ISSN 2277-2685
IJESR/Jan-Mar. 2025/ Vol-15/Issue-1/245-250
Dr. J. Krishna *et. al.*, / International Journal of Engineering & Science Research

# Design And Fabrication Of Iot Based Dual Axis Solar Tracking System With Weather Monitoring

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**ABSTRACT:**

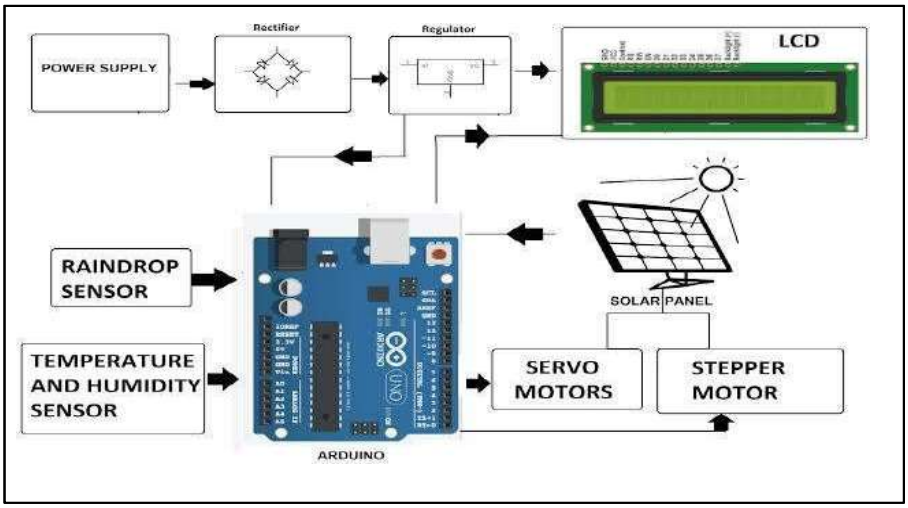
*The Double Pivot Sun based totally Global positioning framework with Climate Sensors is an resourceful association intended to enhance the effectiveness of solar powered electricity accumulating by way of gradually situating daylight based chargers to streamline their openness to sunlight hours. This framework consolidates double pivot following systems along weather sensors to regulate to converting herbal circumstances. The critical goal of this framework is to augment electricity yield from sunlight powered chargers with the aid of converting their course both in azimuth (flat) and upward thrust (vertical) tomahawks. This is completed through the use of precise mechanized gadgets pushed by using constant information from weather sensors, like light force, temperature.*

## I. INTRODUCTION

Chasing realistic and efficient environmentally friendly energy sources, sunlight based totally power stands aside as a promising arrangement. Be that as it may, the power end result of sun powered chargers is profoundly issue to their path closer to the solar. To deal with this restriction, solar powered worldwide positioning frameworks had been created to trade the area of sun powered chargers, boosting their openness to daylight over the course of the day gradually. In this specific scenario, the combination of double hub solar oriented following innovation with slicing aspect climate sensors arises as a important headway within the discipline of solar powered power collecting.

## II. METHODOLOGY

**BLOCK DIAGRAM**



**Sensor Data Collection:**

Weather sensors, such as light intensity sensors, temperature sensors, wind speed sensors, and cloud cover sensors, continuously collect data on environmental conditions.

**Specification:**

- Operating Voltage - 3.5V to 5.5V
- Operating Current – 2.5mA
- Temperature Range - 0 – 50C
- Accuracy - 1%

