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DESIGN AND FABRICATION OF MULTIPURPOSE GO CART

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Abstract - *This project illustrates the assembly of various equipments in a common automobile cart. It is basically focused on the domestic needs of the Indian societies. It is cost effective as compared to the floor cleaning machines used in hospitals, railway stations or other public service stations like airports, bus stands as well as for office floor cleaning purposes. We have assembled various cleaning equipments together and gave an appropriate design with the help of proper connection of relays. We made it work automatically and it can perform various cleaning task. This floor cleaning machine is helpful for house wives as their work load will be reduced to an extent compared to traditional method of cleaning. It is also helpful to the gardeners and the workers working at railway stations, bus stand, etc. A simple in construction and easy to operate go kart is made which not only serves the purpose of cleaning but also cut the grass with the help of grass cutter. It is effective as the overall cost is much smaller as compare to the actual floor cleaning machine.*

Key Words: **floor cleaning machine; moppers; vacuum cleaner; grass cutter; pump**

1. INTRODUCTION

Cleaning machine is very much useful in cleaning floors and outside ground in hospitals, houses, auditorium, bus stands and public place etc. In modern days interior as well as outside cleaning are becoming an important role in our life. Cleaning of waste is very important one for our health and reduces the man power requirement. Many of floor cleaning machines are available but we have developed it as simple in construction and easy to operate. Anybody can operate this machine easily. Hence it is very useful in hospitals, any large area space. The time taken to clean the housing floor is reduced and if any part is not working it can be replaced very easily. In our project we have made the machine to operate in a much easier way by providing Bluetooth module by which you can operate this device by your android smart phone. The Floor cleaner is of very simple construction and is very easy to operate; anyone can operate it without any prior training of any sorts with safety. Cleaning is essential need of this generation. Basically in colleges and hospitals for floor cleaning regularly different techniques are used to clean the different types of surfaces[1]. The time taken for cleaning is very less and the cost is also very less. Maintenance cost is less. Much type of machines is widely used for this purpose. Floor cleaning is achieved by different technique which might be of different kinds. Different types of floor need different type of treatment. The floor should be totally dry after the cleaning process. Otherwise it may result in hazard. On some floors sawdust is used to absorb all kinds of liquids. This ensures that there is no need of preventing them from spill of. The sawdust has to be swept and replaced every day. This process is still used in butchers but it was common in bars in the past. In some places tea leaves are also used to collect dirt from carpets and also for odour removing purposes. Different types of floor cleaning machines are available today such as floor buffers, automatic floor scrubbers and extractors that can clean almost all types of hard floors or carpeted flooring surfaces in very less time than it would have taken using traditional cleaning methods. Again the cleaning would be different for different floorings.

The reasons for floor cleaning are-

- To beautify the floor.
- Surface wears to be avoided.
- To make the environment clean.
- To prevent injuries from slip.
- Obstructions and debris to be removed.

Main motives of research are:

- To increase the effectiveness of cleaning.
- To reduce human efforts.

1.1 PROBLEM IDENTIFICATION

Traditional floor cleaning is not so effective and it consumes more time due to which some important tasks are left undone. During the manual cleaning operation some dust and dirt particle may remain on the floor and due to the action of air

the dirt and dust particle transfer from one surface to another surface which create the problems during cleaning which tends to increase manual effort. Due to which desire cleaning of the surface not gain and because of that it takes more time.

During the rainy season the muddy water are dump on the corner of the wall with the help of manual cleaning it cannot possible to remove all the water from the surface of the floor which creates sleepy surface and which may increase the chances of accidents also the water which remains on the corridor enter into the rooms. Due to uneven surface of the corridor or floor during the wet cleaning of the surface desired cleaning not obtained and backflow of the water occurs which tends to increase manual effort and it is difficult to clean uneven surface of the floor and takes more time for cleaning of the surface. So this led to the idea of developing an automatic floor cleaning machine which is more effective as compared to the traditional one.

1.2 OBJECTIVE

- To develop a machine which helps in cleaning the floor effectively.
- To reduce the cost.
- To save the time by making it multipurpose.
- To reduce the workload of the house wives.

2. METHODOLOGY

We have assembled various devices which are common in cleaning and made a compact design of a cart. We have implemented grass cutter for proper grass cutting and moppers and pump assembly for cleaning the floor and vacuum pump for cleaning the tiny dust particles. Chassis (frame) of the go kart (2x1.5) made of plywood, DC motors, wheels, pump and other small parts. It includes the use of UNO chip set and the application of relays. The go kart will be accessible through remote. The mops will be attached at the back and grass cutter in the front. There will be 8 DC motors which will be used out of which one will be used for the centrifugal pump. The main function of the pump is to wet the mops. The mops have high torque as they rotate at 10 rpm. The dc motors moves with a speed of 1000 rpm. The speed of the mops and the motor is kept optimum so that it do not produce jerks and functions smoothly.

Fig -1: Model of Multipurpose Go Cart

3. CONCLUSIONS

In our project we have introduced a multipurpose go cart which is capable of performing vacuum, mopping and grass cutting. The main motive of the project is to cover the aspects of cleanliness in the society. The multiple applications provide a wide range of functions in which we can clean the floor, remove dust and dirt from the floor. This project is very helpful for the society and plays a vital role in cleanliness of the country. Few of those are the motor is not detachable and the high rpm leads to vibration of the whole system. If these features will be modified, this will work well. As a whole this is a successful product developed that can be used in current Indian house-hold. This design of automated floor cleaning system can be used to clean any kind of remote places. As the motors selected can consume much less power so it will be the power saving and cost effective. Automatic floor cleaning machine is designed and manufactured using D.C Motors. Manufactured machine is flexible and effortlessly operated. Manual Sweeping done by man might not be that effective as it will not be picking up everything in as it is not in sight but using the floor cleaner it can be done easily. A manually operated eco-friendly floor cleaner is an alternative concept for avoiding such problems. The manually operated eco-friendly floor cleaner can work very efficiently with respect to

covering area, time and cost of road cleaning process compared with the existing machineries. Also it is economical. It was seen while testing of machine, that the cleaning is less effective where the floor seems to be very rough and damaged.

REFERENCES

[1] Kashif Shaikh Ghaffar M. AadilArshad, Nandkishor S.Kale, "DESIGN AND DEVELOPMENT OF FLOOR CLEANING MACHINE", International Journal of Advance Engineering and Research Development (2018), e-ISSN (O): 2348-4470

[2] Shubham Khade Student, Department of Mechanical Engineering, "Multi Use Floor Cleaning Machine", International Journal of Mechanical Engineering and Technology (IJMET) Volume 8, Issue 5, May 2017, pp. 656–664, Article ID: IJMET_08_05_072

[3] Nikhil Murlidhar Chopade Student, Mechanical Department, DES's COET Dhamangaon Rly, "Modified Floor Cleaning Machine", International Journal of Emerging Technologies in Engineering Research (IJETER) Volume 5, Issue 4, April (2017), ISSN: 2454-6410

[4] United States Design Pattern, Multipurpose Cleaning Tool Adaptive to Vacuum Cleaner Nozzle, patent no. US D468 499S