IJIRCCE

e-ISSN: 2320-9801 | p-ISSN: 2320-9798

INTERNATIONAL JOURNAL OF INNOVATIVE RESEARCH

IN COMPUTER & COMMUNICATION ENGINEERING

Volume 10, Issue 5, May 2022

INTERNATIONAL STANDARD SERIAL NUMBER INDIA

Impact Factor: 8.165

International Journal of Innovative Research in Computer and Communication Engineering

| e-ISSN: 2320-9801, p-ISSN: 2320-9798| www.ijircce.com | |Impact Factor: 8.165 |

|| Volume 10, Issue 5, May 2022 ||

| DOI: 10.15680/IJIRCCE.2022.1005039|

Grass Cutter Using ATMEGA Technique

Mahesh Kale, Pranav Kadam, Prof. Meenakshi Annamalai, Prof. T .V Kafare

Dept. of Electronics and Telecommunication, Bhivarabai Sawant Institute of Technology & Research, Wagholi, Pune, India

Dept. of Electronics and Telecommunication, Bhivarabai Sawant Institute of Technology & Research, Wagholi, Pune, India

Dept. of Electronics and Telecommunication, Bhivarabai Sawant Institute of Technology & Research, Wagholi, Pune, India

Dept. of Electronics and Telecommunication, Bhivarabai Sawant Institute of Technology & Research, Wagholi, Pune, India

ABSTRACT: This project describes the solar powered automated grass cutter machine which makes the grass cutter machine running through solar energy . The proposed system design eliminate the human efforts in grass cutting field such as lawn. The solar grass cutting machine is a robotic vehicle powered by solar energy that also avoids obstacles and is capable of automated and manual grass cutting. The system uses 12 volt battery to power the vehicle movement motor as well as the grass cutter motor. A solar panel is used to charge the battery so that there is no need of charging it externally. The movement of machine is totally controlled by automatic mode and manual mode. 'Bluetooth controller 'play store application runs this machine movement and direction through an android application. The main target of this machine is to reduce human efforts.

KEYWORDS: ARDUINOUNO, ATMEGA16, BLUETOOTH MODEL, BUZZER, PHOTOVOLTAICS, LAWN MOWER, DESIGN AND FABRICATION.

I. INTRODUCTION

When a grass cutter is being moved by human effort and using of fossil fuels is getting outdated method in these days, while people are getting aware about the solar energy. Cutting grass cannot be easily accomplished by elder, younger. Grass cutter moving with engine creates noise pollution due to loud engine and local air pollution deu to the combustion in the engine also a motor power engine requires a periodic maintenance such as changing the engine oil, even though electric solar grass cutter are friendly to environment.

1.1Problem statement

We usually see the grass cutter machine was used at the housing park and residence bungalow the commercial are like industry area, we usually see the manually and conventional method was used grass cutter machine was used the fuel as source of power. The cost of fuels which are being used for cutters are also increasing. Thus our aim is to study alternative source of power like solar energy. In addition to this modification will be done to the blade to use different material and non hazardous to the operator. Thus providing user friendly and pollution free lawn mowers.

II. LITERATURE SURVEY

[1] 'Vicky Jain, SagarPatil, PrashantBagane, Prof. Mrs. S. S. Patil ' Solar Based Wireless Grass Cutter, International Journal of Science Technology and Engineering, Vol. 2, 2016, 576-580.

They have prepared wireless grass cutter. They have used solar panel so it is not required to charge battery externally and battery is continuously charged at constant voltage when grass cutter is in working. The battery is getting charged by using day light and we can use it as per our convenience . Because of two DC motor both forward and backward motion of grass cutter can simultaneously possible.

| e-ISSN: 2320-9801, p-ISSN: 2320-9798| www.ijircce.com | |Impact Factor: 8.165 |

