



Bangladesh University of Business and Technology

Solar Panel with Dual Axis Solar Tracker without Arduino

Course Name-Power System I (Lab)

Course Code-EEE306

Team - “KINETIC VISION”

MEET TEAMMATES of “Kinetic Vision”



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AGENDA



Abstract

Introduction

Background

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Literature Review

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Circuit Diagram

Social Economy Impact

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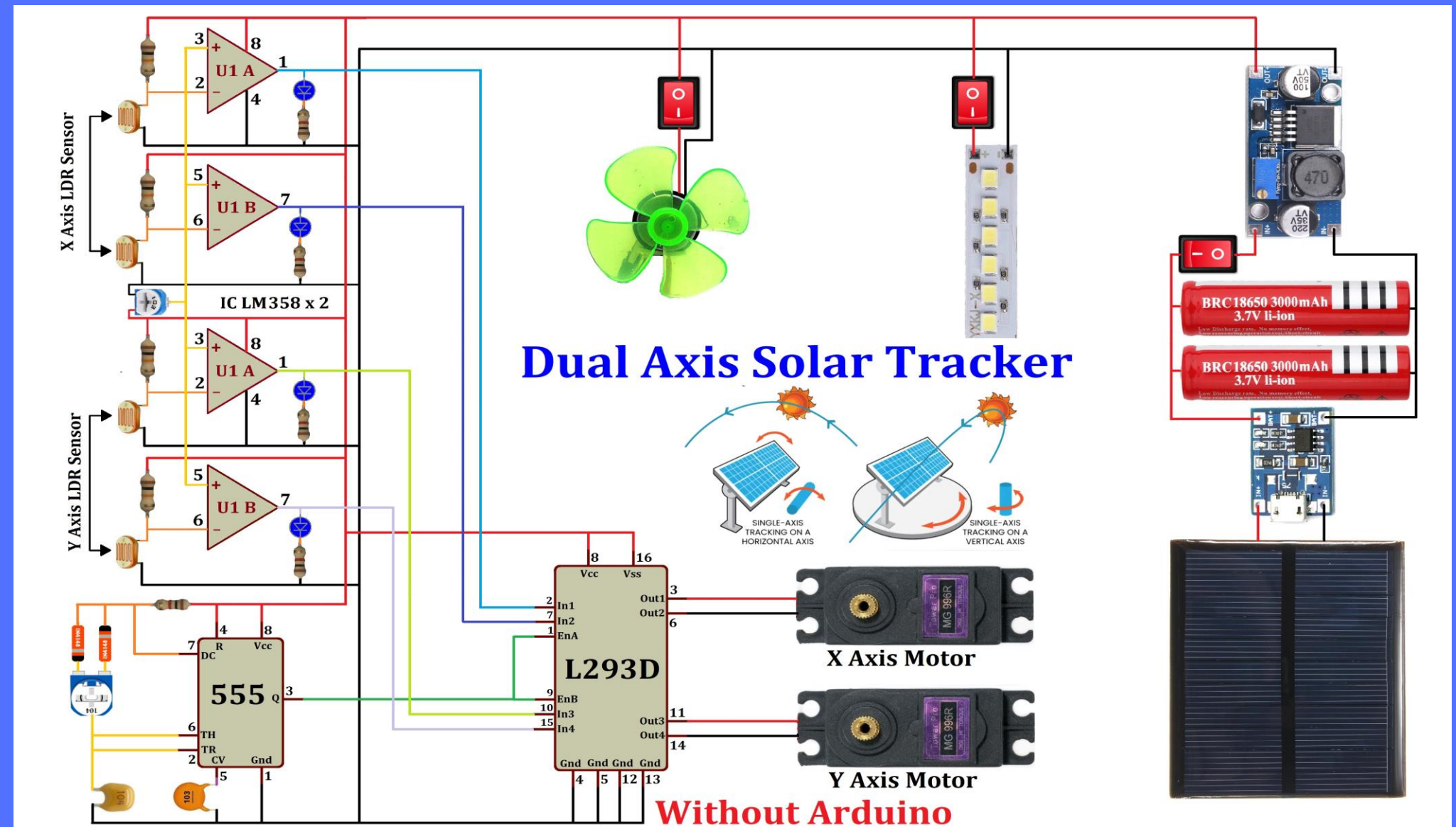
INTRODUCTION

