds.
2. Sliding wounds on grounds may cause sometimes to severe malfunctioning of some parts and may be death if hit over sensuous parts. Careless cleansing activities are basic cause of accidental deaths.
3. Antigens and dust must be swept off.
4. Detritus or obstacles must be swept off.
5. Create sanitary space (kitchens).
6. Eroding of surface is to be avoided.

In this project we use a pair of HT12E and HT12D encoders and decoders. With the help of encoders and decoders, we not only send the data, but also match the address coding.

We make use of HT12 E transmitter and rf module in transmitter section to send the serial data. 9 volts DC is the working voltage of transmitter HT12 E. 9 volt battery is used to send power to encoder and rf module.

We use an rf module in transmitter circuit to send serial data on radio frequency. We use the 433Mhz radio frequency module to send data in series. The modulation frequency of this project is 433 Mhz and ASK is the modulation type.

3. COST ESTIMATION

Table -1: Cost of Machine

ITEM NAME	QTY.	RATE PER ITEM IN Rs	AMOUNT
DC gear motor	7	200	1400
HT12 E Encoder IC	1	125	125
HT12 D Decoder IC	1	125	125
IC7805 Power Regulator	1	40	40
RF Transmitter Module	1	200	200
RF Receiver Module 433 MHz	1	200	200
Crystel 12 MHz	2	50	100
Micro Switch	-	10	10
Capacitors	-	5	5
Resistance	-	5	5
Diodes	-	8	8
transistors	-	15	15
LED(Indicator)	-	2	2
Battery 12V	-	500	500
Shaft	-	70	70
Water Tank Box	-	125	125
Fan	2	125	250
Ponchha	2	10	20
Wheel	2	70	140

Pipe	-	170	170
Flexible Wire	-	25	25
P.C.B.	-	150	150
Others	-	500	500

4. ADVANTAGES

1. Simple design.
2. Physical work of person is minimized.
3. Provides easy operation.
4. No critical operation needed so anyone can use.
5. Do cleaning operation with less efforts in lesser time.
6. It saves energy by consuming less power.
7. Can work in automatic and manual mode both.
8. Cleaning is well organized and efficient.
9. Can detect the obstacle coming in its way and accordingly changes the path.
10. It can clean and polish the floor simultaneously.
11. Easy manufacturing.
12. It captures less ground area.
13. Net load is less.
14. Cost of maintenance is less.
15. Consumption of the cleaning liquid is less.
16. It can work in different type of floors.

5. FUTURE SCOPE

- This system is useful and can be used efficiently for future purposes.
- This system is economical.
- It promotes a smart approach of doing work.
- It is helpful for old aged, physically challenged people especially.
- It is less time consuming.
- It can perform drying effectively.
- It can be used for commercial purposes also like on Railway stations like for cleaning platforms, other public places, and so on.

6. CONCLUSIONS

- We designed the vehicle for cleaning the floor by taking the assistance of motor (DC) & transmission.

- It is designed in such a way that it provides easy operation & also reduces the person's effort. As there is no critical operation needed for using this vehicle, so anyone from children to old age people can use it very easily.
- We got the ultimate aim of this project & by using this vehicle we can do the cleaning work easily with less effort in lesser time.

7. REFERENCES

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