Remotely Operated Mopper: ROM

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Abstract:- **This mopping device is highly beneficial for cleaning purpose especially in homes, Offices, Industries where cleanliness is a major concern. Many research institutions are busy finding the best outcomes through the artificial intelligence. Of course, Artificial intelligence is a branch of technology that makes computers thinks like human brain. This device will sweep, and mop the floor area with brush and other wiping components; also it collects the dust and other small parts in it. Mobile phone or remote controlling is used to instruct the motion of this small device. This device is too easy to use, very cost effective and cleans every corner of the area.**

Keywords:- mopping device, artificial intelligence, mobile operated, remote control.

I. INTRODUCTION

This Intelligent mopping device is used to fully clean up the floor to a shine. Many machines are available in the market but some of them are too heavy, some are too costly, some are unable to reach the corners of the area and the most problematic the need human presence to work upon which is not possible always. Life is too busy and we are switching to automatic appliances. Almost all the automatics instruments are too costly that they cannot get fitted in the budget of the common people. Apart from cleaning it can trace the hidden objects where it is difficult to reach. It can work 24X7 to give you a polished surface. Simply you need to control via mobile phone, it will do your entire floor clean-up for you. Sensors provide you with much flexibility. No collision and 100 % work efficiency will please you with the results of the product. Its dust pan collects the dust and other small particles in it with the help of front brushes that dust in the inner container for better cleaning experience. The same base could also be used for future additions and some other devices of the kind.

II. LITERATURE REVIEW

This robot floor cleaner is a remotely operated electronic device which is intellectually programmed to mop a specific part of the floor through the use of hardware and software collectively called firmware cleaning assemblage. Some of the available products can clean around sharp edges and corners while others offers numerous additional features such as wet mopping and UV sterilization rather than basic cleaning. Bergerman et al. [ii] presented perception and navigation technique for a lineage of self-guided orchard automotive robots. These practices were customized to allow secure, protected and steadfast driving in contemporary planting surroundings. Gonzalez et al. [iii] proposed map building method of the environment for a portable robot capable of using a radial laser scanner for path detection. This sensor

radially scans in a plane which is parallel to the ground surface provided with a two-dimensional portrayal of the surrounding environment. Yasutomi et al. [ix] suggested an algorithm that suited only too well defined, planned and structured regions. Providing with an uncomplicated room with lesser obstructions, these robots are able to travel even if it does not include information but in regions with intricate assignment of obstacles, it is necessary to program the robot about the obstacle positions and the size of room on priority basis. Yu et al [x] proposed the model with complete coverage path planning which becomes a key problem for automatic cleaning robots, which concerns not only with the cleaning efficiency but also the adaptability to shapeless environments. In recent times Ilari and Jane et al.[xi] used magnetic field based simultaneous localization and mapping. This method projected the idea of using a magnetic field sensor. Certain distortions in enclosed magnetic fields owing to presence of assured stuff were observed. Data given by the sensors for mapping was used in this practice. Maps generations are found to be accurate enough for guiding such type of machines. Sherman et al. [xii] build logic for controlling activities of transportable robots for the purpose of floor cleaning. Fuzzy controllers were used for employing behaviour, and state machine structural design for co-coordinating tasks like navigation, area filling and obstacle avoidance. Ynng-loo Oh' and Yoshio Watanabe'[xiv] made a small cleaning instrument which followed random paths but had no specification for area filling. Recollect the used water and then a cloth to absorb the drops of water. It was proved a less effective technique as it sometimes leaves the patches of cleaning path followed. Also the area filling task is achieved using a indoor navigation system from north star, in which the robot receiver follows the signals from the transmitter and gets stuck sometimes in complicated environments.

III. DESIGN

It is designed in such a way that tedious output can be obtained. The following are the main components.

➢ *Cleaning*

Cleaning consists of high quality sponge which is able to clean every possible dirt and is fixed downside the robot. Material Sheet has been designed and attached in such a way that it takes a shape of a robot. Size has been reduced so to clean the down some articles like sofas, tables and other home-wares.

IV. ELECTRONIC CIRCUITRY

NXT brick is used for the electronic circuit of the robot along with the use of Mind storms NXT software which is used for programming. The main circuits including one battery

being used in this model and all these circuits are designed, analyzed and then implemented. Explanation of all these circuits is given below:

- Motor block
- Move block
- Sensor blocks
- Nxt Bricks
- Cables
- And other Miscellaneous components

V. GRAPHICAL USER INTERFACE (GUI)

The main purpose of the GUI is to avail user with 100% control in the hand of user, so that he can use the product according to his requirements. The software used for the programming of GUI of this device is Mindstorms NXT. As discussed, the robot can be operated with the help of android mobile phone. Mindstorms receives the data from I/O port and displays it on the GUI after decoding. However, the communication via Bluetooth is 2-way i.e. it sends some data as a delivery report. The terms, indicators and labels used in GUI for power controlling and management are employed.

Fig 1:- Area filling algorithm

VI. CONCLUSION

In this paper the design is modified and the development in work is done through Artificial intelligence. The issues with the early robots were the high cost and the size was not remotely controlled. Efficiency in covering the area was a major issue. This Simple model is designed to provide easiness of use for real users. The Interface is user friendly and no special instructions or trainings are required for its utility. Its cost makes it suitable for every pocket.

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