Progress Report on Solar Tracking System

Utilizing Arduino for Efficient Solar Energy Collection

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Introduction

1 Solar Tracking System

Designed to maximize sunlight exposure by adjusting the solar panel's position based on light intensity.

2 Arduino Integration

Using Arduino for real-time sensor data processing and motor control.

Project Objectives

Increase Efficiency

Design and implement a solar tracking system that increases solar panel efficiency.

Automated Adjustment

Develop a system that automatically adjusts the angle of the solar panel throughout the day.

Block Diagram

Solar Panel

Converts sunlight into electrical energy.

LDR Sensors

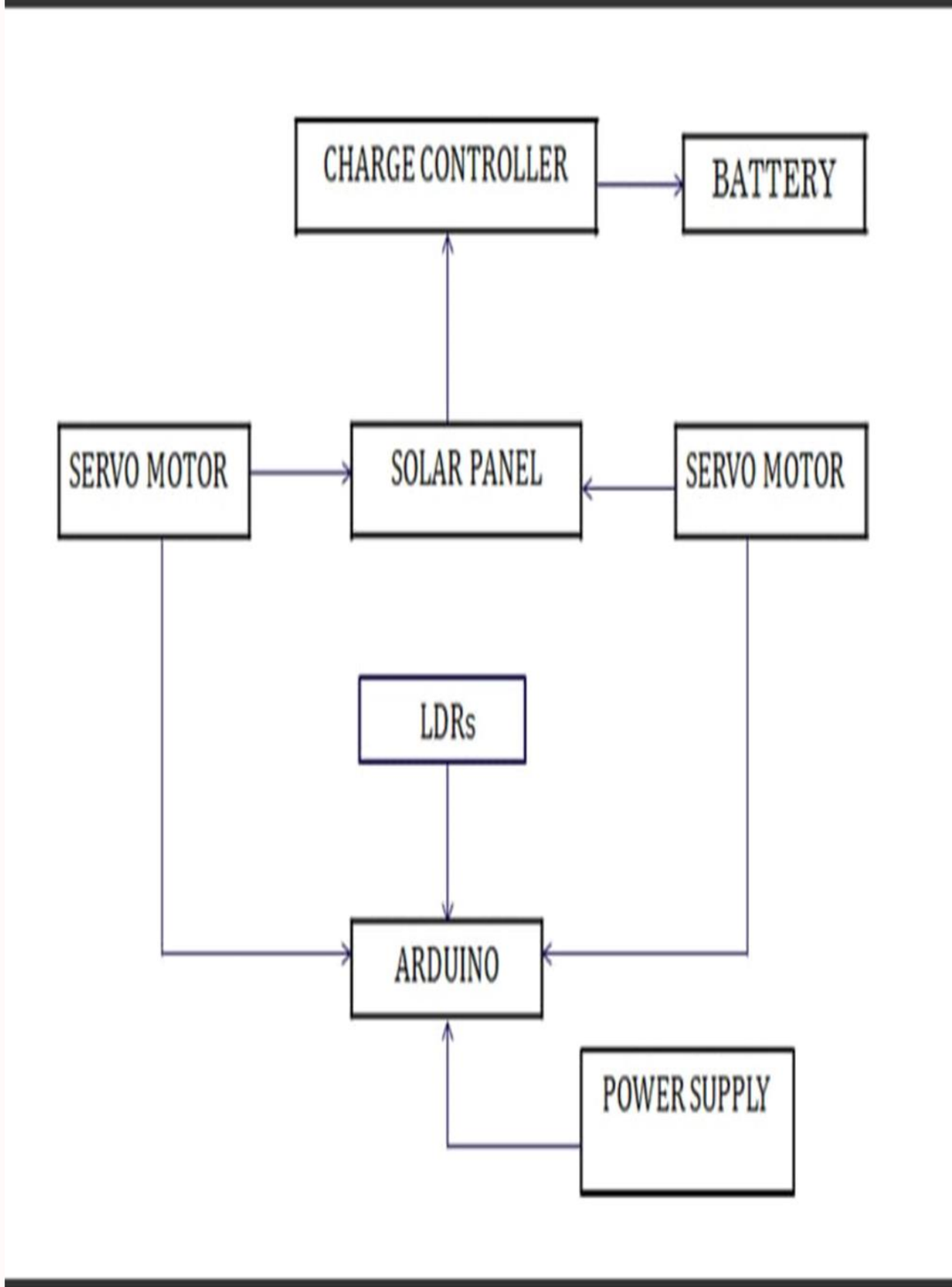
Detect light intensity.

