

Grass Cutter Using Solar Energy

Mr.B.KANTHA RAO¹, Ms.V.SUSHMA², Ms. A.ROJA³

¹Assistant Professor, Department of ECE, Priyadarshini institute of science and technology for women, Khammam, Telangana, India.

^{2,3}B.Tech, Student, Department of ECE, Priyadarshini institute of science and technology for women, Khammam, Telangana, India.

Abstract- Nowadays grass cutter machines are becoming very popular today. Pollution is manmade, which we can see in our daily life. In old model of grass cutter IC engine was used and hence because of its environmental impact pollution level rises IC engine driven cutter is more costly. Maintenance of such conventional machine is more. To avoid these drawbacks we plan to built new type of grass cutter which runs on solar energy and this model is also economical. The aim of our project is to make the grass cutter which operates on solar energy hence save the electricity and reduces manpower. In our project we use microcontroller for controlling various operation of grass cutter. Also the grass cutter has obstacle sensor for obstacle detection. Grass cutter operates automatically hence it does not require skill person to operate. A Solar grass cutter is a machine that uses sliding blades to cut a lawn at an even length. Even more sophisticated devices are there in every field. Power consumption becomes essential for future. Solar grass cutter is a very useful device which is very simple in construction. It issued to maintain and upkeep lawns in gardens, schools, college's etc. We have made some changes in the existing machine to make its application easier at reduced cost. Application easier at reduced cost.

The main aim in pollution control is attained through this. Unskilled operation can operate easily and maintain the lawn very fine and uniform surface look. In our project, solar grass cutter is used to cut the different grasses for the different application.



Fig.1: Real time Grass cutter using solar energy

I. INTRODUCTION

1. Problem Identification

The past technology of grass cutting is manually operated by the use of hand devices like scissor, these results into more human effort and more time required accomplishing the work. Also in old methods lack of uniformity of the remaining grass. Also due to the use of engine powered machines increases the air and noise pollution also this grass cutter require maintenance.

2. PURPOSE

The objective of our project is to design and automatic lawn mower which operates on solar energy and avoids the drawback of old lawn mowers. 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. Also we are using relay to control the motor connected to blades as a switch. The prototype is charged from sun by using solar panel.

Moving the grass cutters with standard motor powered grass cutters is an inconvenience, and no one take pleasure in it. Cutting grass cannot be easily accomplish by elderly, younger, grass cutter moving with engine create noise pollution due to the loud engine, and local air pollution due to the combustion in the engine. Also, a motor powered engine requires periodic maintenance such as changing the engine oil. Even though electric solar grass is environmentally friendly, they too can be an inconvenience. Along with motor powered grass cutter, electric grass cutter is corded, moving could prove to be problematic and dangerous. The prototype will also be will be charged from sun by using solar panels.

3. WHAT IS SOLAR ENERGY

Solar energy is radiant energy that is produced by sun. Every day the sun radiates, or sends out, an enormous amount of energy. The sun radiates more energy in one second than people have used since the beginning of time!

4. BLOCK DIAGRAM AND ITS EXPLANATION

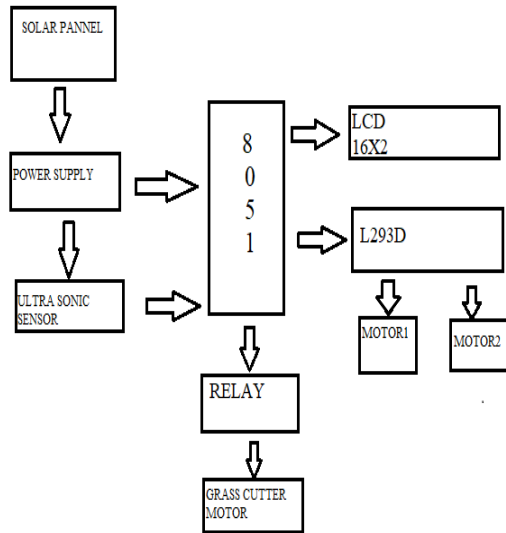


Fig.2: Block diagram of Grass Cutter using Solar Energy

5. COMPONENTS REQUIRED

1. Power Supply
2. 8051
3. LCD
4. Motor
5. Solar Panel
6. Ultrasonic Sensor
7. Relay
8. Grass cutter motor
9. L293D

6. SOFTWARE REQUIRED

Keil micro vision

II. ADVANTAGES

- ❖ Non-skilled person can also operate this machine.
- ❖ No fuel consumption is less.
- ❖ Number of reciprocating parts is less.
- ❖ Compact size and portable.
- ❖ Easy to move from one place to another place.
- ❖ Operating principle is simple.

III. APPLICATIONS

- For small farms.
- For nurseries.
- For house gardens.
- For playgrounds (cricket grounds, football grounds, etc).

IV. CONCLUSION

This entitled solar based grass cutter is successfully completed. It will be easier for the people who are going to use project for further modification. This grass cutter occupy less space and light in weight and as it uses nonconventional source of energy hence running cost is zero. It has facility of charging battery while grass cutter is in the working condition. The cost of solar based grass cutter is less than the market grass cutter. Grass cutter is used to keep the lawn clean and uniform in schools, gardens and playgrounds.

This completed successfully with the available sources. But the results and modifications are not up to the expectations. This can be further improved by incorporating the following modifications to obtain better results. The mechanism which we used i.e., scotch yoke mechanism does not given expected efficiency. This efficiency can be increased by using some other mechanism and speed of motor is reduce because we have used heavy material and this material can be replaced by using light weight material and design of blade should be done based on types of grass issued to cut. This project which we have done surly reaches the averages families because the grass can be trimmed with minimum cost and minimum time. Finally this project gives an inspiration to the people who can modify and can obtain better results.

V. REFERENCES

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