

Solar Grass Cutter

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ABSTRACT: In our daily life grass cutters are becoming very popular, pollution is manmade, which can be seen. The fuel powered grass cutter due to emission of fuel, it's responsible for pollution and costs of fuels are increasing day by day. Hence it is not efficient. So the solar powered grass cutter is discovered. In this project we use buck boost converter to avoid the time consuming for battery charging.

Keywords: Solar energy, brushless motor, buck boost converter, solar power.

I. INTRODUCTION:

The solar grass cutter, the machine which grass cutting by the help of solar energy source and also avoids obstacles by using ultrasonic sensor. The machine uses 12v battery to power the grass cutter motor. Solar panel is connected to the batteries to charge so there is no need of charging externally. In case of rainy season or cloudy day, the sunlight is not clearly visible, so we can use AC supply to charge the batteries. This project of solar powered grass cutter will relieve the consumer and reduce noise and environmental pollution both.

II. LITERATURE REVIEW:

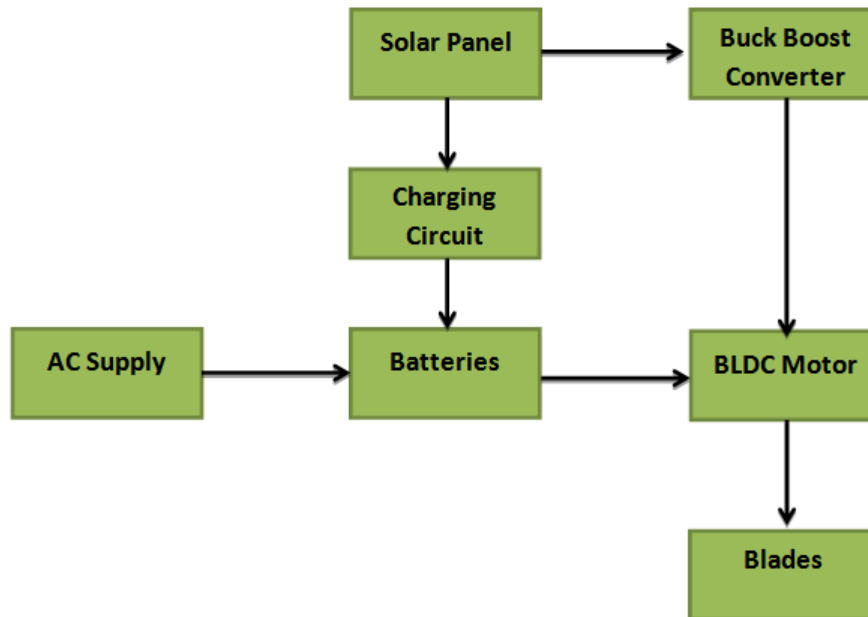
Professor C. J. Shende- In this project they have prepared the manually handled device which had capacity to cut the grass. This device consists of solid blade and it does not affected by climatic change. The main objective of this project is to move the grass cutter in different direction to prepare various design as per requirement. The unskilled labor can easily operate this device. [1] C. B. Mills: Now a day, new technologies are bringing us improve grass cutter mower version.

Low emission gasoline engines with catalyst converters are being manufactured to improve device and reduce the pollution. Battery power cutter machine are becoming practical. Prices are comparable to high-end gasoline power mower. [2] Davidge E. D.: He had planning on moving my entire fleet to propane. Not only is it better for the environmental, it is also increases the productivity, saving the money of fuel and labor costs. [3] Ransome: The first lawn mower was introduced by Ransomes in 1902 JP Engineering of Leicester, founded after World War I, produced a range of popular chain driven mower.

III. METHODOLOGY:

In this project, we use three ways to run grass cutter motor. In first method, the 12 watts solar panel is used which gives maximum outputs are 16 v and 750 mA current to charge the batteries which are rechargeable. The charge controller or charging circuit is connected between solar panel and battery which regulate the voltage to 14v and one transistor to amplify the maximum current. We use 12v battery for circuit and cutting blades. In second method, we use buck boost converter which receive an input dc voltage from solar panel and converted into 12v dc voltage for output for bldc motor. In third method, in case of rainy season or cloudy days there is not clearly visible sun light to produce such amount of voltage. So we use ac supply to charge the battery with the help of charging plug. And cutting blade is used to cut any type of grass we need high rpm motor. So we use 12v, 12000 rpm motor for cutting blades. And it operated by manually.

IV. BLOCK DIAGRAM:



V. RESULT:

Our project “The solar grass cutter“is successfully completed. The result of project is obtained satisfactorily.

VI. CONCLUSION:

It will be easier and simplest for the people who are using this project for future modifications. Our project is more suitable and cheap for common man as it has more advantage like there is no fuel consumption cost, no use of fuel, and no pollution. This can operate manually by using solar energy. Therefore this will give much more physical exercise to the people and easily handled. This project has facility of charging the batteries while the running .If battery is fully discharge or damage then we can run the motor by using buck boost converter. Therefore it is more suitable for cutting .we can also operate in the night by charging the batteries in day light.