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# Automatic Solar Grass Cutter using Arduino UNO

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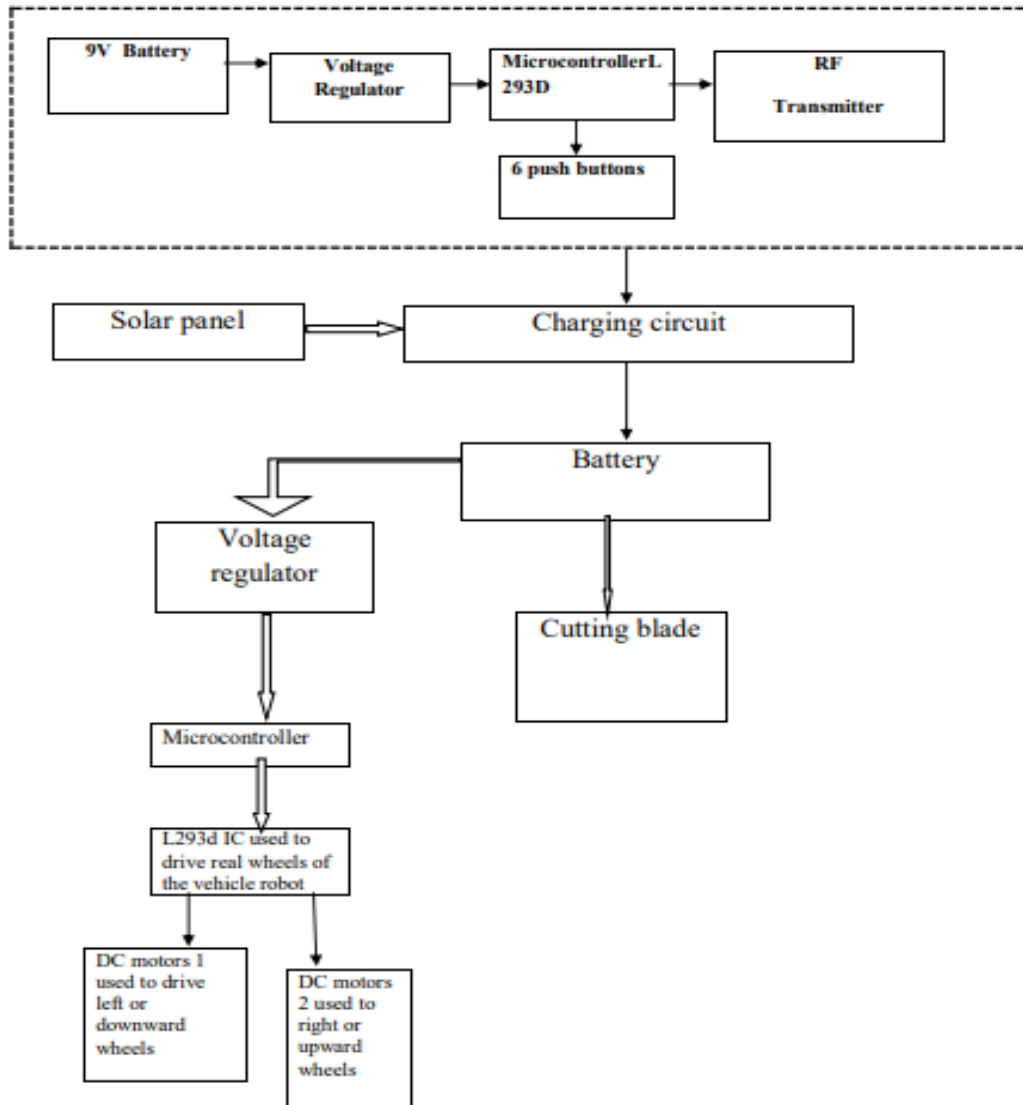
**ABSTRACT:** This project aims at developing a portable solar operated grass cutting device, as there is power shortage. So we have decided to make a solar energy operated device. Solar panel is connected to the battery. This will run the DC motor. This motor is connected to blade shaft by the help of belt drive. This will rotate the blade in high speed, cut the grass. These days we are facing the problems like pollutions, power cut problem etc. In order to overcome these problems, we have thought about the device, which can be performing its functions without causing any of these problems. So we have thought of doing the project on cutting grass, this uses the renewable source of energy for its operation like solar energy. This device will help in building of eco-friendly system. Current technology commonly used for cutting the grass is by the manually handled device. In this paper used novel technology. So in this paper we are trying to make a daily purpose robot which is able to cut the grasses in Lawn

**KEYWORDS:** solar powered, solar energy, L293D driver, DC-motors, arduino-uno.

## I. INTRODUCTION

Fully Automatic Solar Grass Cutter is a mower powered by solar power which works according to human requirements. It uses a 12V battery to power the vehicle's movement motors as well as the grass cutter motor. We also use solar panels to charge the battery, so there is no need to charge it externally. The grass-cutter and vehicle motors are connected to a single L293D family of microcontrollers that controls the operation of all motors. Operation it through by mobile is done. Ultimately, the consumer will be doing more for the environment while doing less in their daily lives.

