IJARSCT
ISSN (Online) 2581-9429
International Journal of Advanced Research in Science, Communication and Technology (IJARSCT)
International Open-Access, Double-Blind, Peer-Reviewed, Refereed, Multidisciplinary Online Journal
Impact Factor: 7.301
Volume 3, Issue 16, May 2023

Bluetooth Operated Solar Grass Cutter

Rishikesh Waliokar, Rutuja Mutakekar, Vishnudas Nangare, Pinky Patel
BE, Mechanical, Sinhgad College of Engineering, Pune, India

Abstract: *Rapid growth of various high-tech tools and equipment's makes our jobs done comfortable and sophisticated. Bluetooth operated solar grass cutter is mainly used for cutting grass of the lawn or ground which will mainly operate on solar power energy for that we are using solar panel. The project aims at fabricating a grass cutting machine system which makes the grass cutter-based Motor running through solar energy. 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 grass cutter. A solar powered grass cutter is designed and developed, based on the general principle of mowing. The bluetooth operated solar grass cutter is operated by the mobile phones by connecting it with the help of Bluetooth to the microcontroller. Performance evaluation of the developed machine will be carried out with different types of grasses. The design objective is to come up with a mower that is portable, durable, easy to operate. It also intends to develop an automatically operated lawn mover with less efforts. The main target of the machine is to reduce human efforts. This machine is operated with the help of Bluetooth. This design contains a Microcontroller ATmega 16, Sensors, Bluetooth Module, Solar panel, Battery, Motors.*

Keywords: Automatically, Solar Panel, ATmega 16, Bluetooth, Microcontroller

I. INTRODUCTION

The first silicon photovoltaic cell was created by Bell Labs in 1954. While solar energy has been gathered and transformed to usable energy in a few different ways, solar power became an efficient power source for long-term electricity devices only in 1954. In short, most of the solar panels currently available can turn sunlight into solar energy in excess of 20% efficiency, a constant figure at a 4% efficiency, the first solar cells can convert sunlight into electricity. Nowadays, pollution is the major issue in the universe. In case Gas powered lawn mowers due to the emission of gases it is responsible for pollution. Also the cost of fuel is increasing hence it is not efficient. Traditionally, lawn mowers are often clunky pieces of machinery that involves a lot of strength and energy to use. These present and high-tech grass cutters however, have been creatively designed to make the whole landscaping process much simpler and easier for the user. From robotic lawn mowers that can incredibly cut the grass for you to those that are cleverly powered by solar energy, these convenient and easy-to-use grass-cutting devices make straightening up your lawn more pleasing. The Grass Cutters use cordless electric mowers, trimmers and blowers powered by clean renewable energy generated by solar panels mounted on our trucks and trailers. We also use reel push mowers for smaller hard to access areas like pathways and parks. There's no oil, and no pollution. Just clean air, less noise, and green grass. Solar energy was used for textiles, farm goods, food storage and so on directly. This decreases the power, labor, and pollution of human beings. This device is Bluetooth operated. In addition to photovoltaics, solar energy is frequently used to produce energy in thermal systems within and in liquid regions. The solar energy may be used by residential and corporate owners to install solar water heating and to design solar power.

1.1 Problem Statement

Pollution is a major issue for whole world. In gas powered, lawn mover's due to the emission of the gases it is responsible for pollution. Also, the cost of the fuel is increasing, there are the chances of accidents while using lawn mover. Hence it is not efficient. So, it is proposed to introduce Bluetooth operated solar powered grass cutters to reduce pollution and accidents caused by the movers.

DOI: 10.48175/IJARSCT-10951

IJARSCT
ISSN (Online) 2581-9429
International Journal of Advanced Research in Science, Communication and Technology (IJARSCT)
International Open-Access, Double-Blind, Peer-Reviewed, Refereed, Multidisciplinary Online Journal
Impact Factor: 7.301
Volume 3, Issue 16, May 2023

II. LITERATURE SURVEY

Mentioned are some of the literature surveys from previous published papers

Krunal Mudafale, et al. "Solar Operated Smart Crop Cutter." International Research journal of Modernization in Engineering Technology and Science ,May(2022).

This paper is proposed to solve the energy related problems while crop cutting. The result of the project is the machine is regarded highly efficient and adaptable to a variety of cutting circumstances.

