A1 SOL NAVIGATOR

CALIFORNIA STATE UNIVERSITY BAKERSFIELD

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INTRODUCTION

Solar Energy is a renewable and sustainable source of power. It holds potential for addressing global energy needs. However, the efficiency of solar panels can be enhanced by ensuring that they are always facing the sun. This is where solar tracking systems play a crucial role. Among many types of solar trackers, dual-axis solar trackers stand out for their ability to optimize the solar panel orientation maximizing energy captured throughout the day and across seasons.

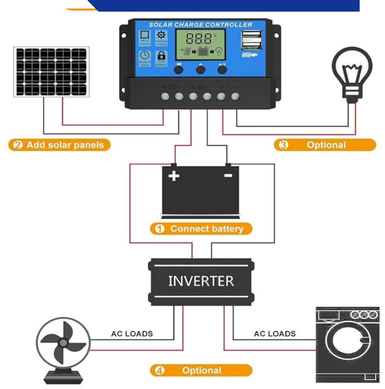
EXPECTED BENEFITS

- Increase Power Generation
- Enhanced Efficiency
- Improve performance in diffuse light conditions
- Long-Term cost savings and returns
- Environmental Benefits
- Space Optimization
- Long Term Savings and Returns

Objectives

- Building the Structure: Building the Frame and the Tilt structure by designing and welding materials together.
- Create the Circuit: Create the Tilt mechanism using an Arduino, LDR Photosensitive Sensors, and Linear Actuators
- Proving the Enhanced Efficiency: Comparing results from a Fixed Panel to our Dual - Axis Tracker

CIRCUIRTY

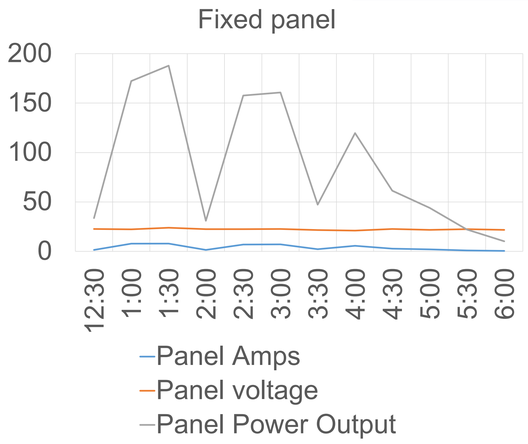


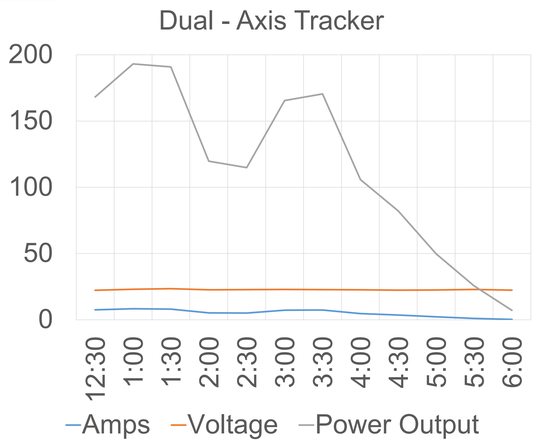
DESIGN

PURPOSE OF THE PROJECT

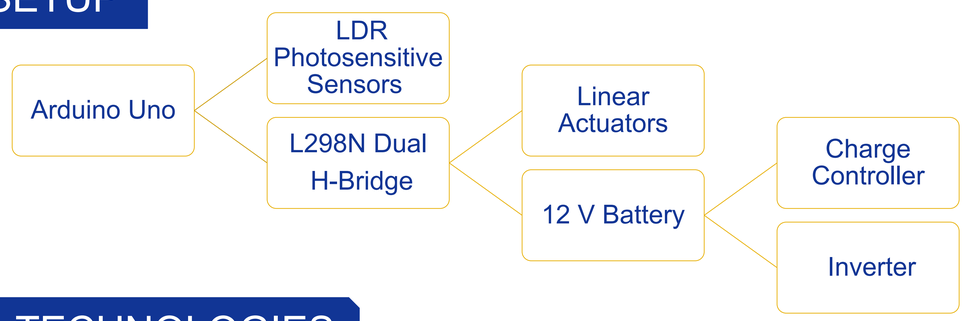
Primary Aim: Design and implement a Dual-Axis Solar Tracking System that can adjust the solar panel's position to track the sun's movement throughout the day. By constantly aligning the panel with the sun's rays, our project aims to achieve the optimal angle and keep the solar panel temperature below 78 degrees to improve overall efficiency.

Readings





SETUP

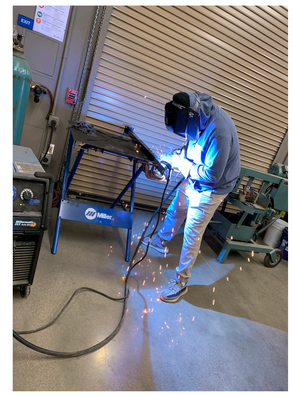


TECHNOLOGIES

ARDUINO, DC HOUSE, Songhe, FivstaSola, HiLetgo, THUNDERBOLT MAGNUM solar

PROJECT TIMELINE

. Team member Jesus grinding pieces of metal getting prepped for welding.



- Team member Amarveer welding the prepped metal.

- The completion of the structure.