

SOLAR GRASS CUTTER

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Abstract :- Solar grass cutter is mechanical device used for cutting grass with the help of electrical instated energy From the time immemorial, the sun is the major source of energy for life on earth used for heat and lighting. Nowadays, solar energy has been known as a renewable energy source This paper introduces a new development of grass cutter, named as Smart Solar Grass Cutter, by using solar irradiance is primary energy source with the presence of a solar panel. This grass cutter prototype is developed to reduce air pollutant and improve the current design specifically the blade position based on the previous study.

Keywords:- Solar power, solar energy, battery, motor.

I. INTRODUCTION

A solar powered lawn mower was designed and developed, based on the general principle of mowing. The designed solar powered lawnmower comprises of direct current (D.C) motor, a rechargeable battery, solar panel, a stainless steel blade and control switch. Mowing is achieved by the D.C motor which provides the required torque needed to drive the stainless steel blade which is directly coupled to the shaft of the D.C motor. 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 battery recharges through the solar charging controller. Performance evaluation of the developed machine was carried out with different types of grasses.

The solar powered lawnmower will help to reduce air pollution. Thus solar grass cutter is used



1.1 RELATED WORK

A solar grass cutter dc motor is used for 12v battery is connected to the dc motor. The system uses 12v batteries to power the grass cutter motor. We also use a solar panel to charge the battery so that there is no need of charging it externally.

II. METHODOLOGY

10 watt solar panel is used to charge the battery which are rechargeable. The solar panel gives 18v and 580mA. These solar panel converts solarenergy into electrical energy into electrical energy is stored in batteries byusing a solar panel. The main function of solar charger is to increase the current from the panel from the battery are charging. It is also disconnect the solarpanel from the battery when they are fully charged and also connects to the panelfrom the battery are charging. The motor are connected to battery through the connecting battery. Between these two mechanical circuit switch are provided to start and stop the motor. From these motor flexible Blade these blade cut the grass.

2.1 SOLAR ENERGY

Solar cell catch the sun energy and stored these in battery. It can be tapped directly from solar radiation in the form of thermal, thermodynamics and photovoltaic energy The contribution of these sources in the total consumption of energy in the world is about 15%.The scope for the application of solar energy now stands greatly enhanced through intensive research and development carried out all over world.

III. ADVANTAGES

- Compact size and portable.
- Solar charger easier to used.
- No pollution.
- No fuel cost.
- Easy to from one place to another place.
- Less wear and tear.
- Operating principal is simple.
- High efficiency.
- Design of it is compact.
- More life of the solar panel.
- Do not cause the environment pollution.

3.1 LIMITATIONS

- Manually operated.
- Difficult to operate in rainy season.
- Blade failure.
- Large time required to remove the grass.

IV. APPLICATION

- For cricket ground.
- College campus.
- All playground.
- It can be used at garden at home.
- It can used in public park.
- It can used in party plots.

V. CONCLUSION

It consumes non-renewable sources of energy so total energy received from sun far exceeds our energy demand. It meant to be an alternate green option to the popular and environment hazardous gas-powered lawn mower and reduces human effort. The non-skilled person also handles it easily. By using simple switches or by predetermine programming it can be easily handled and control within less time span. This paper work has provided us an excellent opportunity and experience, to use our limited knowledge. We gained a lot of practical knowledge regarding, planning, purchasing, assembling and machining while doing this project work. We feel that the project work is a good solution to bridge the gates between institution and industries. Thus we have developed an “solar economical grass cutter” which helps to know how to achieve low cost automation. By using more techniques, they can be modified and developed according to the applications.

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