**Specification:**

- Measuring Range - -50 – 280C
- Accuracy – 2.5%
- Operating voltage – 5V

**III FABRICATION PHOTOS**

**Fig 1: 12v Battery**

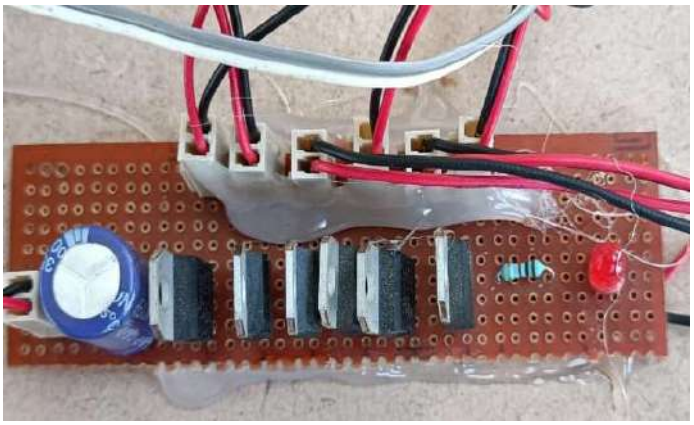


**Fig 2: RPS Regulator**


**Fig 3: UNO Micro controller**

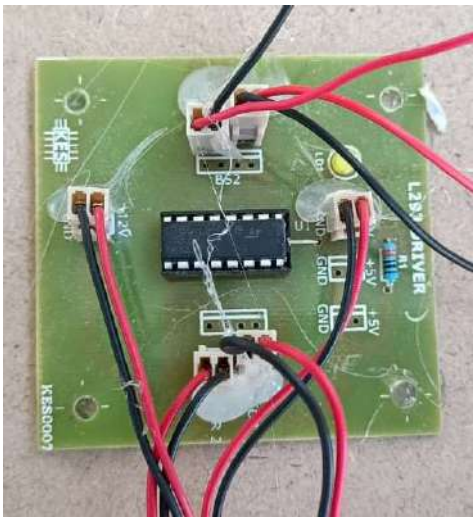



**Fig 4: L292 Driver**

**Fig 5: Temperature identity sensor**

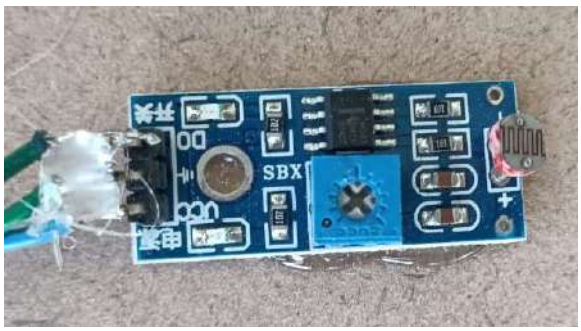


**Fig 6: Light sensor**

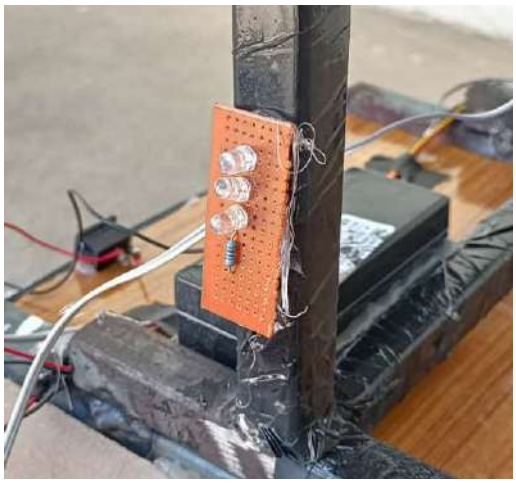


**Fig 7: LED Lights**

**Fig 8: Overall Body**

**Project team Members**

**Data Analysis:**

The collected sensor statistics is treated and broke right down to determine the correct route of the solar powered chargers. Calculations take into account elements like daytime force, surrounding temperature, wind speed, and overcast cover price. Position Computation: In view of the broke down data, the framework works out the exact plots for both flat (azimuth) and vertical (upward push) tomahawks to situate the sunlight powered chargers for finest strength assimilation. The framework continuously screens each the natural situations and the vicinity of the solar powered chargers. This considers acclimations to be made continuously as conditions trade.

## III. MODELING AND ANALYSIS

In the double hub solar orientated global positioning framework, the solar powered charger which is fixed on a design turns in light of the area of the sun that is detected with the aid of the sensor. Four easy pins of arduino for instance A1, A2, A3, A4 are related to 4 resistors and 4 LDR's one at a time which can be inner associated in a voltage divider layout. The -servo engine receives PWM inputs from automated pins 9 and 10 of Arduino. LDR's fills in as the awesome mild sensors. Servo engine is upheld by way of sunlight powered chargers which are fixed to the construction. Arduino software is transferred to the microcontroller. The presentation of the model is as consistent with the following: - When sunlight hours fall on LDR, it detects how a good deal daylight falling on it and every LDR faculties in pinnacle, base, left, proper bearings separately. For north-south following, the easy traits from two pinnacle LDR's and base LDR's are notion approximately and assuming the bottom arrangement of LDR's get all the greater mild, the upward servo will move that manner. In the occasion that everyone the extra mild is detected by way of pinnacle LDR's, the servo engine movements that manner.

## IV. RESULTS AND DISCUSSION

The consummation of our challenge, the Double hub Sun oriented Global positioning framework with Climate Sensor addresses a excessive level answer for reinforcing the effectiveness of sun powered chargers. By continuously converting their route alongside each level and vertical tomahawks, the framework ensures ideal sunlight hours openness over the course of the day.

## V. CONCLUSION

All in all, a double pivot solar primarily based global positioning framework with a weather sensor addresses a high-level solution for enhancing the proficiency of sun powered chargers. By often converting their route alongside both even and vertical tomahawks, the framework guarantees best daytime openness over the direction of the day. The reconciliation of a weather sensor adds a further layer of versatility by allowing the framework to reply changing weather styles, in addition upgrading electricity age. In general, this innovative blend of advancements holds top notch ability for increasing the result and adequacy of solar powered strength frameworks in specific conditions.

## VI. RE FERENCES

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