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A REVIEW ON DESIGN AND DEVELOPMENT OF WALL TILE CLEANING AUTOMATION MACHINE.

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Abstract

This project aims at cleaning up the wall tiles in, hospitals, halls, malls, houses, and hotels. This project research aims to design and improve processes for cleaning the vertical wall surfaces. The brushing of wall tiles is usually annoying, repetitive, and boring daily routine work. It takes a very long time to maintain the health and hygiene of bathrooms. In today's world maintain hygiene is an essential part of life, wall tiles clean-up is very essential to good health. This floor cleanup machine lessens the washing work needed. This concept is very helpful in our day-to-day lifestyles. Intelligent machines for floor cleaning are becoming more popular for working and growing populations. But the scrubbing of wall tiles isn't common. This project gives a wall tile washing machine system idea.

Keywords: System to wash the wall, device to wash, machinery.

Introduction

Washing equipment in hospitals, apartment buildings, auditoriums, bus stands, and public areas, etc. is really helpful in rinsing walls as well as the outside surface. In today's world all indoor or outdoor maintenance has become an integral part of human life. Waste treatment is really necessary for our health and reduces the need for resources. Indoor area sanitation is a challenging empirical and academic issue with basic solutions is in the context of automation and scientific purposes. Washing robots are part of the service robot community of using practical and solutions to reach market value.

A machine system for washing tile, floor, wall was designed, built and created in this development work for an automated system and many extra semiautomatic process performance reviews, but only for sanitizing floor and not for vertical tiles. Neither of the autonomous wall tile systems is available to the public on the industry in today's time. Domestic washing of tiles is a repetitive task that is performed regularly by a number of people. Nevertheless, in science and technology, there is a need to bring the revolution. That could possibly help in the repetitive activity that we do regularly. Cleanup is sometimes boring and repetitive. Tile wash will be annoying and more convincing in various public service industries. Daily washing is now needed for people who are not interested in spending tons of time on wall tile washing through manual labor.

Climbing robots are being designed to clean a vertical surface for the application. With respect to permeability, they should be able to have a strong vertical support on the surface using a very light. These machines can move on various surface types like floor, wall, ceiling, and walk between such a surface. Surface adhesion, they should be capable of creating a strong gripping force using a very light weighted mechanism.

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Literature review

1**) "Gecko, a climbing robot for walls cleaning"** [4]. In the paper, the author presented a robot for sanitizing vertical surfaces and ceilings. The sticking is guaranteed by suction cups which provide also a two directions mobility. An innovative suspension is used for both, assuring modulated pressure in the cups and their pressing withdrawal relative to the wall. The wash is ecologically and effectively accomplished through steam spraying, which after condensation is back collected. Simulation checks and tests in a virtual reality environment proved the behavior of the robot while coping with usual operative conditions. In this paper, the author presents the brief architecture construction of that climbing robot.

2) **"Mopping module design and experiments of a multifunction floor scrubbing robot"** by Yunbo Hong, Rongchuan Sun, Rui Lin, Shumei Yu, and Lining Sun [6]. In this paper, the authors proposed firstly the design of a multifunction cleaner robot with a mobile platform and vacuum, a module on cleansing. They then explain the mopping robot design and operation process. The device described in this paper is a kind of intelligent cleanup robot. In general, it is composed of the drive part, sensor part, functional parts and control part, power supply part. The practical component here is separate from robot cleaners. Thus, many functional modules can be attached by the washing robot, which lets a cleansing robot perform several scrubbing functions.

Research Gap

Household cleanup is a repetitive task carried out by a number of people every day. Hence, there is a need of bringing revolution in the area of science and technologies, which could help save time & money easily in repetitive tasks which we perform daily. And also giving consideration to the intensity of labor required and improving qualities to its optimum level. Relates to wall washing there are already several big bulky floor sanitizing machines which now in use of wash wall surface and very few manual housekeeping equipment like brushes, scrubber with handle, brooms mop with buckets available in the market which are not capable of scrubbing the remote heightened areas which are not in the reach. The need for designing a wall tile washing system, which could overcome the manual work by labor. All this research gap made it clear that only an automatic floor cleaners system was available and everybody was using manually operated floor tile rinsing equipment for wall tile washing, so there was a massive demand for automated wall tile cleansing systems in large quantities. Therefore, there is room for designing, creating an automated Wall Tile Washing System to remove repetitive workers, manual labor, time savings, and machining.

Objective and Scope

- The main objective of this project is to design and development of automatic wall tiles cleaning system with improved efficiency of steam, cleaning agent, detergent solution, water consumption.
- Our aim of this innovative idea is to mopping, scrubbing, stripping, polishing, washing the vertical wall tiles automatically.
- Our creative concept is to automatically mop, clean, strip, polish, and wash the vertical wall tiles. Another object is to provide such a machine having improved operating time and energy-saving characteristics.

- This system can be used at the domestic level and ensure minimum human interference to avoid body contact with cleaning agent.

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