iJRASET
International Journal For Research in Applied Science and Engineering Technology

INTERNATIONAL JOURNAL FOR RESEARCH

IN APPLIED SCIENCE & ENGINEERING TECHNOLOGY

Volume: 9 **Issue:** VI **Month of publication:** June 2021

DOI: https://doi.org/10.22214/ijraset.2021.35307

www.ijraset.com

Call: 08813907089 | E-mail ID: ijraset@gmail.com

International Journal for Research in Applied Science & Engineering Technology (IJRASET)
ISSN: 2321-9653; IC Value: 45.98; SJ Impact Factor: 7.429
Volume 9 Issue VI Jun 2021- Available at www.ijraset.com

Solar Based Grass Cutter

Nitesh Kumar Sondhiya[1], Roshan Kumar[2], Harshwardhan Meshram[3], Mthlesh Kumar[4], Pankaj Rinhayat, Shivam Namdev[5], Abdul Hameed Khan[6]
[1, 2, 3, 4, 5, 6]*Oriental Institute Of Science And Technology, Bhopal, Madhya Pradesh India*

***Abstract:** As the current problem of environment and noise pollution, we made a small effort to solve this problem. A solar based grass cutter is used to cut the Grass basically in lawn or garden. In this research the proper sizing of solar panel, charge Controller, battery, DC motor were calculated. The maintenance cost has been reduced by using this machine. Proper design of solar panel, battery, charge controller was by catia modelling. Cutting of grass is more time consuming and labour cost. The highly strength blades are used for cutting grass which is powered by DC motor. The present research gives the solution for quick process of cutting grass in order to make environment beautiful.*

I. INTRODUCTION

As grass cutter machine is already available in market but with diesel or petrol-based engine, our main objective is to reduce pollution so our grass cutter should run with non- renewable energy source (Solar energy).

II. METHODOLOGY

In this project we are using a rotary cuter blade. A rotary mower rotates about a vertical axis with the blade spinning at high speed relying on impact to cut the grass. This tends to result in a rougher cut and bruises and shreds the grass leaf resulting in discoloration of the leaf ends as the shredded portion dies. This is particularly prevalent if the blades become clogged or blunt. Most rotary mowers need to be set a little higher than cylinder equivalents to avoid scalping and gouging of slightly uneven lawns, although some modern rotaries are fitted with a rear roller to provide a more formal striped cut. These machines will also tend to cut lower (13 mm) than a standard four-wheeled rotary.

III. COMPONENT OF ATTACHMENT

The main components of the solar powered grass cutter are

A. Solar panels
B. Batteries
C. DC motor
D. Solar charger
E. Mechanism used
F. Circuitry
G. Blades

IV. WORKING OF SOLAR POWERED GRASS CUTTER

1) Coming to the working of solar powered grass cutter, it has panels mounted in a particular arrangement at an angle of 45 degrees in such a way that it can receive solar radiation with high intensity easily from the sun.

1) These solar panels convert solar energy into electrical energy as studied earlier. Now this electrical energy is stored in batteries by using a solar charger.

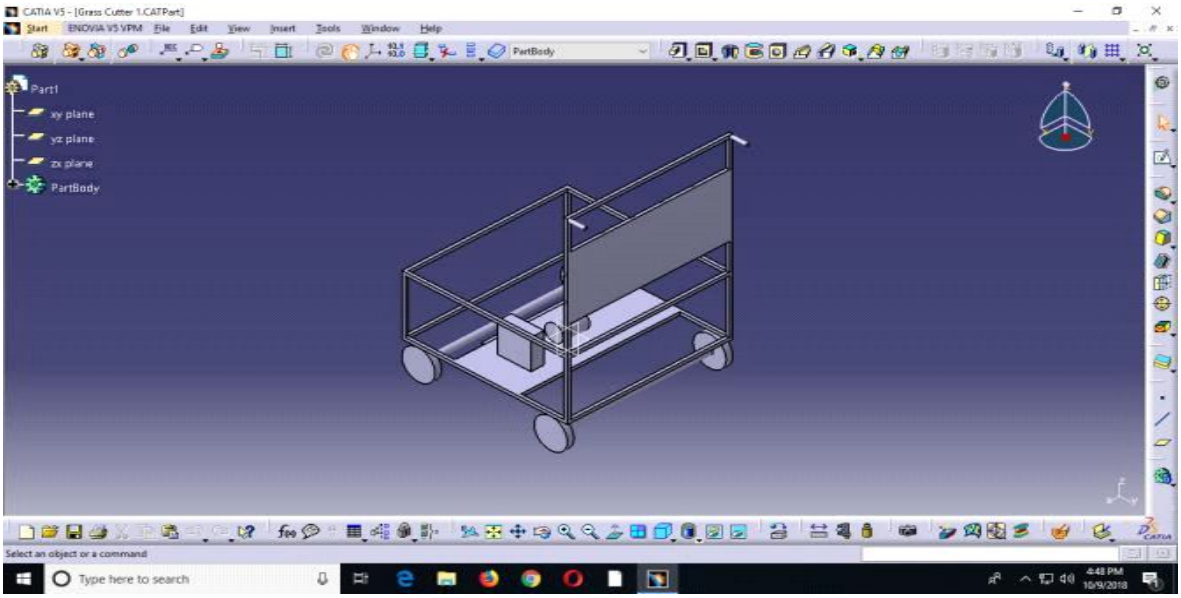
2) The main function of the solar charger is to increase the current from the panels while batteries are charging, it also disconnects the solar panels from the batteries when they are fully charged and also connects to the panels when the charging in batteries is low.