|| Volume 10, Issue 5, May 2022 ||

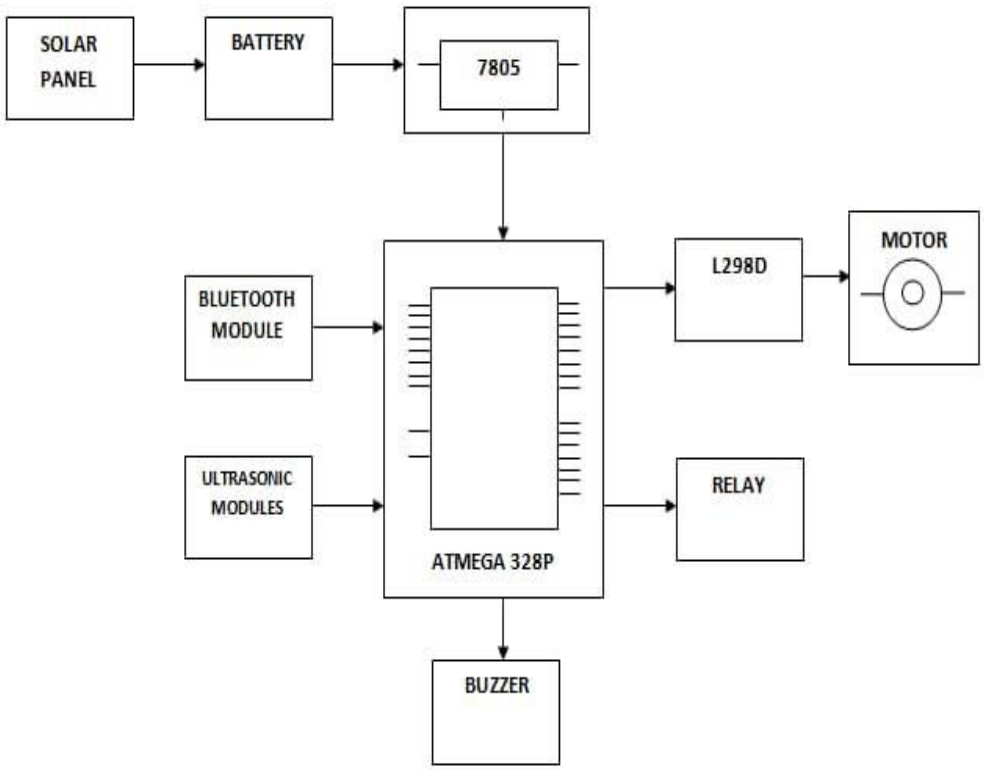
| DOI: 10.15680/IJIRCCE.2022.1005039|

[2] 'Ashish Kumar Chaudhari, YuvrajSahu,
Prabhat Kumar Dwivedi, Harsh Jain' Reference Book:-Experimental Study of Solar Power Grass Cutter Robot, , International Journal of Advance Research and Innovative Ideas in Education, Vol. 2, 2016, 68-73.
In this paper author explained that solar plate which is placed above the grass cutter generates solar energy and use this energy for working the grass cutter. Also, using driver circuit for controlling speed of motor as per the requirement. For preventing battery from overcharging and over discharging regulator is placed into the system and it should be placed in series. They have provided LCD display unit which displays voltage generated during solar rays trapping.

[3] 'T. Karthick, S. Lingadurai, K. Muthuselvan, M. Muthuvanesh, C. PravinTamilselvan'
Grass Cutting Machine Using Solar Energy, International Journal of Research in Mechanical, Mechatronics and Automobile Engineering, Vol. 2, 2016, 1-5.
In this paper author fabricated grass cutting machine with rotary blades by using solar energy. The solar energy is trapped in the photovoltaic cell to generate electricity. The cells may be grouped in the form of panels or arrays. Solar panel is placed such that to absorb high intensity from sun and it will incline at 450. The main function of solar charger is increased current during batteries are charging and also disconnect when they are fully charged. By considering ground clearance they can adjust the height of grass.

[4] 'PrafulUlhe, Manish D. Inwate, Fried D.Wankhede, Krushnkumar S. Dhakte'
Modification of Solar Grass Cutting Machine, International Journal for Innovative Research in Science & Technology, Vol. 2, 2016, 711-714 In this paper they have prepared manually operated grass cutter with spiral roller blades due to spiral blades increases the efficiency of cutting. For adjusting the height reel cutter is component placed on grass cutter. The battery can be charged during working conditions and it also having AC charging. For collection of cut grass a box is placed over grass cutter so the cut grass put outside the lawn. It is having light in weight and compact in design

.III. BLOCK DIAGRAM



3.1 Atmega 328p

Fig. 1: Block diagram of Solar powered automated grass cutter machine. This block diagram consist of Atmega328 at the center and controlling all the operation in this Solar powered automated grass cutter machine. The Atmega328 useful for it's low power consumption feature versus processing speed .also the atmega 328 has ADC converter on its

| e-ISSN: 2320-9801, p-ISSN: 2320-9798| www.ijircce.com | |Impact Factor: 8.165 |

|| Volume 10, Issue 5, May 2022 ||

| DOI: 10.15680/IJIRCCE.2022.1005039|

chip it helps to convert analog quantity into digital domain The ADC has 6 channel so we can take samples from eight terminal.

3.2 Ultrasonic Sensor

The ultrasonic sensor used here performing function of continuous monitoring of surrounding
To detect an obstacle such as human, animals etc.
T he ultrasonic sensor basically works on principal of SONAR.

