Abstract

As the technology develops the way everything done is even developed every day. The solar tracking system have begun since 7th century B.C.and is still being developed until this day. At this report the way of developing a solar tracking system is being discussed. The report typically explains process used and how it has been divided, the model used to develop the program, the functions that are used to make the project user friendly. The simulation of the project running with all the test cases, and the future work to be done in order to develop the project to work more efficiently.

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1 Introduction

1.1 Historical background

In theory, solar energy was used by humans as early as 7th century B.C. when history tells us that humans used sunlight to light fires with magnifying glass materials. Later, in 3rd century B.C., the Greeks and Romans were known to harness solar power with mirrors to light torches for religious ceremonies. These mirrors became a normalized tool referred to as "burning mirrors." Chinese civilization documented the use of mirrors for the same purpose later in 20 A.D.

1.2 Statement of problem

The problem to be solved in this project is to design a solar tracking system which requires a some components this components are used to perform different functions on it. The tasks that a solar tracking can do from ics are uncountable. Mainly in this project I will try to perform tasks suchas: dual axis solar tracking.

1.3 Report layout

First, Section 2 will contain the literature review which is the publications and previous work that has been done on this project previously. Secondly, Section 3 will contain theoretical work done which will present the proccess used, the way at which this component has been used, the implementation process and how it works. Section 4 will provide the simulations. Section 5 and 6 will contain a brief conclusion about the whole project and the future work to be implemented.

2 Literature review

Designing a solar tracking system has been developed since years which made a lot of researchers to write different research papers about the solar tracking system. One of the fond papers was written by Rajan K.

2.1 Modelling

There aren't a lot of models that can be used to design project in the most efficient way. The way of modelling used in this project as there are a lot of parts is to divide the parts into separate groups.

2.2 Implementation

The implementation process is divided into many steps as follow.

2.2.1 At the start of the main the project circuit was designed on "Proteus" to see the project simulation and if there any errors. First, we compare the LDR sensors with OP AMP (LM358) to be easily controlled in the ic of the motor driver (L298). The motor driver can control the x-axis and y-axis motors of the project and to control speed there is PWM signal to easily control speed.

2.2.2 Then, the parts are designed in "Inkscape" and then laser cut to be more good looking. Each part is measured specifically to the size needed to be assembled with each other easily.
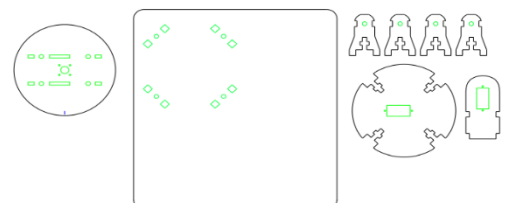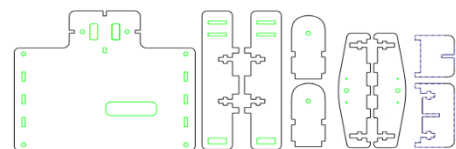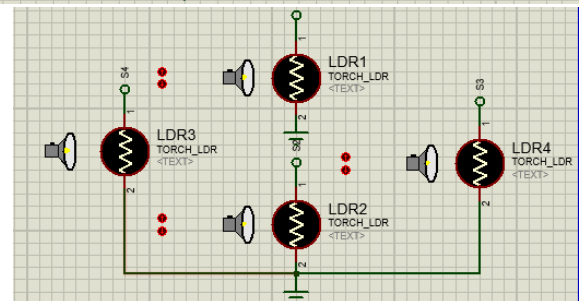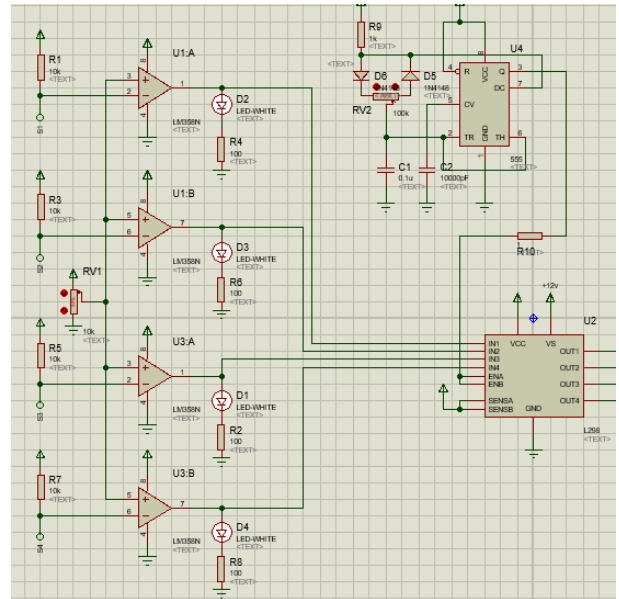
3 Simulations

The following link is for a video of the whole project simulation to test all the functions in "Proteus".

https://drive.google.com/file/d/1gr2_ywtvxEoaM35_-1KWdRnwqa6b4bzF/view?usp=sharing

4 Future work

A lot of future work must be done to make the project more efficient .first is to make the project with Arduino to be easily controlled by code ,then get a more efficient LDR to be more accurate reading ,then upgrade the solar cell.

List of References

1. https://www.researchgate.net/publication/312067334_SOLAR_TRACKING_SYSTEM-_A_REVIEW

2. https://www.vivintsolar.com/learning-center/history-of-solar-energy