- ❖ **Solar Panel**, a system that positions an object at an angle relative to the sun. The most-common applications for solar trackers are positioning photovoltaic (PV) panels (Solar panels) so that they remain perpendicular to the Sun's rays and positioning space telescopes so that they can determine the Sun's direction.

OBJECTIVES

- ❖ To know about the structure and making of o sun tracker.
- ❖ To know about the making of a solar panel and the laws of solar technology.
- ❖ To know how to increase the using of solar energy to produce electricity.
- ❖ To know about the working principle of a solar tracker without Arduino
- ❖ To demonstrate a small project of solar tracker.

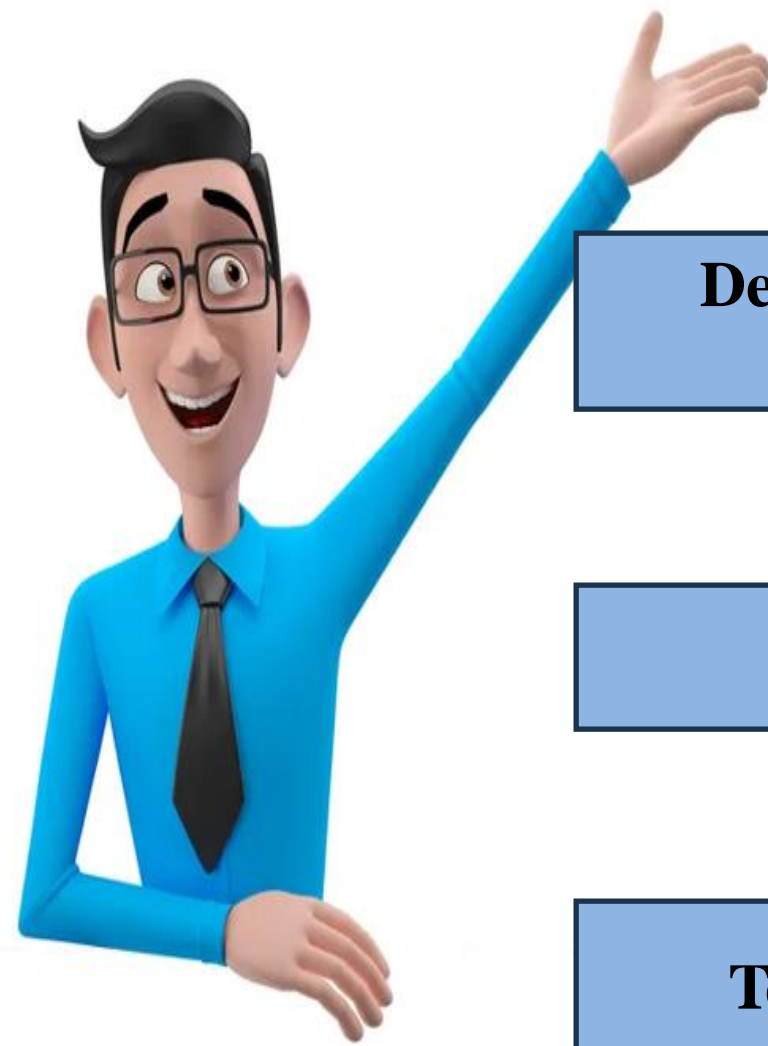
ABSTRACT



- ❖ We have made a solar tracker solar panel with dual axis. In this project we have used a 5volts,6watts solar panel. This is a solar tracker and it has two axis (x and y).