Arduino

Processes sensor inputs and controls servo motors.

Servo Motors

Adjust the solar panel position.



Methodology

1

System Design

Using Arduino to read sensor data and control motors.

2

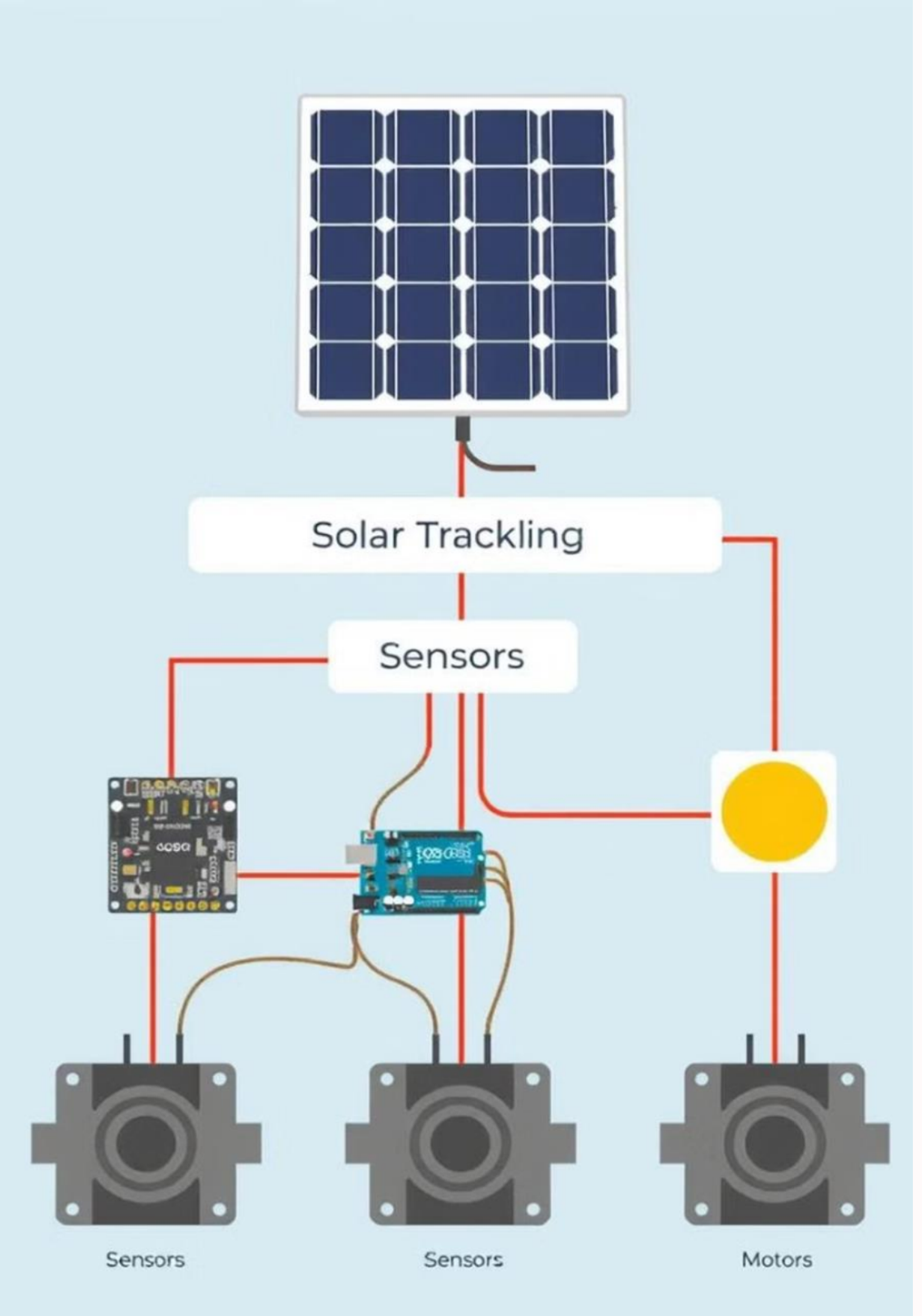
Components Used

Arduino Uno, LDRs, Servo Motors, and Motor Driver.

