REPORT-1

The authors introduced a manually operated floor cleaning machine as an alternative to traditional electric-powered cleaning devices. This research intends to overcome the issues that arise during power outages, particularly in Indian transportation stands, where electric-powered machinery are frequently rendered ineffective during power outages. The authors created a machine that does not require energy by designing a low-cost and user-friendly alternative. The design approach included modeling and analysis with publicly accessible tools, and the materials utilized for the components were widely used in comparable systems. The finite element study found that the stress levels in the manually operated equipment are within acceptable bounds, assuring its operation and longevity.

Report-2

The authors explain the development of an autonomous floor cleaning system suitable for both household and industrial applications. The device moves autonomously across a surface, such as a floor or any other area, sucking in dust as it goes by. A controller powers the motors and suction unit, while integrated sensors assist the gadget in avoiding obstructions. The advancement of this technology is viewed as a contribution to enhancing the human lifestyle by providing an effective and automated method for cleaning surfaces.  
  
report-3

The authors discuss the creation of an autonomous floor cleaning robot that incorporates numerous critical components, including an Ultrasonic Sensor, Motor Shield L298, Arduino Uno microprocessor, Servo, and DC Motor. The robot uses an ultrasonic sensor to identify obstructions along its route. When the sensor detects an obstruction within 15 cm, the robot automatically adjusts direction to avoid it. If the path is clear (distance > 15 cm), the robot will continue cleaning. The technology exhibits an efficient, flexible, and autonomous approach to floor cleaning, assuring continuous operation and avoiding impediments.

Report-4

The authors investigate the integration of smart home technology (SHM) into vacuum cleaning robots, focusing on their potential to improve house comfort, convenience, and energy management. They cover crucial issues such as limited battery life and the importance of appropriate path design for efficient cleaning. The study used two independent algorithms, the Search algorithm and the CSP algorithm, to determine optimal shortest path lengths, hence reducing dirt levels in the residence. To increase battery efficiency, a fuzzy logic-based inference method is presented that takes into account characteristics such as floor type, filth level, and area breadth when estimating battery charge durability.  
  
report-5

The authors outline the development of a Robotic Automated Floor Cleaner designed to provide effective, time-saving cleaning solutions for interior environments. To address the limits of manually controlled and fuel-powered devices, which are arduous, time-consuming, and expensive, the authors present an alternate method that reduces human effort and environmental effect. This automated cleaner is intended to address the health dangers caused by dust in a variety of settings, including homes, hospitals, hotels, and schools. The project combines mechanical, electrical, and electronic engineering, making use of rigid components such as chassis, motors, and electromechanical devices. The major objective is to create a low-cost, resource-efficient cleaning machine suited for home usage.

Report-6

The authors focus on developing an automatic floor cleaning machine that simplifies the cleaning process compared to traditional manual vacuums. The project combines automatic and manual cleaning modes through a phone application, providing users with flexibility and convenience. The system is built using an Arduino UNO, Motor Driver L293D, Geared Motor, Ultrasonic Sensor, and Bluetooth module. The goal is to create a user-friendly automatic floor cleaner prototype, designed to improve household cleaning efficiency while offering an intuitive interface for control. The project aims to contribute to the growing market of home automation devices.

Report-7

The authors present the development of a cleaning robot that integrates Arduino technology and an Android application for control. The robot is designed to perform dry cleaning, wet cleaning, and dust collection functions, simplifying the cleaning process compared to handheld vacuum cleaners. The system uses Bluetooth (HC05 module) to enable remote control via an Android smartphone. Two primary modes—dry cleaning and wet cleaning—are activated based on user commands from the app, allowing control of the robot’s movements. The research culminated in the creation and testing of a prototype robot vacuum cleaner with an intelligent interface.

Report-8

The authors present the development of a cleaning robot that integrates Arduino technology and an Android application for control. This robot is designed to perform dry cleaning, wet cleaning, and dust collection, offering a more efficient alternative to traditional handheld vacuum cleaners. The system utilizes Bluetooth (HC05 module) for remote control via an Android smartphone. The robot operates in two primary modes—dry cleaning and wet cleaning—based on user commands from the app, which controls the robot's movements. The research resulted in the creation and successful testing of a prototype with an intelligent interface.

Report-9

The authors present a project focused on the design of an autonomous floor-cleaning robot that integrates both dry and wet cleaning capabilities. The robot aims to simplify the floor cleaning task, which is typically time-consuming and requires manual labor. By incorporating advanced technology, the robot provides a smarter, more automated solution for cleaning homes, schools, and offices. The goal of this project is to make cleaning tasks easier and more efficient by developing a system that combines both dry and wet cleaning in a single design.

Report-10

The authors present a project focused on designing an autonomous floor-cleaning robot that integrates both dry and wet cleaning capabilities. This robot is intended to simplify the floor cleaning process, which is often time-consuming and labor-intensive. By incorporating advanced technology, the robot offers a more automated and efficient solution for cleaning various environments such as homes, schools, and offices. The project aims to make cleaning tasks easier and more effective by combining both dry and wet cleaning in one innovative design.

Report-11

The authors introduce hTetro, a novel floor-cleaning robot with a reconfigurable design inspired by Tetris, aimed at overcoming the performance limitations of traditional fixed morphology robots. The hTetro robot can reconfigure into seven distinct tetromino shapes based on its environment, optimizing its navigation and coverage area. The paper evaluates the performance of hTetro in terms of coverage area and benchmarks it against two commercially available fixed morphology robots. The results show that hTetro significantly outperforms these traditional platforms due to its adaptive, shape-shifting ability that enhances its cleaning efficiency in various environments.

Report-12

The authors present a floor cleaning robot consisting of several key components: an Ultrasonic Sensor, Motor Shield L298, Arduino Uno microcontroller, Servo, and DC Motor. The system works by using the Arduino Uno microcontroller to process data from the ultrasonic sensor, which serves as a distance detector, and the DC motor, which drives the robot's movement. When the ultrasonic sensor detects a barrier within 15 cm, the robot automatically changes direction to avoid the obstacle. If the sensor detects a distance greater than 15 cm, the robot continues cleaning. If the distance is less than 15 cm, the robot halts its cleaning operation.