**REVIEW ON SOLAR ELECTRIC GRASS CUTTER**

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**ABSTRACT:**

A solar grass cutter is a machine that uses blades to cut a lawn at an even length

Power consumption becomes essential for future. Solar grass cutter is a very

Useful device which is very simple in construction. It is used to maintain and

Keep lawn in gardens, school, colleges etc.We have made some changes in the existing machine to make its application easier at reduced cost. Our main aim in pollution control and unskilled person can operate easily also. Maintain a lawn verifying and uniform surface look. In our project solar electric grass cutter is used to cut the different grasses for the different applications. This project of a solar powered electric grass cutter will receive the consumers from moving their own lawn and will reduce both environmental and noise pollution. The system uses the Arduino, micro-controller, battery, DC motor, ultrasonic sensor, relay board, Bluetooth module Arduino, DC to DC converter etc.

**1. INTRODUCTION**

A lawn mover is a machine or device utilizing one or more revolving blades to

Cut a grass surface to an even height. The first lawn mover was invented and

Patented in 1830 by EDWIN BUDDING outside.

Gloucestershire, England. This first mover was primarily designed to cut grass on sports grounds, cemeteries, and extensive gardens budding first machine was 19 inches wide. The different types of grass cutter are available in market like electrical grass Cutter and gasoline grass cutter. Electrical grass cutter – An electrical grass cutter is working on electricity through electrical motor. In electrical grass cutter used a single phase induction motor so it is required AC power supply. This cutter has supply through long wires so it is difficult to operate.

Gasoline grass cutter – In gasoline grass cutter required a fuel for running a

Cutter, the gasoline grass cutter makes the cutting work easier and save lots of

Time in garden care or landscape maintenance, light duty, weed cutting.

**2. OBSERVATION ISSUES OF ELECTRIC GRASS CUTTER**

Expensive.

Corded Models have limited reach and can cause a tripping hazard.

Electrical problems can occur in wet areas.

Cordless models have a shorter runtime.

Cannot handle tall or thick areas of grass efficiently.

Required long extension of wire.

In electric grass cutter use a single phase induction motor, the weight of

 device is more so it is more difficult to operate.

**2.1 OBSERVATION ISSUES OF GASOLINE GRASS CUTTER**

In a gasoline grass cutter there is a required a fuel for running a cutter.

Due to the engine it’s produced gases so it increases pollution and also it has noisy Operation.

**3. OBJECTIVE**

The project aims to use renewable energy sources like solar electricity and to

Operate a cutter equipped with various accessories and to cut and gather lawn

Grass. The DC motor, powered by a battery, where the charge is kept via a solar

Panel, has a spiral shaped grass cutting blade. The reason behind making this

Project is to save electricity by using solar energy and reducing man power.

**4. LITERATURE SURVEY:**

 According to Amit Ankit Gupta, Kishan Narayan Birla, Renu Rani in title “Solar Grass cutter Using Ultrasonic Sensor” In this project we are using

Microcontroller for controlling various operation of grass cutter. Grass cutter operates automatically by the help of sensor which helps to detect the obstacle and avoiding collision. Ms.Y. Rutuja in “Automatic Solar grass Cutter”, the system has a smart functionality that allows it’s to cover the complete area of a lawn or garden by detecting corners using ultra sonic sensors and moving in a raster manner in order to cover the entire area. Jatinder K, AbhishekT, Ravinder S, RahulK. in “Manufacturing Of solar Grass cutter” The design objective is to

Come up with a mover that is portable, durable, easy to operate and maintain.

**5. METHODOLOGY**

**BLOCK DIAGRAM**



**6. WORKING**

The working of solar electric grass cutter, it has panels mounted in a particular

Arrangement in such a way that it can receive solar radiation with high

Intensity easily from the sun. These solar panels convert solar energy into

Electrical energy now this electrical energy is stored in batteries by using a solar

Charger. The main function of solar charger is to increase the current from the panels while batteries are charging, it also disconnects the solar panels from the

Batteries when they are fully charge and also connect to the panels when the

Charging in batteries is low. The motor is connected to the batteries through the connecting wires. it starts and stops the working of the motor, from this motors the powered transmits to the mechanism and this makes the blade to slide on the fixed blade and this makes the cut out the grass. The solar electric grass cutter operated by Bluetooth module / wireless remote, moves forward and backward direction by given command of user, contains four motors which are connected by separate wheels and one motor for grass cutter. Battery gives power to vehicle motor and also grass cutter motor in inner part of device have a set of blades which cut the grass to avoid any damage of blade to the object / human/ animal, ultrasonic sensor is used. Micro controller turns the vehicle until it gets clear of the object and moves the grass cutter again in forward direction.

**7. ADVANTAGES**

1. It is pollution free.

2. No required any external supply.

3. It is economical.

4. No any fuel cost.

5. Non skilled person can also operate.

6. Easy to move from one place to another place.

7. Freedom from long extension wires.

**DISADVANTGES**

1. More time required for charging the battery.

**APPLICATIONS**

1. Agriculture.

2. Playgrounds.

3. House gardens.

4. Small farms.

5. Colleges.

**8. CONCLUSION**

In the world today, all machines are designed with the aim of reducing or

Eliminating greenhouse gas emissions which is the major causes of climate

Change. The solar powered grass cutter will meet the challenge of environmental production and low cost of operation since there is no cost for fuelling. A solar electric grass cutter has been developed for the use of residence and establishment that have lawns where tractor driven movers could not be use. The machine capacity is adequate for its purpose the machine has proved to be a possible replacement for the gasoline powered grass cutter. The solar grass

Cutter which was designed such that the solar plate generates solar energy and

Utilizing this energy for the running the grass cutter motor & also for running

The wheels. Integrating futures of all the hardware components used have been

Developed in it. Presence of every module has been reasoned out and placed

Carefully.

**9. FUTURE SCOPE**

This can be further improved by incorporating the following modification to

Obtain better result. The mechanism given expected efficiency. This efficiency

Can be increased by using some other mechanism and speed of the motor is high because we have used light material and design of blades should be done based on types of grass used to cut. In future we can modify this model and improve its efficiency and make it easier to use. We can limit the energy consumption by using high rated or efficiency motor and parts. Finally, this project may give an inspiration to the people who can modify and can obtain better results

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