BACKGROUND

- ❖ Solar trackers provide significant advantages for renewable energy. With solar tracking, power output can be increased by about 30 to 40 percent. The increase in power output promises to open new markets for solar power.
- ❖ We know because of the global position of Bangladesh; solar panel should have to be set at 23-degree angle. At this angle the solar can get maximum photon in Bangladesh but sunlight doesn't come from the same direction all the time. Because our planet is moving.



Increases Efficiency

Decreases the Demand of Non Renewable Energy

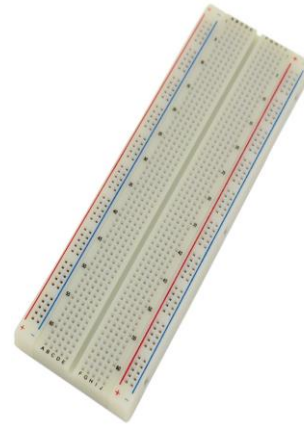
Job Creation

Technological Advancement

EQUIPMENTS



VPC Cardboard
3mm and 5mm



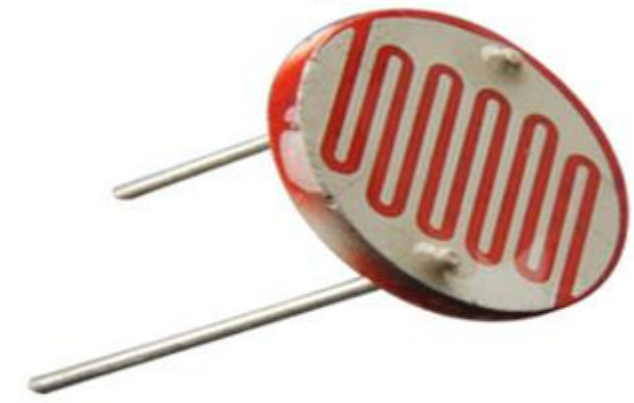
Breadboard



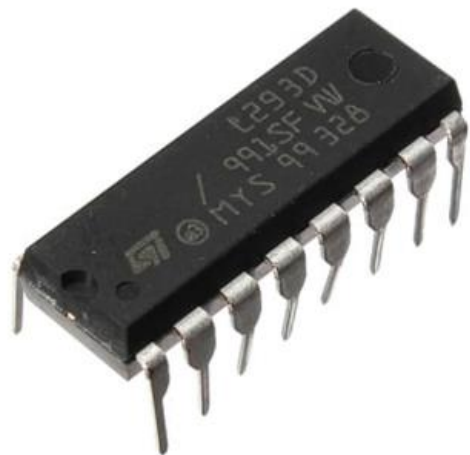
LM263 IC



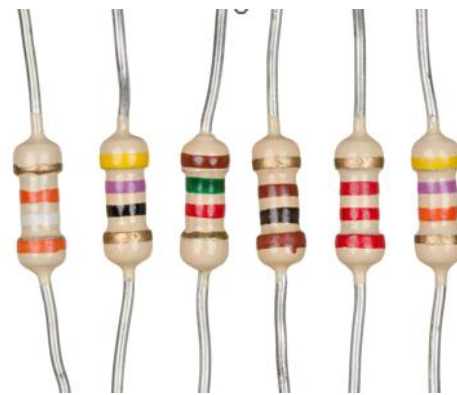
555 timer IC



LDR sensor



L293 Motor Driver
IC



Resistors



Blue Led light



Capacitors



Variable Resistors

EQUIPMENTS



4148 Diode



MG996 Servo Motor



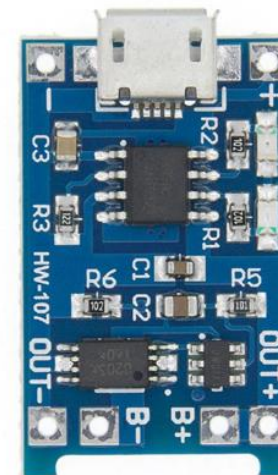
5v DC Motor



Solar Panel



**DC to DC Boost Converter
LM2587**



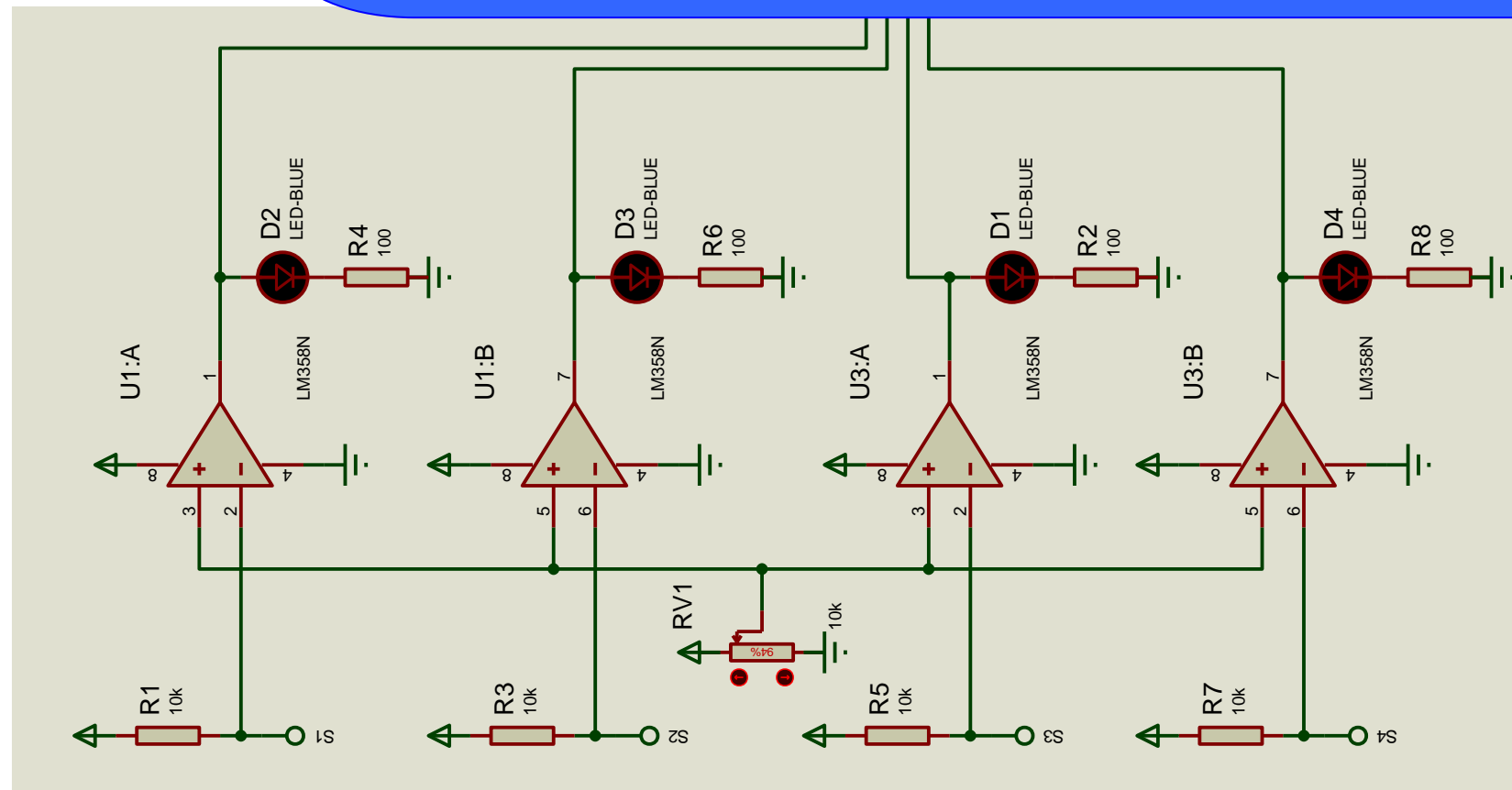
**LiPo Battery Charger Module
Mini TP4056 IC**



