

# Solar Grass Cutter

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**Abstract-** The aim of this project is to developed new grass-cutting machine that on solar power. It use In farms, homes, and gardens, cutting grass by hand takes a lot of time and effort. To avoid this problem, we are building a grass cutter that operate on solar energy. A solar panel will power the machine, so it doesn't need fuel or electricity from the grid. This makes it cheaper to run and better for the environment. The solar-powered grass cutter will be able to cut grass on different types of land. It will have strong blades and a reliable cutting system to make sure the grass is good for areas that don't have easy access to electricity. This project helps lower costs, saves energy, and is eco-friendly

**Key Words -** solar powered, grass cutter, eco-friendly, solar pane, Etc.

## 1. INTRODUCTION

Many people are looking for ways to use cleaner energy sources. Petrol and diesel are expensive and pollute the environment. To help solve this problem, we created a grass cutter that runs on solar power. Solar energy is available almost everywhere and is good for the environment.

Our goal is to make lawn maintenance easier and more affordable for people. Due to the continuous increase in the cost of fuel and the effect of emission of gases from the burnt fuel into the atmosphere, this necessitated the use of the abundant solar energy from the sun as a source of power to drive a lawn mower.

A solar powered lawn mower was designed and developed, based on the general principle

The solar powered lawnmower is operated by the switch on the board which closes the circuit and allows the flow of current to the motor which in turn drive the blade used for mowing. The sun provides sustainable amount of the energy used for various purposes on earth for atmospheric system. The difference is just the application of the energy source. It is assumed that a lawnmower using solar as the energy source will

address a number of issues that the standard internal combustion engine and electric motors lawn mowers do not

### 1.1 Objectives of solar grass cutter

- Cost efficient
- Pollution free
- Maintants is low

### 1.2 Component used in solar grass cutter

- Solar paner
- Battery
- Dc motor
- Cutter blade
- Wheels
- Pvc pipes
- Coupling
- switch

## 2.SCOPE OF PROJECT

This review paper examines the evolution, design principles, and technological progress surrounding solar-powered grass cutters. Its main aim is to assess their practicality, operational efficiency, and ecological advantages as alternatives to traditional fuel-powered lawn mowers. The paper covers various aspects such as power supply systems, cutting blade configurations, automation capabilities (including robotic models), energy storage technologies, and the performance of solar panels. It also highlights recent advancements, key challenges, economic viability, and the potential for adoption in both domestic and commercial landscaping applications. Furthermore, the study underscores the importance of sustainability, user safety, and the contribution of solar grass cutters to the broader use of renewable energy.

### 3. METHODOLOGY

- Design and development
- Market analysis
- Fabrication
- Road Testing and performance
- Result and Discussion

#### 3.1 parameters considering developing low cost

the parameter consider for reducing cost in our solar grass cutter we use PVC pipes due to it required less cost . solar panels are use in machine due to which not required any fuel and electricity.

##### 1. Solar panel



FIGURE 1.6 Solar panel

First the solar cells are joints with the use bus bar and flux. Then according to use of solar panel, series and parallel connection are given to the point Solar panel is used to save the electric energy .It is also use store the energy with the help of battery Sunlight hits the solar Cell Photons from the light knock electrons loose from atoms in the cells This creates a flow of electricity, which can be used immediately or stored in batteries.

##### 2. Battery



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

##### 3. 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 bo

##### 4.blade



We have used the homemade blade. In which there are four wings.

##### 5.pvc pipes



We have used the PVC pipe to make the body structure. By using PVC pipe the weight of the structure reduce, so the body moves easily.

- Solar Grass cutter



#### 4.WORKING

A solar grass cutter works by using a solar panel to convert sunlight into electrical energy, which is then stored in a rechargeable battery. This stored energy is used to power a DC motor connected to a rotating blade. When the motor runs, the blade spins at high speed and cuts the grass as the machine moves across the lawn.

#### 5.RESULT

The solar-powered grass cutter has been successfully made, and it works well. It will be helpful for others who want to improve the project in the future. This machine is good for everyday people because it has many benefits. It doesn't need fuel, so there is no cost for fuel, no pollution, and no leftover waste. It also has fewer moving parts, so it doesn't wear out quickly. It runs on solar energy, so it's easy to use and gives a good amount of physical activity.

The machine can charge its batteries while it's being used, which makes it even better for cutting grass. It can also be used at night because the batteries can be charged during the day.

#### 6.CONCLUSION

In the world today, all machines are designed with the aim of reducing or eliminating green house gas emissions which is the major causes of climate change. This solar powered grass cutter will meet the challenge of environmental production and low cost of operation

since there is no cost for felling. A solar powered lawn mower has been developed for the use of residences and establishments that have lawns where tractor driven mowers could not be used. The machine's capacity is adequate for its purpose. The machine has proved to be a possible replacement for the gasoline powered grass cutter. In the presented paper provides the fabricated information about the Fabrication of Solar grass Cutting Machine" which was designed such that the solar plate generates solar energy and utilizing this energy for running the grass cutter motor. Integrating features of all the hardware components used have been developed in it. Presence of every module has been reasoned out and placed carefully, thus contributing to the best working of the unit. Secondly, using highly advanced IC's with the help of growing technology, the project has been successfully implemented. Thus the project has been successfully designed and tested.

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