3) The motor is connected to the batteries through connecting wires .Between these a two motor driver is provided. It starts and stops the working of the motor.

4) From this motor, the power transmits to the mechanism and this makes the blade to rotate with high speed and this makes to cut the grass.

©IJRASET: All Rights are Reserved

V. DESIGN



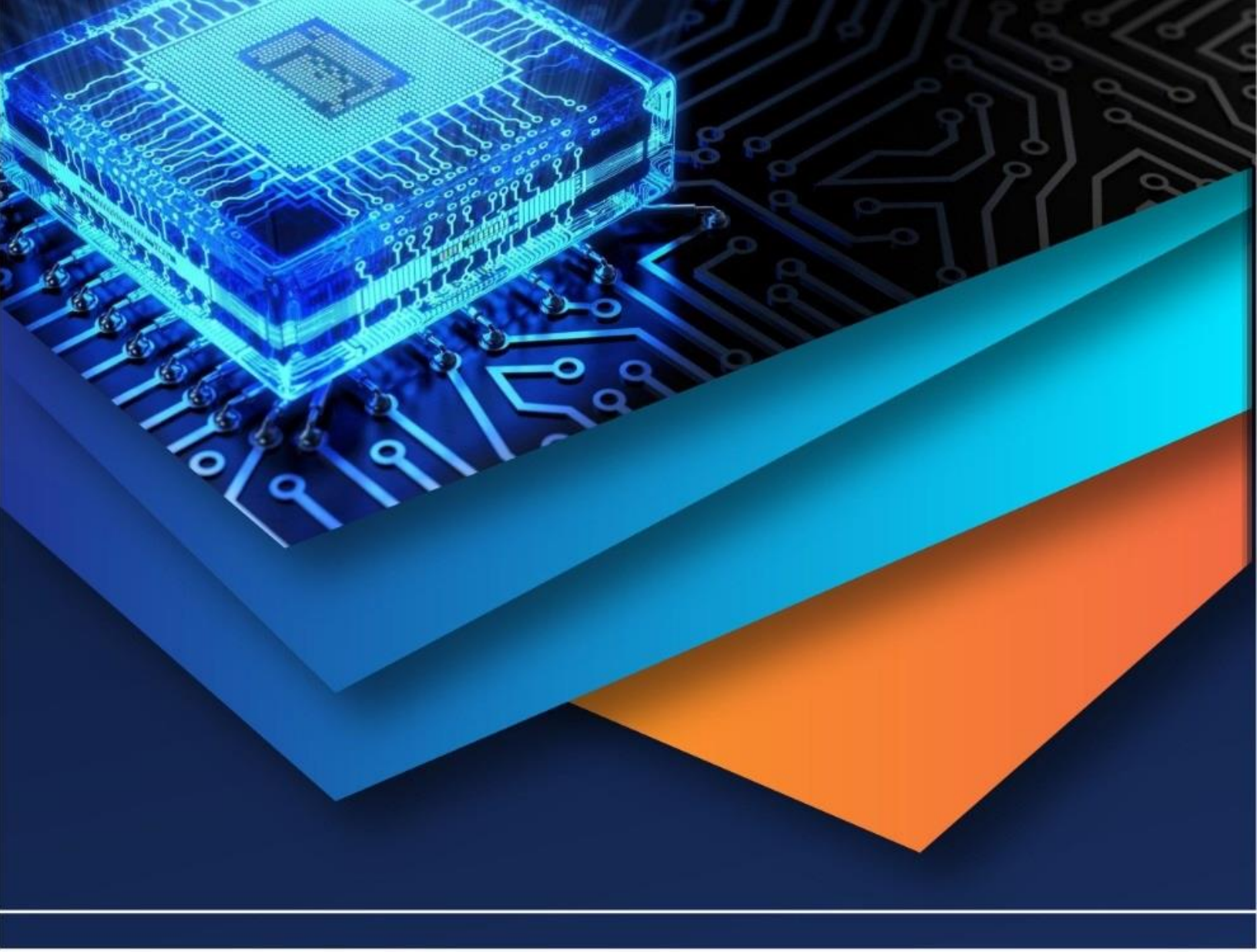
VI. CONCLUSION

The main objective is to make a eco-friendly, easily operated solar grass cutter. It will be used for easy move from one place to another place. It will not create any air pollution and noise. It is easy to operate and Zero emissions and zero waste of conventional sources It is Cost saving and less maintenance. Future scope will be for designing automated solar powered grass cutting machine.

REFERENCES

[1] US RE 8560, Passmore, Everett G., "Improvement in Lawn-Mowers", published 23 February 1869, issued 28 January 1879; see pg 1, col 2. For a copy, see Google Patents copy. This source indicates the patent number as "6,080". According to "British patent numbers 1617 - 1852 (old series)", the patent number would have been assigned sometime after 1852 and taken the form of "6080/1830".
[2] Ernest L. Hall. A Survey of Robot Lawn Mowers, Available from: Ernest L. Hall Retrieved on: 06 October 2015
[3] Technical Solutions, J. Hammond and R. Rafaels, “Build the Lawn Ranger,” Radio Electronics, June 1990, pp. 31-49.
[4] Robert Zondlo, U.S. Patent 5,461,292, Remote controlled guidance system for working vehicle, October 24, 1995.

©IJRASET: All Rights are Reserved



10.22214/IJRASET

45.98

IMPACT FACTOR: 7.129

IMPACT FACTOR: 7.429

INTERNATIONAL JOURNAL FOR RESEARCH

IN APPLIED SCIENCE & ENGINEERING TECHNOLOGY

Call : 08813907089 (24*7 Support on Whatsapp)