**18650 Battery Cell
3.7V**

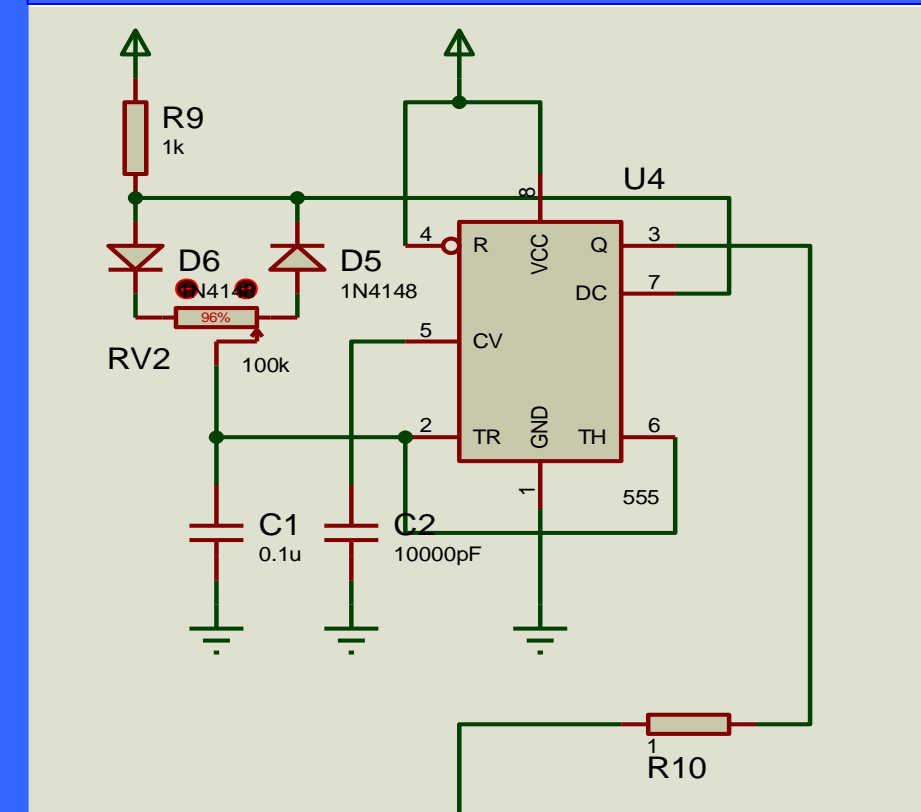
LITERATURE REVIEW

Low Pass Filter



- ❖ A low-pass filter is an electronic circuit that allows low-frequency signals to pass through while attenuating or blocking higher-frequency signals.