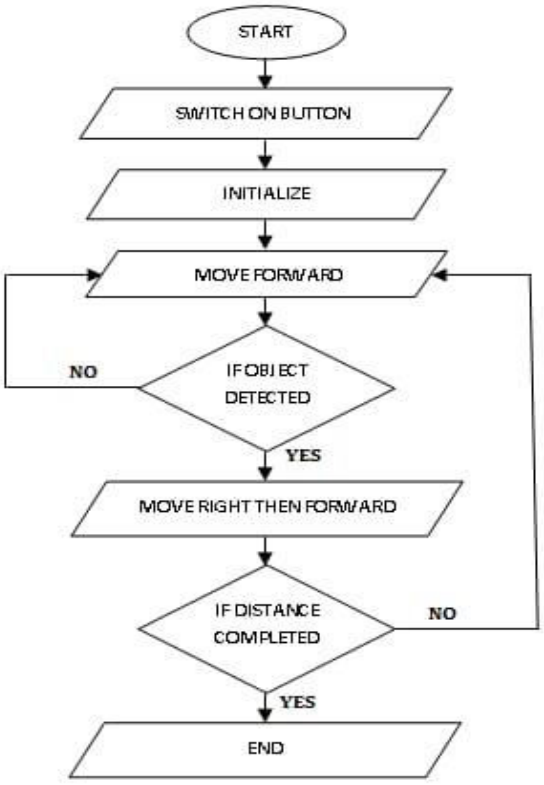
A solar panel (**photovoltaic panel**) is a packaged interconnected assembly of solar cells, also known as *photovoltaic cells*. These solar panel being used as an system which can be used for generating electricity and supply for usage in commercial and residential use.
Because a single solar panel can only produce a limited amount of power, many installations contain several panels. The photovoltaic system consist of solar panels in an array including battery

Voltage regulator

package and with several fixed output voltages, making them useful in a Wide range of applications. It can be used as used The LM78XX/LM78XXA series of three-terminal positive regulators are available in the TO-220/D-PAK as fixed output regulator, current regulator, regulated dual supply.

If proper heat sinking is provided, they can deliver over 1A output CurrentThe LM78XX/LM78XXA series of three-terminal positive regulators are available in the TO-220/D-PAK package and with several fixed output voltages, making them useful in a Wide range of applications. It can be used as used as fixed output regulator, current regulator, regulated dual supply. If proper heat sinking is provided, they can deliver over 1A output Current

Flow Chart



| e-ISSN: 2320-9801, p-ISSN: 2320-9798| www.ijircce.com | |Impact Factor: 8.165 |

|| Volume 10, Issue 5, May 2022 ||

| DOI: 10.15680/IJIRCCE.2022.1005039|

IV. CONCLUSION

This research shows the implementation of smart phone operated grass cutter. This grass cutter can be operated using android smart phone within a 10 meter range. The user can perform horizontal and vertical movement of grass cutter using android application in smart phone. This system uses 12V 7.5AH lead acid battery. This battery can be charge by solar energy. To charge this battery the 12V, 10Watt solar panel is connected with this system. This system is cheaper, rugged and durable.

REFERENCES

[1] Tao Liu, Bin Zhang, JixingJia,Electromagnetic navigation system design of thegreen house spraying robot, IEEE(2014).
[2]. GholapDipak Dattatraya1, More VaibhavMhatardev, LokhandeManojku-mar Shrihari, Prof. Joshi S.G Robotic Agriculture Machine, International Journal of Innovative Research in Science, Engineering and Technology, Volume 3, Special Issue 4, April 2014.
[3]. SajjadYaghoubi,Negar Ali Akbarzadeh, ShadiSadeghiBazargani, SamaSadeghiBazargani, MarjanBamizan,MaryanIrani AS1 , Autonomous Robots for Agricultural tasks and farm assignment and future trends in Agro Robots, IJMMEIJENS Vol.13 No.03(2013).
[4]. K. Prema, N.Senthil Kumar, S.S.Dash ,SudhakarChowdary, Online control of remote operated agricultural Robot using Fuzzy Processor and Virtual Instrumentation, IEEE(2012).
[5]. John Billingsley, Agricultural Robotics , IEEE Robotics Automation Mag-azine (2009).

INNO SPACE
SJIF Scientific Journal Impact Factor

Impact Factor: 8.165

doi cross ref

ISSN INTERNATIONAL STANDARD SERIAL NUMBER INDIA

निस्केयर NISCAIR

INTERNATIONAL JOURNAL OF INNOVATIVE RESEARCH

IN COMPUTER & COMMUNICATION ENGINEERING

9940 572 462 6381 907 438 ijircce@gmail.com

www.ijircce.com

Scan to save the contact details