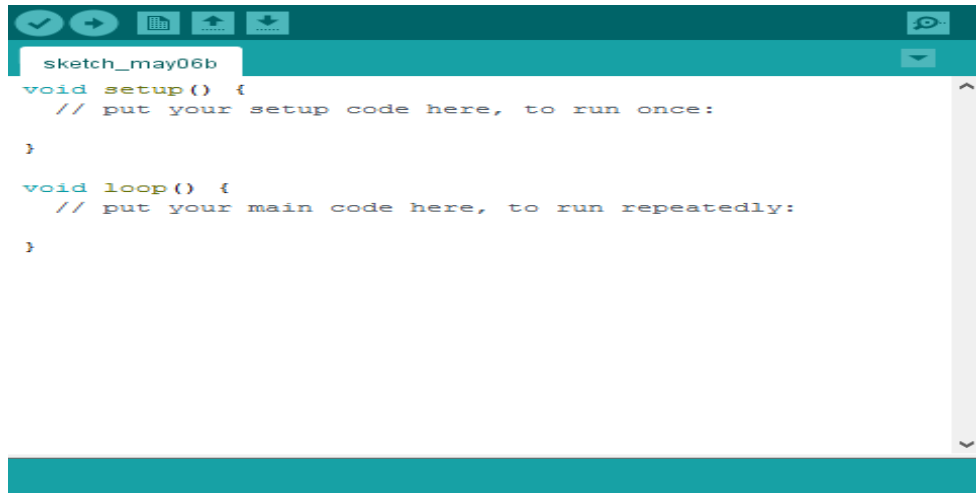
## BLOCK DIAGRAM OF PROPOSED SYSTEM



## II. SOFTWARE USED

### Arduino IDE

The Arduino Integrated Development Environment - or Arduino Software (IDE) - contains a text editor for writing code,message area, a text console, a toolbar with buttons for common functions and a series of menus. It connects to the Arduino hardware to upload programs and communicate with them.



## Solar Panel

A solar panel is actually a collection of solar (or photovoltaic) cells, which can be used to generate electricity through photovoltaic effect. These cell sare arranged in a grid-like pattern on the surface of solar panels.



## L293D Driver

The L293D IC receives signals from the microprocessor and transmits the relative signal to the motors. It has two voltage pins, one of which is used to draw current for the working of the L293D and the other is used to apply voltage to the motors.



### 9v Battery

A nine-volt battery, either disposable or rechargeable, is usually used in smoke alarms, smoke detectors, walkie-talkies, transistor radios, test and instrumentation devices, medical batteries, LCD displays, and other small portable appliances.



### 12V DC-Battery:



Solar power can be store in the rechargeable battery and can be further used for the grass cutting machine to run.

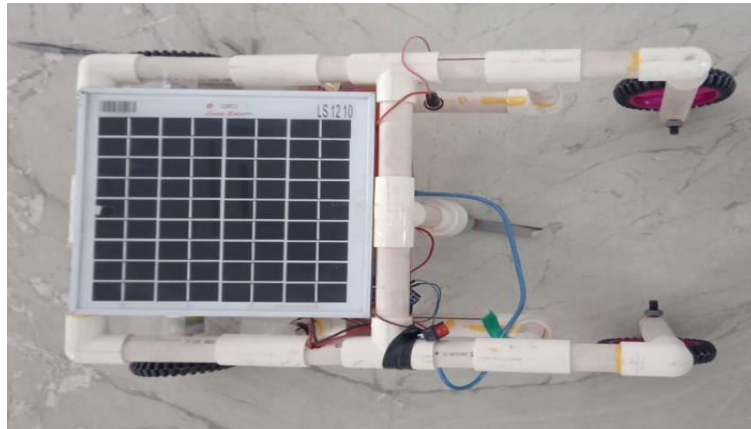
### Cutter Motor:



This motor is used for the rotating the blade and when the blade is rotated the grass is cut. The motor is rotated at 2000 RPM.

The motor is also used to rotate the wheel which move the body.





Charging Through Solar Panel



Grass cutter Movement

#### IV. CONCLUSION

Our project to manufacture a solar-powered grass mower has been completed. It will be easy for those people who are going to take the project for further modifications. They can do more modifications to it. And it is suitable for a common man as it is prepared at a very less cost. It does not have an engine. It will also not cause any pollution and it can be operated using solar energy. And by charging during the day, it can also be used at night. This machine is very light in weight, it can be carried from one place to another and

it can be used in any garden. (Cricket Ground, Football Ground, and Playground) is capable of cutting grass. Due to its low cost, it can also be used by poor people in rural areas, if it is made a project for further modification, then it can also be used in the fields in the coming time.

#### V. ADVANTAGES

- As there is no friction between parts, less maintenance is required.
- It does not cause any environmental pollution.
- As it is working on solar no fuel cost.



- More life of the solar panel.
- As the battery is used for backup it can be run in night also.
- High efficiency.

## VI. APPLICATIONS

- It can be used in the garden at home.
- It can be used in Public Park.
- It can be used in college.
- It can be used in party plots.

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