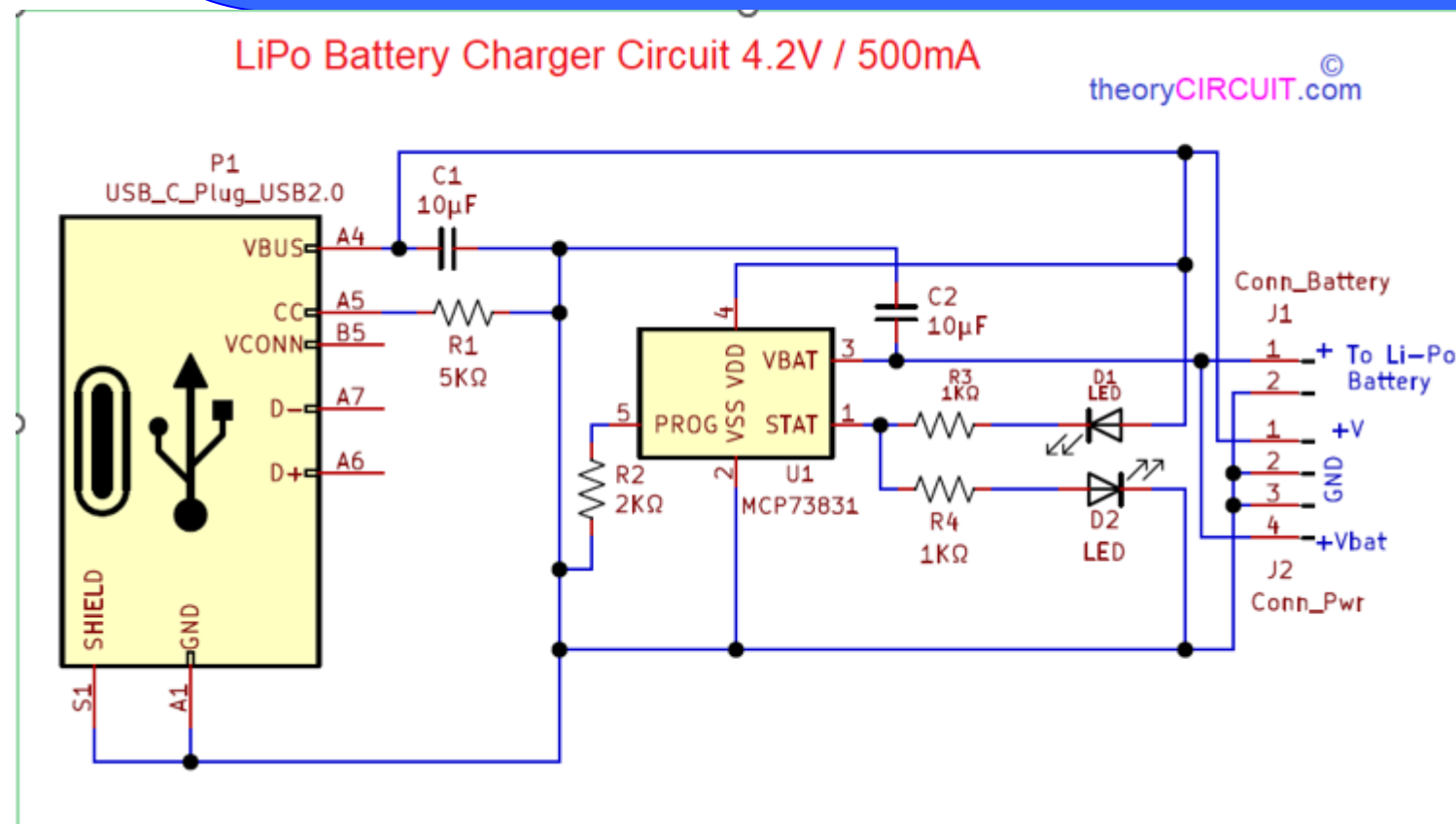
555 Timer Circuit



- ❖ In a sun tracker, the pulse generating system plays a critical role in providing precise control signals to adjust the position of the solar panels or tracking mechanism

