IMPACT: International Journal of Research in Engineering & Technology (IMPACT: IJRET)
ISSN(P): 2347-4599; ISSN(E): 2321-8843
Vol. 5, Issue 6, Jun 2017, 19-26

DESIGN AND IMPLEMENTATION OF ADVANCED ROBOTIC LAWN CUTTER

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ABSTRACT

An automatic lawn cutter helps the user to cut the grass in their lawn with less effort. The different sensors are used to detect and avoid objects obstacles and humans intervention while moving. The objective of automatic lawn cutter is that the user can specify the area that is to be cut down with a machine and the height of grass to be cut as per the requirement is done by using the keypad. The design of automatic lawn cutter is done by using an AT mega microcontroller, RF module, IR sensors, motors, LCD Display and Keypad. This grass cutter can work in any of two modes i.e. ―Automatic and Manual. All hardware and software operations are controlled by AT mega microcontroller. The wireless communication between remote (manual mode) and robot is performed by the RF modules which covers a range of 50 meters. For obstacle detection, the robot is developed with IR sensor. Four motors are used, one for grass cutting and two for wheels. Driver IC L293D used to drive the motors. The entire circuitry is connected with 12V battery. All the operations are controlled by robot themselves in automatic mode and in case of hurdle detection, they change the lane and moves back. By using the keypad the expected task is performed In the manual mode to operate the robot. For transmission and reception of the information between remote and robot, RF module is used and to display the fetched information related to the detection of hurdle, LCD is used. And also the blade is attached with front bottom of the robot which is used for cutting the grass.

KEYWORDS: Automatic Lawn Cutter, IR Sensors, Microcontroller, RF Module, Robot