FLOOR CLEANING MACHINE BY REMOTE CONTROL

Dr. J. Hameed Hussain1,2, R. Sharavanan
1 Professor, Department of Mechanical Engineering, BIST, BIHER, Bharath University, Chennai-73
2 Asst. Professor, Department of Mechanical Engineering, BIST, BIHER, Bharath University, Chennai-73
dr.j.hussain@gmail.com

Abstract: Environment such as office cleaning, robots will save the cost of manual labor that is estimated at 5 USD per hour. Floor Botics has developed the robotic technology for these market segments with an optimum balance of functionality, ease-of-use, performance, and cost. They can clean floors, mow lawns 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. Residential robots are quite different from industrial robots because of nonprofessional users. It needs high reliability and safety. Cleaning robots are getting more popular for aging populations, it is necessary to design ‘really autonomous’ robots, easy to stagnate or stasis are not allowable, especially for old users. ‘A robot in every home?’ reported by Science News in 2004, ‘In the home, by the end of 2003, about 610,000 autonomous vacuum cleaners and lawn-mowers were in operation, the report says. Between 2004 and 2007, more than 4 million new units could be added, it adds.’ New market induced companies devoted to new and functional robots design to get higher market share. In technical development of varieties and advanced robots, one can find hundreds of papers. Many advanced robots have powerful functions but still a big gap to commercialization. This paper analyzed commercial robots by US granted patents, companies always file patent in advance for their commercial products, granted patents are also a powerful weapon to stop competitors enter their claim technology under its exclusive rights.

1. Methodology

This module of automatic floor cleaning machine by 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 and the remote car is attached with 9volts battery.[1-9] The remote car is controlled by the micro controller 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 [16] direction at high speed of 1000rpm and the brush below the motor cleans the floor. we can able to turns directions using it to clean the floor. By this way the module runs and cleans the floor. [10-14]

Merits:

- This makes it possible to get more done in the same, or even less time than a walk behind a machine, generating savings in labor costs. Since they are mechanically propelled, navigating is easier when riding.[15]

- Employee productivity is also improved, 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.[16-22]

Demerits:

- Requires an initial restoration of the floor to remove or bevel the slippage that can damage the fine grit used.
- Does not provide a natural appearance.
- Possibly slippery if over buffed.
- Over used produces a non-responsive floor.[23-30].
2. Conclusion

This research facilitates efficient floor cleaning with sweeping and mopping operations. This robot works in automatic and manual for user convenience. This proposed work provides the hurdle detection in case of any obstacle that comes in its way. The obstacle detection range is 1 ft. RF modules provide wireless communication between remote and robot CAR and their range is 50m. If there is hurdle in the way of robot, it sends the information to the remote which gets displayed on the LCD. It reduces the labor cost and saves time also and provides efficient cleaning. In automatic mode, the robot operates autonomously. The operations such as sweeping, mopping and changing the path in case of hurdle are performed automatically.

Our proposed robotic application may serve in multipurpose scenarios such as providing access to confined and humanly inaccessible spaces. The proposed application of robotics can also be utilized for cleaning in emergency interventions. Progress so far is promising for successful deployment in the actual environment at later stages.

References