Tanmay Bhalodi et al. "Environmental Friendly Solar Grass Cutter." International Journal of Research in Engineering, Science and Management, July(2020)

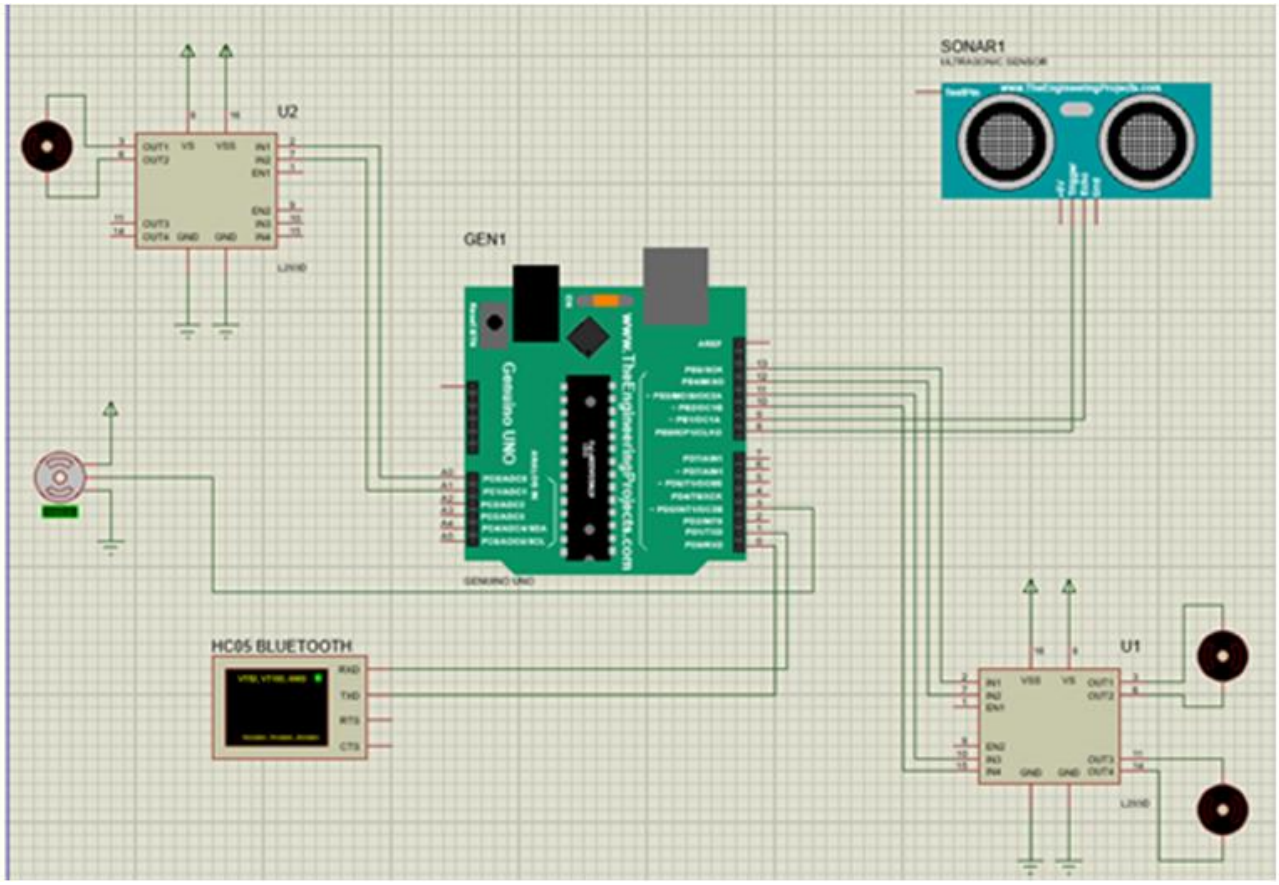
In this project IR Proximity sensor are used to detect and avoid object.

The movement of the machine is totally controlled by automatic mode and manual mode. The main target of the machine is to reduce human effort.

Ajay D. Shah et al. "Solar Powered Intelligent Grass Cutter Robot." IJSDR (2020)