3

Working Principle

Sensors monitor light intensity, Arduino determines panel movement.



Workflow/Flowchart

1

Initialize

Set up the system and prepare for operation.

2

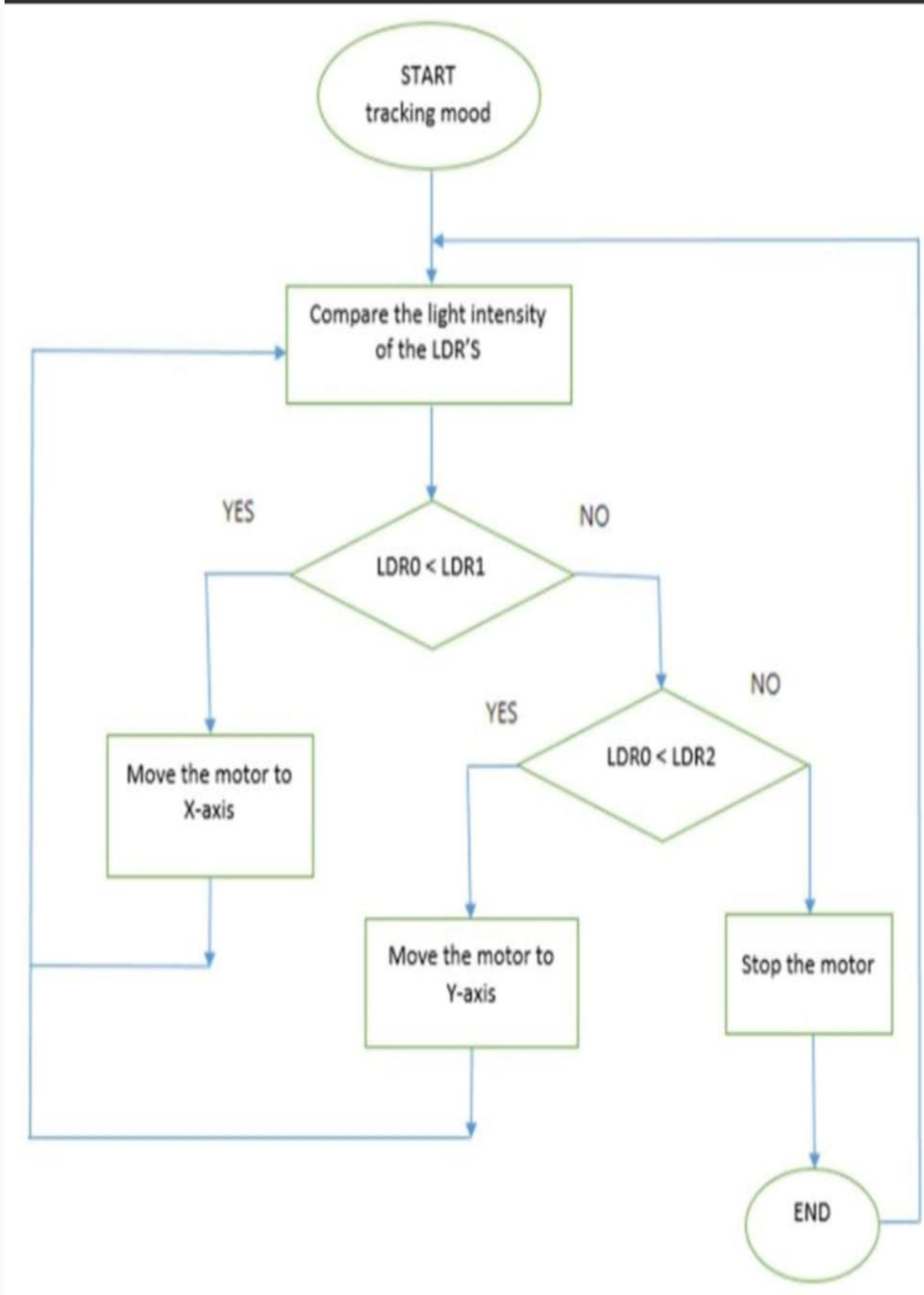
Sensor Readings

Continuously monitor light intensity through the LDR sensors.

3

Tracking Algorithm

Determine the optimal direction to move the solar panel.



Circuit Diagram

Arduino

Processes sensor data and controls motors.

