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Title:
Application Of Fuzzy Logic in Mobile Robots With Arduino and IoT

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Abstract:
Mobile robot technology has advanced rapidly and can be used in a variety of industries due to its capacity to accomplish certain duties quickly and productively. Deep sea exploration, outer space adventure, military, surveillance, disaster environment, scouting, petroleum operations, advanced robotics, and manufacturing all have a high demand for mobile robots. The purpose of this project is to build a mobile robot that can automatically move from one location to another. AIOR:21 and LFR:21 are two types of multifunction robots that have been developed. To function properly, this robot must be equipped with smart technology, and modifications are required on a regular basis. In the suggested robot system, fuzzy logic control is employed to assess and process the operator's voice commands more accurately and effectively. The proposed robot is equipped with an Arduino Uno microcontroller, L298N motor driver, SG90 DC motor, HC-05 Bluetooth module, ultrasonic sensor, and 4-channel infrared remote relays. Furthermore, line tracking robot technology is used as a guide for automated moving robots. Wireless communication and robot monitoring can be accomplished with IoT via cellphones. With this function, the operator can remotely watch the robot's behavior, and all sensor data can be stored in the internet cloud storage. Several experiments have been conducted to assess the capacity of the robots to identify lines and avoid colliding with objects. The limits of this project are also discussed in the concluding section for the researchers to consider for future improvement. © 2022 IEEE.