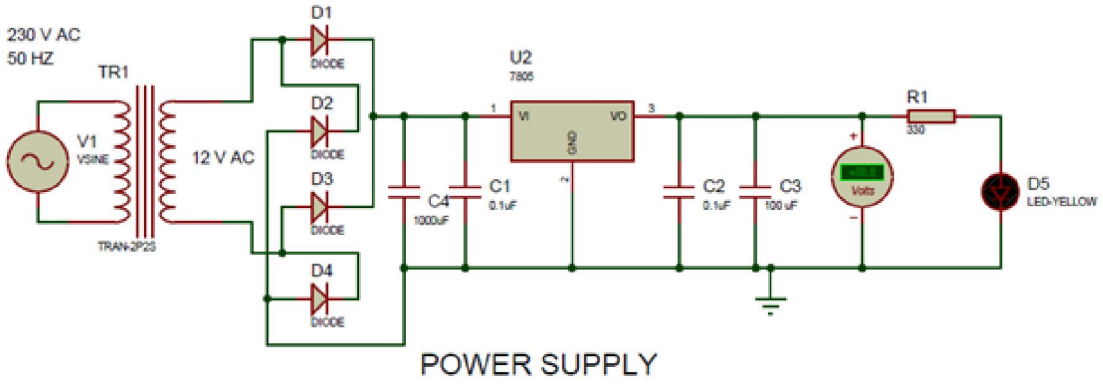
This paper presents the implementation details of an intelligent autonomous grass cutter that will provide the user the ability to cut grass with two inputs length and breadth. After turning on the system, the user has to enter the length and breadth of the plot, and then grass cutter robot will automatically cut the grass in calculated area. In this project we have designed Arduino controlled grass cutter that eliminated the need of human interruption. The project documentation includes all major design aspect.

III. DESIGN



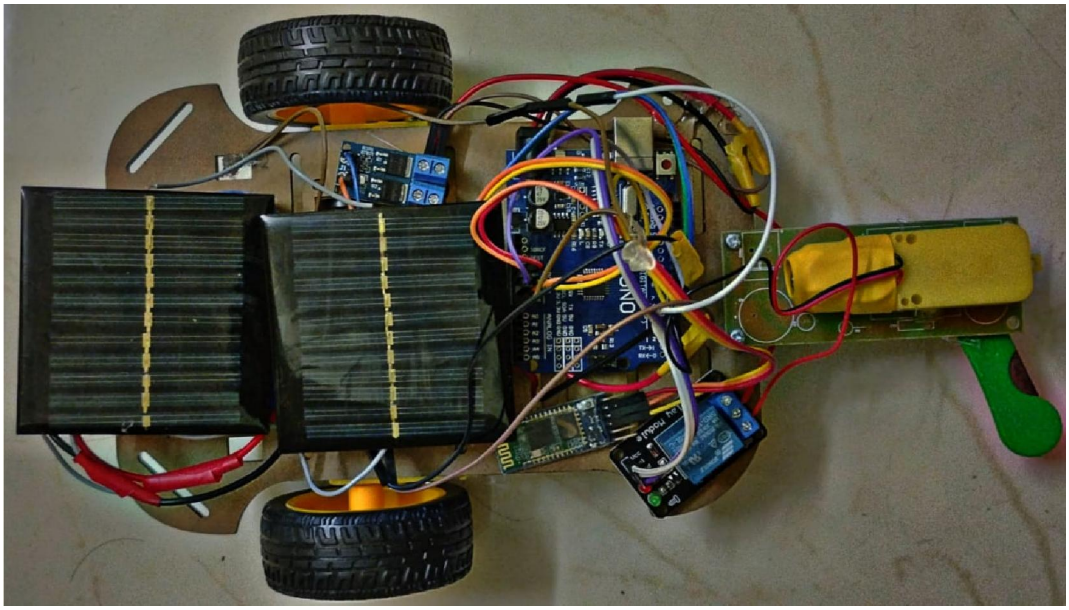
IJARSCT
ISSN (Online) 2581-9429
International Journal of Advanced Research in Science, Communication and Technology (IJARSCT)
International Open-Access, Double-Blind, Peer-Reviewed, Refereed, Multidisciplinary Online Journal
Impact Factor: 7.301
Volume 3, Issue 16, May 2023

