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REVIEW ON BATTERY OPERATED GRASS CUTTER

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ABSTRACT

In present generation the pollution is very serious problem in the world. Pollution is manmade, which we can be seen in our daily life. Pollution impacts health of human as well as wild life and biodiversity. The traditional IC engine grass cutter used to cut grasses but now days every one shifting towards some modern and less polluting machines , hence because of its environmental impact and increased fuel rates. IC engine driven cutter is more costly and their maintenance is also more. The IC Engine driven grass cutter consumes more energy and produce less work thus the efficiency of these Cutter is less. Also the less safety feature included in such types of cutters. To avoid such problems, we plan to build new type of grass cutter which runs on solar energy and also on electrical energy by battery. this model is economical compared to Traditional grass cutters. The aim of our project is to make the grass cutter which operate on solar energy, hence save the electricity and reduces manpower. also the efficiency of this cutter is more of these IC engine cutter.

Keywords: Solar Grass Cutter, Battery Operated Grass Cutter, Solar Power, Grass Cutter.

I. INTRODUCTION

The value of the environment is as important as food and shelter to humans. The grasses are found everywhere they are found in lawns, farms, gardens, etc. To maintain the beauty of gardens, lawns, etc. Hence we have to cut these grasses. For cutting these grasses, we use grass cutting machines. We are using some traditional IC engine-driven grass cutters for a long time but nowadays with some pollution aspects and increased fuel rates, we think of other economic and environment friendly solution. To overcome these problems we developing a new Solar-based Battery operated Grass cutting machine, which is more suitable & easy to use than the other traditional Grass Cutting machines, so we select a solar-based battery-operated Grass Cutter with an electric motor & which will provide the high-speed rotation to the blades. electric Cutters are powered by 24-volt rechargeable batteries & solar panel. Batteries can be recharged by solar panel. Or charging on electrical port. The sun provides sustainable amount of the energy which is captured by on board solar panel and stored into the batteries.. and then provides to the motor and cutter. A grass cutter with solar energy will be easier to use, it eliminates down time by frequent trips to the fuel station for fill-ups and danger associated with gasoline. The dangerous emissions generated by the gasoline spillage and that of the internal combustion engine into the atmosphere are eliminated. The solar powered grass cutter will help to reduce air pollution.

II. LITERATURE SURVEY

PAPER[1]: Design and Fabrication of Battery Operated Grass Cutter. (July – 2018)
M M Sahu, Manoj ,Kumar Nayak , Sabyasachi Sahu.

In this paper , They develop an electric based battery operated grass cutter. An electrical Grass Cutter is more suitable & easy to use than the Grass Cutter with an engine, they select an electrical Grass Cutter with an electric motor, which will provide the high speed rotation to the blades. Cordless electric Cutters are powered by 12-volt rechargeable batteries.

PAPER[2]: Solar Based Grass Cutting (January-June 2017)
Ms. Bhagyashri R. Patil, Mr. Sagar S. Patil

In this paper, they said that the pollution is major culprit for harming environment & the non renewable energy sources are degrading everyday. so they made their new concept solar power grass cutting machine. In this concept they uses renewable energy from the sun,. and the machine will operate on solar energy. The design of solar powered agricultural equipment will include direct current (DC) motor, a rechargeable battery, solar panel, a stainless steel blade for cutting grass and control switch. The automatic grass cutting machine is going to perform the grass cutting operation by its own which means no manpower is mandatory. The purpose of the

project here is to design and build a remote controlled grass cutter. The device consist of linear blades and it does not affected by climatic conditions. They have used many components for preparing grass cutter like DC Motor(3) for rotating the wheels and blade, wheels(4), battery, Solar panel, IR sensor, Collapsible blade. There are two main components such as transmitter and receiver. Transmitter continuously transmits the rays if any obstacle come in front of grass cutter then the rays are reflected back towards the receiver. The receiver receives the signal in the serial form from encoder but microcontroller requires parallel data for communication so receiver sends data to decoder to convert data in the parallel form and then it is passed to microcontroller.

PAPER[3]: Environmental Friendly Solar Grass Cutter

Tanmay Bhalodi, Nikhil Bhujbal, Karan Doshi, Rahul Goregaonkar, Sheetal Jagtap.

This paper describes manually handled device is commonly used for cutting the grass over the field which creates nois eand air pollution and loss of renewable source of energy. So they made a device which will reduce the effort required for cutting grass in the lawns. The driving force for the blades and battery recharge will be available due to solar energy. Various sensors will be used to detect and avoid the unnecessary objects in the field during operation. The lists of components used for this project are microcontroller ArduinoATmega328p, IR sensors, LCD display for better response and understanding to the user. In this paper we have analyzed the principle of working and operation of the Automatic Solar Grass Cutter which is environmentally friendly. The other objective of the cutter is to differentiate between grass and concrete while monitoring its surroundings continuously. It contains a microcontroller, multiple sensors and a solar charging system.

PAPER[4]: Design and Fabrication of Hybrid Operating Grass Cutter.

Aditya S. Rajmani, Appaji N. Gaonkar, Ajay Darak, Akshay Joshi Prof. Vinay M. Murgod.

In this research peper due to the cost of fuel and the effect of emission of gases from the burnt fuel into the atmosphere. This necessited the abundant solar energy from the sun as a source of power to drive a lawn mower. A solar powered lawn mower was designed and development, based on the general principle of moving. 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.

III. CONCLUSION

This paper review various new technologies involved in the battery operated solar based grass cutter. As per the above literature survey, we have concludes that , in the other's development there is lack of sufficient power i.e . they uses 12v dc motor & 12v battery. That's why we use some strong and high power DC motor 24v & battery 24v. because of this the cutter will be more powerful & hence the time required for cutting grass will be reduced. And also we use a wire brush cutter in this cutter, this will make this project more efficient. This project is more suitable & efficient as it is having much more advantages i.e. no fuel cost, no pollution and no fuel residue.

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