MINI-PROJECT REPORT

ON

' AUTOMATIC SOLAR GRASS CUTTER '

SUBMITTED BY

SWALIHA BABASO SANADI (ROLL No.: 3166)

AISHWARYA JAYSING SHINDE (ROLL No.: 3170)

UNDER THE GUIDANCE OF

PROF. V. S. SISALE

DEPARTMENT OF

ELECTRONICS AND TELECOMMUNICATION ENGINEERING

MKSSS's

Cummins College of Engineering for Women, Pune

(An Autonomous Institute Affiliated to Savitribai Phule Pune University)

(2018-2019)

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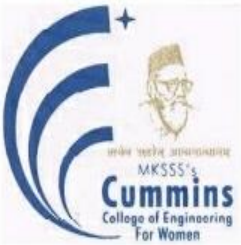

DEPARTMENT OF ELECTRONICS AND TELECOMMUNICATION ENGINEERING

MAHARSHI KARVE STREE SHIKSHAN SAMSTHA'S

CUMMINS COLLEGE OF ENGINEERING FOR WOMEN
KARVE-NAGAR, PUNE-411 052. (INDIA)
(An Autonomous Institute Affiliated to Savitribai Phule Pune University)

2019-2020

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CERTIFICATE

This is to certify that the Mini Project work entitled

'AUTOMATIC SOLAR GRASS CUTTER'

is a bonafide record of project work carried out in this institute

by

Aishwarya Jaysing Shinde (ROLL No.- 3170)

Swaliha Babaso Sanadi (ROLL No. –3166)

in partial completion of the term work for the Third Year B.Tech.

in

Electronics and Telecommunication Engineering

in the academic year **2019-2020.**

This Mini-Project Report is a record of their own work carried out under our supervision and guidance.

Prof. S. G. Dube	**Dr. Prachi Mukherji**	**Dr. M. B. Khambete**
Internal Guide	**Head of Department (E&Tc)**	**Director, CCOEW,Pune-52.**

ACKNOWLEDGEMENT

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We take this opportunity to express our sincere thanks to all the staff members of E&Tc. Department for their constant help whenever required. Finally; we express our sincere thanks to all those who helped us directly or indirectly in many ways in completion of this mini-project work.

Student Names

1) SWALIHA BABSO SANADI No.-3166

2) AISHWARYA JAYSING SHINDE No.-3170

HARDWEAR COMPONENT :