POWER SUPPLY DESIGN

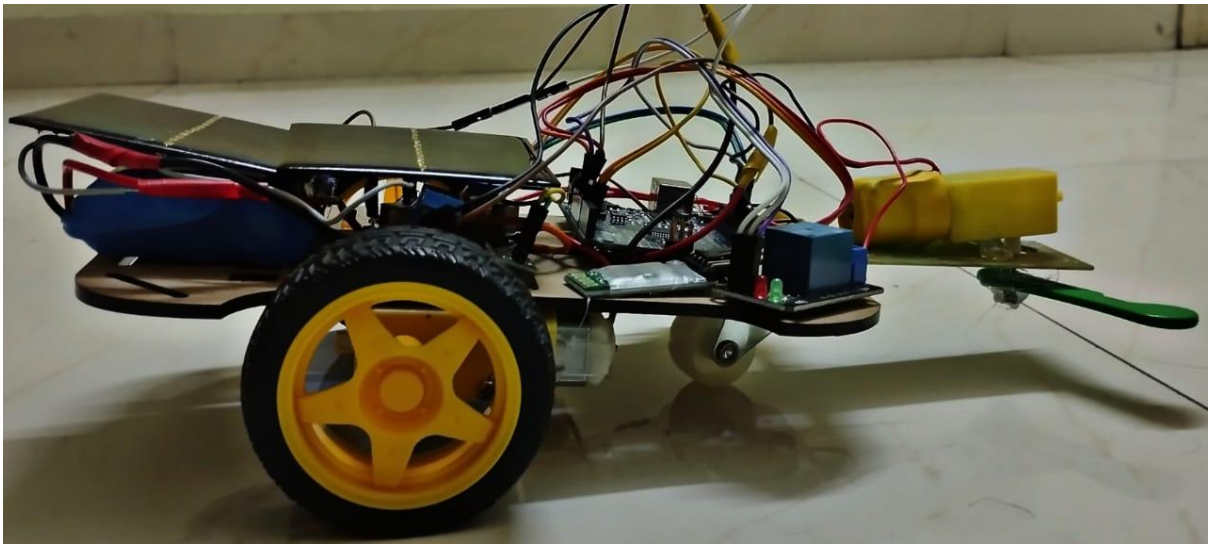


Explanation

A bluetooth operated solar grass cutter is a automatic device used to cut the lawn, by reducing human efforts. In this machine we are going to use solar panels which uses solar energy which is abundantly available, which will reduce pollution caused by using convenient fuel operated grass cutters. This grass cutter is eco-friendly and can be used for house hold purpose. It will detect the obstacles in its path to avoid any kind of harm to human, animals and the mover itself. It is safe and convenient to use, we can operate it from a safe distance by connecting to our mobile phones by bluetooth. The main aim of this project is to make a bluetooth operated solar powered grass cutting which will helps to control the mover by mobile phones. The purpose is to avoid energy crisis in India and reduces the human efforts, operating cost and maintenance cost. Also solar based grass cutter keeps the environment clean and healthy. It is used for cutting different types of grasses for various applications. The whole machine operates on the solar energy stored in battery. The IR sensor is used for the obstacle detection to avoid any damage of the human, object and animal.



IJARSCT
ISSN (Online) 2581-9429
International Journal of Advanced Research in Science, Communication and Technology (IJARSCT)
International Open-Access, Double-Blind, Peer-Reviewed, Refereed, Multidisciplinary Online Journal
Impact Factor: 7.301
Volume 3, Issue 16, May 2023



IV. CONCLUSION

Our project entitled Fabrication of solar powered grass cutter is successfully completed and the results obtained are satisfactory. This project is more suitable for a common man as it is having much more advantages i.e., no fuel cost, no pollution and no fuel residue, less wear and tear because of less number of moving components and this can be operated by using solar energy. Manual work is removed by the implementation of Bluetooth control. The lawn mower can be further developed by implementing sensors so that any obstacles in the path can be sensed. Not only skilled but unskilled persons can also operate the device easily using an application in mobile phones and can control it in simple touch. Apart from fulfilling the basic job, this model is meant to be an alternate green option to the present available machines. In a nutshell, it is an economical method as compared to an existing method if it is produced on large scale. Also it provides flexibility to the user controlling it.

ACKNOWLEDGMENT

We would like to express our sincere thanks to **Prof. M.M. Joshi**, Project Coordinator, Department of Mechanical, for his constant encouragement in the fulfillment of the project work. We would also like to express our sincere thanks to **Dr. A .P. Pandhare, Head** Department of Mechanical for his co-operation and useful suggestions. We would also like to thank **Dr. S. D. Lokhande, Principal, Sinhgad College of Engineering.** He always remains a source of inspiration for us to work hard and dedicatedly.

It is the love and blessings of our families and friends which drove us to complete this project work.

Thank you all!

REFERENCES

[1] Krunal Mudafale, et al. “Solar Operated Smart Crop Cutter. “International Research journal of Modernization in Engineering Technology and Science May(2022)

[2] Tanmay Bhalodi et al. “Environmental Friendly Solar Grass Cutter. “International Journal of Research in Engineering, Science and Management, July(2020)

[3] Ajay D. Shah et al. “Solar Powered Intelligent Grass Cutter Robot.”IJSDR” (2020)