LITERATURE REVIEW

LiPo Battery Charger



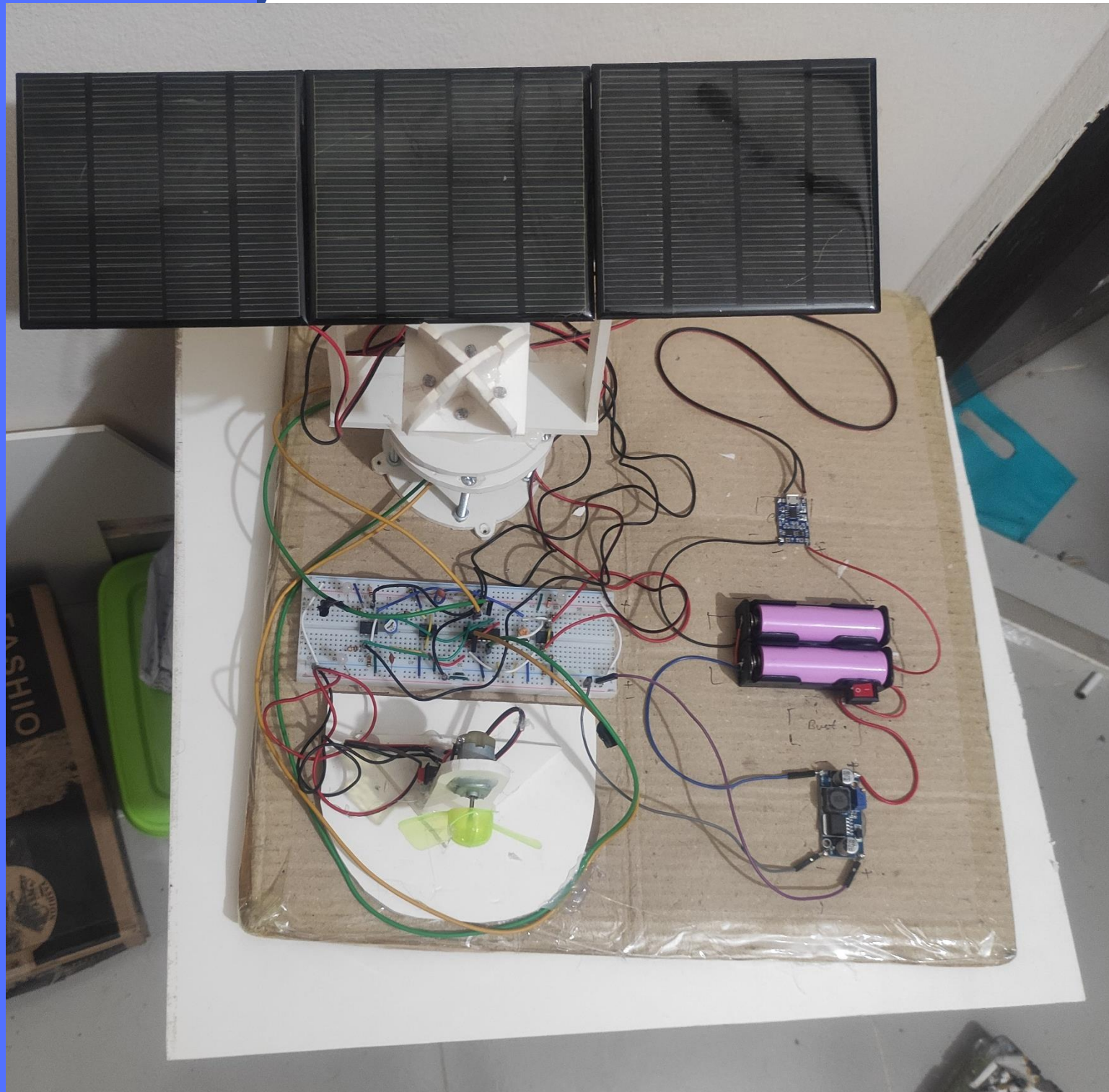
- ❖ In a solar tracker system, a LiPo (Lithium Polymer) battery charger module can be used to charge and manage the LiPo batteries that power the tracker's control system or provide backup power.

