

Smart Solar Grass Cutter with Sprinkler

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Abstract-Now a days, there are a number of grass cutting techniques which are purposefully used and are being build up for well cutting of grass. Solar energy and Arduino which is open source computing platform are the latest trends and are one of the best combination to be used in this project.. In this project, solar powered automatic grass cutter will relieve the consumer from mowing their own lawns and will reduce both environmental and noise pollution. This design is meant to be an alternate green option to the popular and environmentally hazardous gas powered grass cutter. This grass cutter will cut the grass of garden or park evenly, staying within a defined area in zigzag manner avoiding all obstacles and working in complete autonomy, automatically charging itself with a solar panel.After cutting the grass of defined area,it will start sprinkling the water over the trimmed area.

Keywords-Solar Panel, Obstacle Sensor, Arduino Technology

I. INTRODUCTION

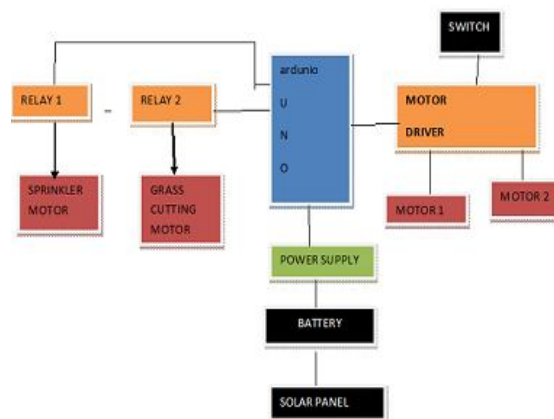
Solar Grass Cutter: Grass may be from the lawn of school, colleges or stadium.This project is related to grass cutting and based on solar energy and Arduino Technology. This solar grass cutter is easy to operate and it consists of rotary blade, roller etc. The blade removes the extra growth of the lawn and roller gives light pressure to the top surface of lawn. It gives fine look to the lawn and uniform look throughout the lawn. The Project work was very great successful one. This Project of a solar powered lawn mower will reduce both environmental and noise pollution. solar grass cutter works without any power source to reduce the power consumption. The unskilled gardener is enough to operate the solar grass cutter.

II. LITERATURE SURVEY

1. Simple Design Of Self Powered Lawn Mower by “Prof.Basil Okafor”, this paper conclude that solar grass cutter is portable,durable, easy to operate as well as maintain.
2. April 2016 Manufacturing of solar grass cutter by “Vaibhav Sonune, Dipak Gawande”, this paper conclude that use of solar energy reduces fuel cost and noise pollution.

3. September 2014 Solar Grass Cutter With Linear Blades By Using Scotch Yoke Mechanism by “P. Amrutesh,B.Sagar”, this paper conclude that as solar energy is vastly available,it is easy to charge the battery and it is pollution free.
4. Fully Automated Solar Grass Cutter by “Ms.HarshadaKatge, Mr.Pramod”, this paper conclude that automatic solar grass cutter is robotic vehicle powered by solar energy that avoids obstacles and capable of grass cutting without any human interaction.
5. April 2017 Solar Powered Fully Automated Grass Cutting Machine by “BincyAbraham, Sisy Joseph.”, this paper conclude that automation reduces the human effort and consequently the cost of the whole process.
6. April 2016 Modification of Solar Grass Cutting Machine by “Praful P. Ulhe, Manish D. Inwate and Fried D. Wankhede, Krushnkumar S. Dhakte”, this paper conclude that the cutter is light weight and space is less occupied and as it is solar powered,running, cost is zero to operate.

III. WORKING



Scope:- The system cuts the grass evenly and sprinkles the water over it, so the human effort is get reduced because as automatically the grass is cut, so it is not necessary to check it manually.

Solar Panel:

A solar panel is set of solar photovoltaic modules electrically connected and mounted on structure. A photovoltaic module is a packaged, connected assembly of solar cells. The solar panel can be used as a component of a larger photovoltaic system to generate and supply electricity in commercial and residential applications.

Ultrasonic Sensor:

Ultrasonic sensor is the eyes of lawn cutter. It is a Tran's receiver, it will detect the obstacles present in front of it by receiving echo signals and take deviation until obstacles is cleared.

Arduino Technology:

Arduino is an open source microcontroller which can be easily programmed, erased and reprogrammed at any instant of time. Arduino uses a hardware known as Arduino development board and software for developing code known as IDE.

Components requirements:

1. Solar Panel
2. Arduino
3. DC motors
4. Ultrasonic Sensors
5. Accelerometer
6. Transformer
7. Capacitors
8. Diodes

SOFTWARE:

1. Arduino programming
2. Arduino compiler

IV. CONCLUSION

This project is more suitable for common man as it has many advantages such as no fuel cost, no pollution. Especially, no skill is required in order to operate the grass cutter. It automatically sprinkles the water after grass cutting. This system is having facility of charging the batteries while solar powered grass cutter is in motion.

REFERENCES

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Autonomous Lawnmower", Circuits and Systems, 48th Midwest Symposium on Digital Object Identifier, vol. 1, pp.456-459

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