PES UNIVERSITY
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SPECIAL TOPIC - MINI PROJECT

ROBOVAC
SYNOPSIS

Under the guidance of

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OBJECTIVE

Robovac is an automated robotic vacuum cleaning system which is economic and reliable. Originally such devices were designed to be operated manually via a remote, but technological advancements facilitated automation of the cleaning process.

Our primary objective is to implement the above mentioned basic concept, and use current generation technology like IoT, and an easy-to-use physical interface to improve on this existing concept.

TECHNICAL DETAILS

Sensors: Piezoelectric sensor, IR sensor

Actuators: DC motors

Microcontroller: Arduino UNO, Arduino NANO, ESP8266

Powering circuit: L293D based, Li-ion power supply

Other peripherals: 16x2 LCD display, push buttons, suction fan

MODULE DESCRIPTION

We plan on making the body of the bot using plastic and cardboard.

The bag that holds the dust will be made of cloth type material.

The bot will have 2 primary wheels and one caster wheel.

The IoT platform will enable the information, regarding the bot's current working condition, to be viewed and controlled on a mobile based application. Further localised control can be exercised using the LED display and push buttons on the bot itself.

The motor and fan/vacuum will have different speeds of operation, which can be controlled using either the app or the push buttons.

USEFULNESS OF ROBOVAC

- Saves time
- Minimal maintenance cost/ highly economic
- Compactness ensures that hard-to-reach spots are cleaned
- Automated and can work independently even when user is away
- IoT interface for user control

FUTURE SCOPE OF THE PROJECT

With automation and artificial intelligence taking over, The robovac forms the future of cleaning and definitely shows a major growth ahead where people stop relying on human labour. The IoT platform will enable connection with various devices and helps device interact with user regarding progress from time to time. With advanced sensors and technology, superior cleaning performance and wi-fi connectivity the process of cleaning seems effortless and is economic as well.

CONCLUSION

Summarizing, Robovac is an autonomous, motorized vacuum cleaner that doesn’t require the intervention of the user for cleaning. It works with the aid of a computing system that allows it to be conscious of its own spatial surroundings, and avoid damage to itself and its surroundings.