ATmega32A Microcontroller

L293D Motor Driver

IRFZ44N

3W Solar Panel

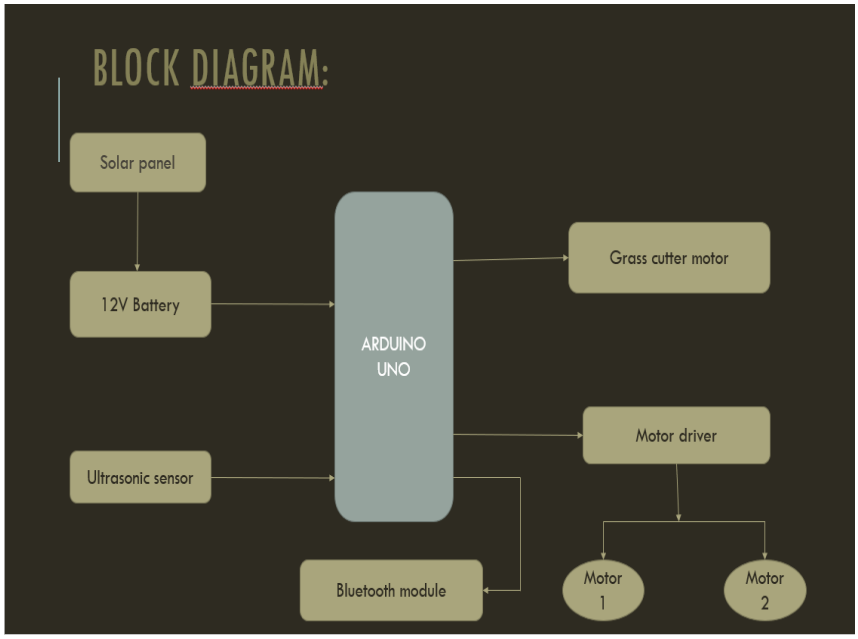
HC SR04 Ultrasonic Sensor

HT12E

HT12D

434 MHz RF Transmitter and Reciever

12v Lead Acid Battery


BLOCK DIAGRAM:
Solar panel
12V Battery
Ultrasonic sensor
ARDUINO UNO
Grass cutter motor
Motor driver
Bluetooth module
Motor 1
Motor 2

APPLICATIONS:

IT IS HELPFUL FOR THE BUSY PEOPLE WHO REALLY DON'T HAVE MUCH TIME TO MAINTAIN THE GARDEN.

WITH THIS MACHINE OLD AND HANDICAPE PEOPLE CAN ALSO DO GARDENING.

EASY TO HANDLE AND PORTABLE .

WORK EFFICIENCY IS MORE.

ADVANTAGES:

SOLAR ENERGY IS RENEWABLE FREE SOURCE OF ENERGY THAT IS SUSTAINABLE AND TOTALLY INEXHAUSTIBLE AND ALSO NON POLLUTING .

HERE WITH HELP OF THIS SOLAR PANEL WE SAVED THE ENERGY

IT IS AUTOMATIC. DUE TO THIS MAN POWER IS ALSO REDUCED

IT IS COST EFFECTIVE

INTRODUCTION:

Introduction The lawn mover is an aid in the mundane task of grass cutting and tending to lawns. Due to the revolution of green movement in the present scenario the industries with major campus areas are changing the percentage of greenery in the campuses and increased greenery causes increased effort and money to tend to.In such cases the lawn mover proves to be an god sent. Due to increased availability of system on chips, the lawn mover can be automated very easily and also the reduced size and cost of Dc motors causes the system to be independent of fossil fuels to be able to tap into renewable energies. The presence of Ultrasonic sensors and light dependent resistors in a smaller and cheaper packaging cause the bot to be more aware of its surroundings. Due to the presence of ardiuno oin the system causes and increase in the module that can be added. Traditional design of lawn movers had motored powered engines which required regular maintenance such as engine oil and greasing. They also created a lot of noise pollution and air pollution. In the cold and harsh environment the fossil fuel powered motors tend to freeze and not run. These problems are solved by using electric motors . They are also much more greener because they use

solar panel.The mover uses battery chorded system causes a range as alimitationn and damage to the chord.

ABSTRACT:

Abstract---The solar lawn mower is a fully automated grass cutting robotic vehicle powered by solar energy that also avoids obstacles and Is capable of fully automated grass cutting without the need of any human intervention. The system uses 12v batteries to power The vehicle movement motors as well as the grass cutter motor. We use a solar panel to charge the battery. The grass cutter and Vehicle motors are interfaced to an Arduino Nano that controls the working of all the motors. It is also used to interface an ultrasonic sensor for object detection. The SoC moves the bot in the forward direction in case no obstacle is detected. On obstacle detection; the ultrasonic sensor monitors it and the SoC thus stops the grass cutter motor to avoid any damage to the object/human/animal whatever it is. In order to detect the boundaries the bot uses Light dependent resistors(LDR) on a right angle to trigger start event. The detection of the laser on the other side triggers the bot to stop and turn a right angle clockwise and and move to next row. The bot takes another

right angle turn clockwise and moves forward till the next laser fence is detected. The detection of both the lasers simultaneously triggers the stop event. The L293D9 bi-motor controller/driver is used.

Reference:

https://nevonprojects.com/fully-automated-solar-grass-cutter/

https:///arduino-based-solar-grass-cutter-fully-automated

https://youtu.be/akXfQBjBXuI

https://nevonprojects.com/smart-solar-grass-cutter-with-lawn-coverage/