Solar Grass Cutter

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Abstract: *From ancient times, the sun has been a major source of energy for life on earth. Solar energy was used for such purposes as drying clothes, curing an agricultural product, storing food, etc. Even today, the energy we get from wood, gasoline, paraffin, hydropower, and even food comes from the sun. Solar power is almost limitless. The amount of energy we get from the sun far exceeds our energy needs. Since the industrial revolution people have been relying on oil, electricity and wind power. Human expansion in many countries is a study and continuous experiment in Solar energy and wind power, so we are developing our new solar-cutting concept in these concepts cutting grasses from agricultural products or small plants on grass. and gardens, through a portable or controlled lawn mower.*

Keywords: Solar, Grass, Cutter, Android, Control

I. INTRODUCTION

There is still a lot of work to be done but there is still a lot of workforces that needs to be allocated more money for less work. Therefore, this is necessary in order for some effort to have something to hold on to so that the residual energy can be avoided. Therefore, in our project we are trying to make a daily purpose robot that can cut grass on grass. Project work will be done depending on the product based on the appropriate application. The system will have some automated functionality to get help and other barriers. The system will have a battery power source and the solar panel will be connected to the top of the robot. Removing grass cutters with a powerful lawn mower engine is a hassle, and no one is satisfied with it.

Grass cutting cannot be easily accomplished by adults, juniors, lawn mowers who cause engine noise due to large engines, and local air pollution due to engine burns. Also, a powerful engine needs regular maintenance such as changing the engine oil. Even if the solar system is environmentally friendly, it can also be disruptive. Along with the motor-powered grass cutter, electric lawn mowers are also dangerous and cannot be easily used by all. Also, if the electric lawn mower has a cord, movement may indicate that it is challenging and unsafe. The test product will be charged to the sun using solar panels.

The design of the solar power grid will include a current engine (D.C), a rechargeable battery, a solar panel, stainless steel and a control switch. An active mobile lawn mower will do the job of cutting the grass itself which means there are no compulsory workers. The purpose of this project is to design and build a mobile lawn mower. This will be good because human energy is not important in controlling the cutter on those hot summer days, when you will prefer not to leave in the sun. Mobile will allow the user to control the direction of the lawn mower.

II. LITERATURE SURVEY

Year	Author	Paper	Objectives	Methodology
2018	M.Manimegalai; V. Mekala; N. Prabhuram; D. Suganthan	Automatic Solar Powered Grass	The maintenance of lawn can be done with the help of lawn mower. The operation of the lawn mower is very difficult. The automatic grass cutter provides less human intervention. It operates with the help of	Remote controlled and Solar

		Cutter Incorporated with Alphabet Printing and Pesticide Sprayer	solar power. Because of this, no pollution is caused. The grass cutter is incorporated with alphabetic printing and pesticide sprayer. The sound produced by the cutter is very low so, it can be used in silence zone areas such as hospitals, educational institutions.	operated grass cutter
2017	Ayesha Sultana; Shireen Fatima; Hajara Mubeen; Reshma Begum; Khan Sohelrana; Ahsan Jameel	A Review on Smart IoT based Gesture Controlled Grass Cutting Vehicle	This paper explains the solar grass cutter using hand gesture, solar powered robotic grass cutting machine that eliminates the obstacles and could be accessed from every direction by utilizing hand gesture through remote camera which is introduced to the highest point of the motor-vehicle to communicate remote gushing to the users end. The system uses a 6v batteries to drive both the motor vehicle movement and the grass cutter engine. The system also uses solar panels to charge the battery, so that no additional battery is required. The grass cutter and vehicle motors are interfaced with a microcontroller's family which controls all the motors running. It is also interfaced with ultrasonic sensor to track the object. There are essentially three parts of the framework; the transmitter; the receiver and the live gushing area.	Hand gesture based solar grass
2019	Md. Rawshan Habib; Koushik Ahmed; Naureen Khan; Mahbubur Rahman Kiran; Md. Ahasonul Habib; Md. Tanvir Hasan;	PID Controller Based Automatic Solar Power Driven Grass Cutting Machine	In this paper, an automatic grass cutting machine is designed and implemented that uses solar energy as its primary source. The proposed grass cutter is lightweight and portable. It has two major parts: one is a motor-powered base and the other is cutting blades with motor. Its default mood is automatic although it can be operated manually if necessary. It can detect the position of grass by a color sensor through specified band of green color signal and is able to move automatically towards the grass by its motorized controlled base. As soon as the motor driven cutting blade comes close to the grass, it starts cutting and continue until all grasses around it is being cut down. The prototype of the grass cutter is tested experimentally. The test result proves that, the grass cutter successfully performs its operation. Two degree-of-freedom PID controllers are proposed to control the motor speed of the prototype.	PID controller-based grass cutter