LDR Sensors

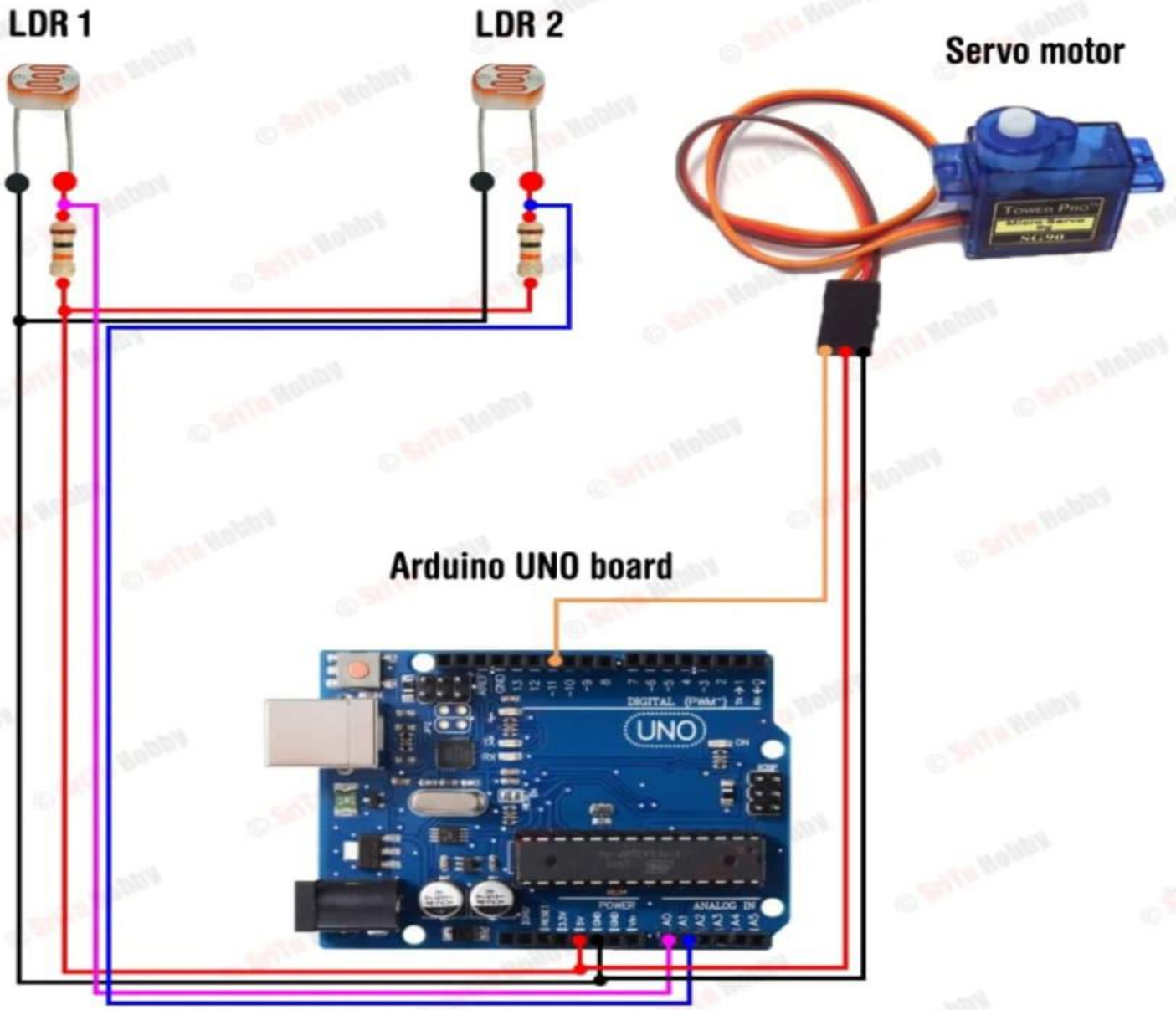
Detect light intensity for tracking.

Servo Motors

Adjust the solar panel position.

Power Supply

Provides electricity to the entire system.



Current Progress

1 Completed Tasks

Block diagram, methodology, and workflow/flowchart developed.