DC to DC Boost Converter



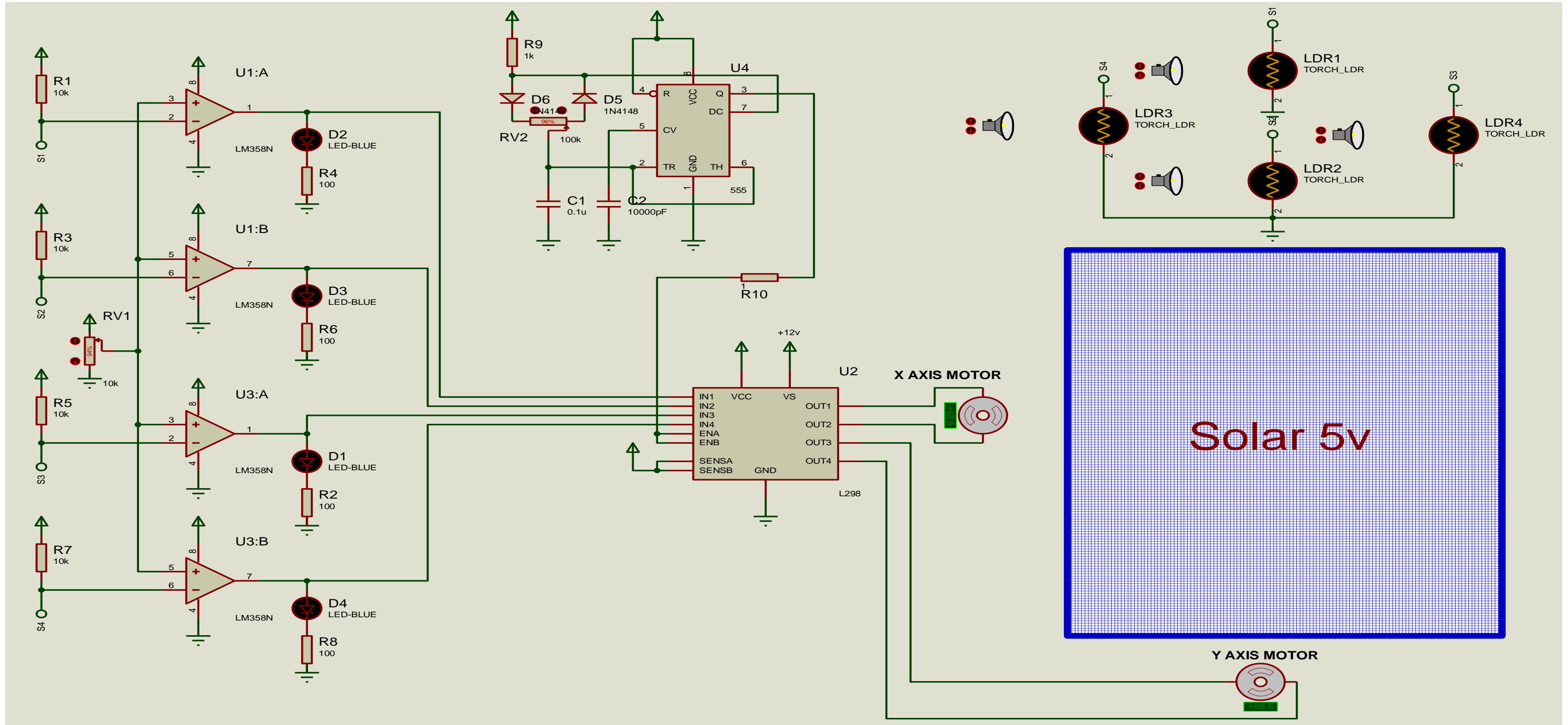
- ❖ A DC-to-DC boost converter, also known as a step-up converter, is a type of power electronics device that converts a lower DC voltage to a higher DC voltage

METHODOLOGY



- **Project Planning and Research:**
- **Design and System Architecture:**
- **Sensor Installation:**
- **Electronic Circuit Design:**
- **Motor Control and Actuation:**
- **Power Supply**
- **Calibration and Testing:**
- **Fine-tuning and Optimization**
- **Deployment and Monitoring**

CIRCUIT DIAGRAM



SOCIAL ECONOMY IMPACT



- Increased Energy Production
- Improved Energy Efficiency
- Job Creation and Economic Growth
- Technological Advancement and Innovation
- Environmental Benefits

Limitations of This Device

Maintenance and Reliability

Complex Installation

Increased Cost

Space Requirements

FUTURE PLAN

1

Advanced Tracking Algorithms:

2

Cost Reduction

4

Integration with Energy Storage

5

Hybrid Tracking Systems

6

Improved Durability and Maintenance

7

Environmental Considerations

8

Smart Tracking Systems

What

Will

We

Do

Next

CONCLUSION

❖ **Despite of complexity, solar tracker projects have the potential to make a significant impact.**

❖ By considering the specific project requirements, local conditions, and long-term benefits, solar trackers can play a valuable role in optimizing solar energy generation and advancing the transition to a sustainable energy future.

