The solar lawn mower is a fully automated grass cutting robotic vehicle powered by solar energy that also avoids obstacles and Is capable of fully automated grass cutting without the need of any human intervention. The system uses 12v batteries to power The vehicle movement motors as well as the grass cutter motor. We use a solar panel to charge the battery. The grass cutter and Vehicle motors are interfaced to an Arduino Nano that controls the working of all the motors. It is also used to interface an ultrasonic sensor for object detection. The SoC moves the bot in the forward direction in case no obstacle is detected. On obstacle detection; the ultrasonic sensor monitors it and the SoC thus stops the grass cutter motor to avoid any damage to the object/human/animal whatever it is. In order to detect the boundaries the bot uses Light dependent resistors(LDR) on a right angle to trigger start event. The detection of the laser on the other side triggers the bot to stop and turn a right angle clockwise and and move to next row. The bot takes another right angle turn clockwise and moves forward till the next laser fence is detected. The detection of both the lasers simultaneously triggers the stop event.

Objective

The solar lawn mover is a fully automated grass cutting robotic vehicle .Powered bysolar energy that also avoids

obstacles and is capable of fully automated grass cutting without the need for human intervention. The brain of the

bot is the ardiuno nano which decides the various actions. The L293D9 motor driver excutes these orders by

changing the power and polarity of the motors.The ultrasonic sensors detects the obstactcles such as stones/animals

etc. The LDRs are the crown jewel in detecting the fences or boundaries of the lawn marked by the lasers. The laser

beam A, when detected, causes the start event and the bot mves forward until it detects laser beam B.When laser

beam B is detected the bot stops for the time period of two seconds and then takes a right angle turn and moves

forward by 8 inches and takes another right angle turn and starts moving forward. This steps are repaeated until the

laser beam C detected along with laser beam A. When laser Beam A and C are detected triggers the stop event .The

movement motors runs at 60-80 rpm and the blade motor runs at 1000 rpm. The two blades are arranged in an anti-

parallel tangential manner. The ground clearance of the bot is 2.5 inches.The solar panel is 8x4 inches in dimension.

The ultrasonic sensor is placed at an angle of 15 degrees and set to minimum detection range of two feet to the

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