III. OBJECTIVES

The Solar grass cutter is a grass-cutting robot that is powered by the sun. The system uses 12V batteries to power the car's moving engines and a lawn mower. We also use a solar panel to charge the battery so that there is no need to charge it outdoors. The lawn mowers and cars are controlled by the Mobile Phone and Arduino system. The user can

easily move the robot left to right and forward and move it with your finger. The lawn mower is easily OPENED by the user.
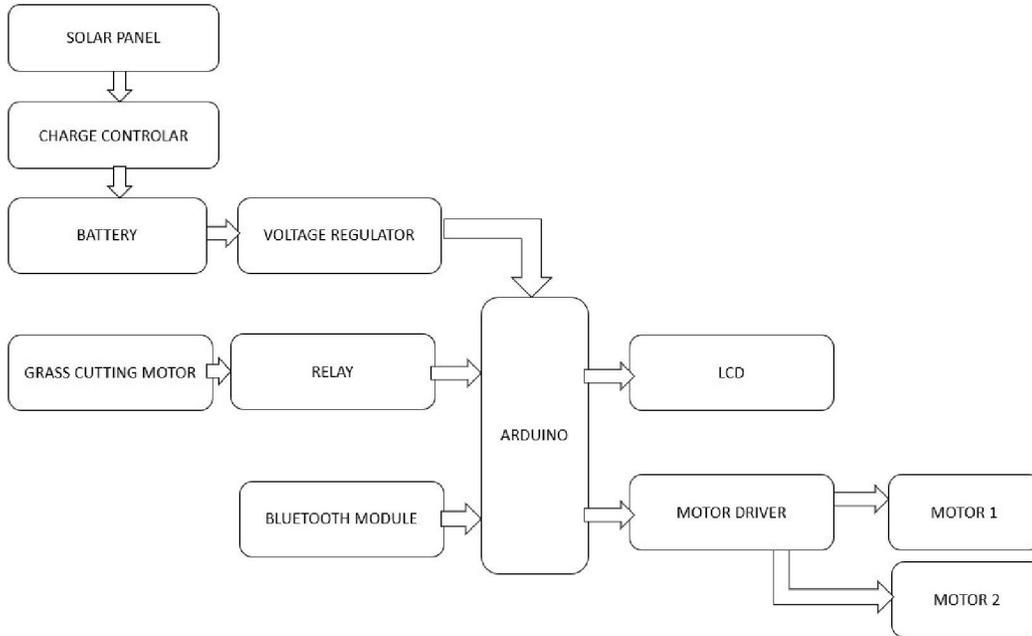
IV. DESIGN METHODOLOGY
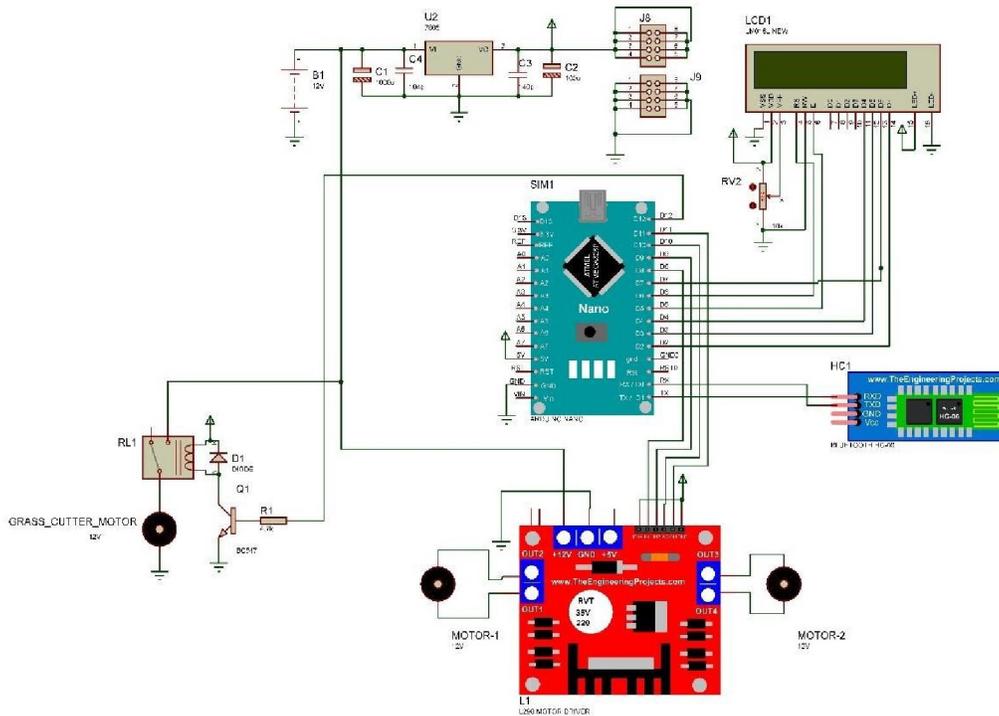