2 Circuit Diagram

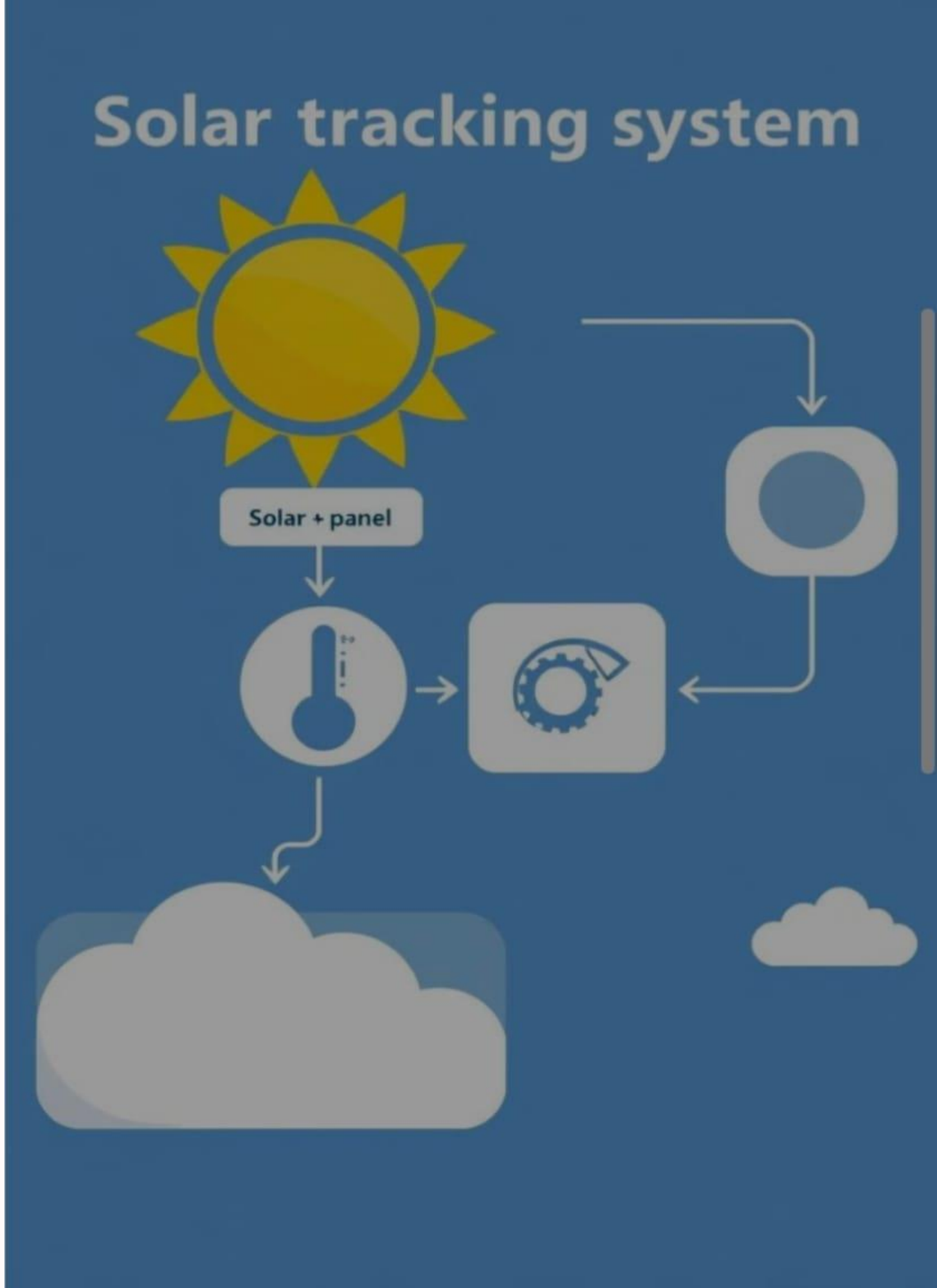
Designed and created the circuit diagram.

3 Code Development

Basic code structure for sensor reading and motor control in progress.

4 Component Testing

Testing individual components for functionality.



Future Work

Integration

Finalize and test the integration of all components.

1

Automated Tracking

2

Implement the code for automated solar panel tracking.

Efficiency Testing

Conduct tests to measure solar energy collection efficiency.

3

Documentation

4

Prepare a detailed project report and presentation.

Conclusion

Enhanced Efficiency

The solar tracking system aims to increase solar energy efficiency.

Solid Foundation

Current progress indicates a strong foundation for continued development.

Future Advancements

Anticipate further advancements as the project progresses.