Figure 1: Basic block diagram

Figure 2: Circuit diagram

V. DESCRIPTION

Top block diagram The solar panel stores DC power in the battery via the charging controller. The charging controller uses a stable battery charge when the sun's power fluctuates depending on the amount of sunlight, which protects the charge and protects the charge.

Bluetooth is a standard protocol for sending and receiving data over a 2.4GHz wireless connector. It is a secure protocol, and is suitable for short distance, low power, low cost, wireless shipping between Arduino. Bluetooth connects Bluetooth for mobile because of the same technology and protocol, in the Arduino mobile application via Bluetooth the data transfer from mobile to Arduino, its control signal.

Arduino is an intelligent Board system where the Atmega382p microcontroller is used. It is a system intelligence to control both motors simultaneously with the driver's circuit and ON / OFF grass cutter motor using the ON / OFF relay. The circular car driver is actually used to amplify the Arduino signal and provides the engine and car to rotate clockwise or counter clockwise. All functions display an LCD display. The LCD display is a Liquid Crystal Display with sixteen alphanumeric two-line characters.

REFERENCES

[1]. "International Research Journal of Engineering and Technology (IRJET)" e-ISSN: 2395-0056 Volume: 04 Issue: 07 | July -2017 www.irjet.net p-ISSN: 2395-0072 © 2017, IRJET |" Binod Poudel, Ritesh Sapkota, Ravi Bikram Shah, Navaraj Subedi, Anantha Krishna G.L"

[2]. "International Conference on Intelligent Computing and Communication for Smart World (I2C2SW)" Date of Conference: 14-15 Dec. 2018, Date Added to IEEE Xplore: 13 February 2020 ISBN Information: INSPEC Accession Number: 19361169, DOI:10.1109/I2C2SW45816.2018.8997301, Publisher: IEEE, Conference Location: Erode, India "M. Manimegalai; V. Mekala; N. Prabhuram; D. Suganthan"

[3]. "2020 4th International Conference on Trends in Electronics and Informatics (ICOEI)(48184)" Date of Conference: 15-17 June 2020, Date Added to IEEE Xplore: 17 July 2020 ISBN Information: INSPEC Accession Number: 19789235 DOI:10.1109/ICOEI48184.2020.9142981, Publisher: IEEE, Conference Location: Tirunelveli, India "Ayesha Sultana; Shireen Fatima; Hajara Mubeen; Reshma Begum; Khan Sohelrana; Ahsan Jameel"