



IOT & DATA ANALYTICS

Solar Monitoring & Tracking 360

PRESENTATION

2024

>>>

IOT 439 - Final Project





Team 3 Dot

211-16-557 (Farhan Sourav)

211-16-560 (Syed Nesar Haider)

211-16-569 (Sanaullah Efte Sani)

INTRODUCTION



Solar energy is a very large, inexhaustible source of energy.

Solar is the world's most popular form of new electricity generation. The power from the sun intercepted by the earth is approximately 1.8×10^{11} MW. Solar energy



VISION & MISSION



Vision:

"Develop a smart solar panel system integrated with IoT technology"

Mission:

"To create an intelligent solar panel system leveraging IoT to maximize energy efficiency."



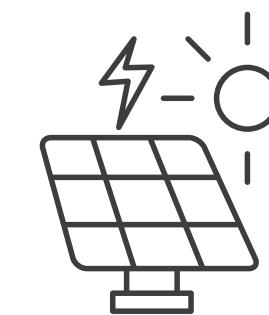
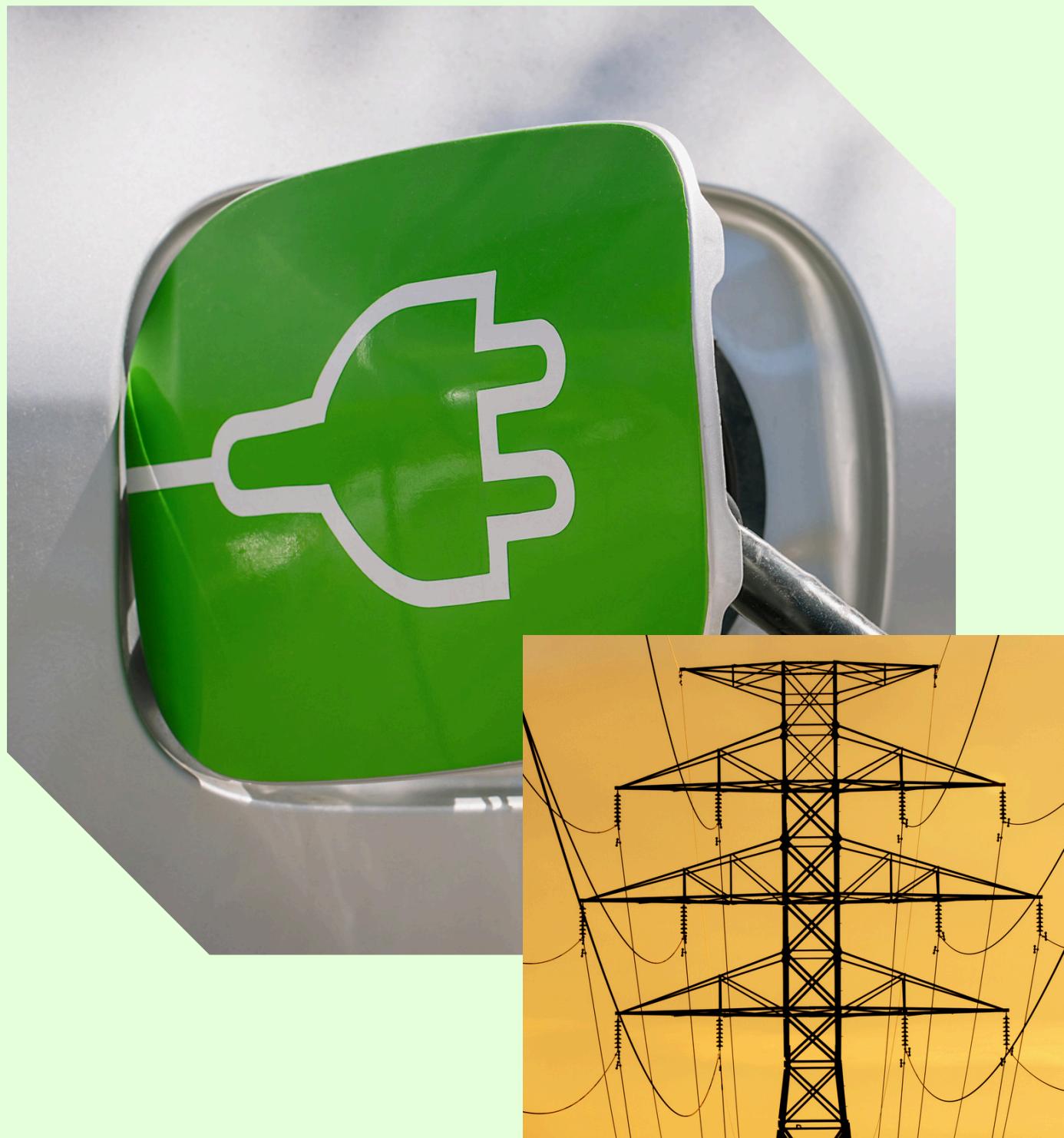
OUR HISTORY IN GREEN ENERGY

Solar trackers are devices used to orient photovoltaic panels, reflectors, lenses or other optical devices toward the sun.

Ponjest Background 5 Solar Tracker Since the sun's position in the sky changes with the seasons and the time of day, trackers are used to align the collection system to maximize energy production. Solar trackers are of two types, single and dual axis trackers.

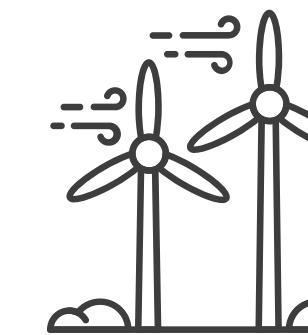


GREEN ENERGY SOLUTIONS



SOLAR ENERGY:

High-efficiency solar panels and photovoltaic systems for residential, commercial, and industrial use.



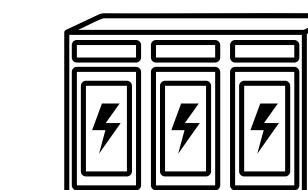
WIND ENERGY:

Advanced wind turbines and wind farms designed for optimal energy capture and minimal environmental impact.



HYDROELECTRIC POWER:

Innovative hydroelectric systems harnessing the power of water to generate clean energy.



BATTERY STORAGE:

Cutting-edge battery storage solutions ensuring reliable and efficient energy distribution.

BENEFITS OF GREEN ENERGY



Environmental Impact:

- Reduction in greenhouse gas emissions
- Preservation of natural resources



Economic Advantages:

- Job creation in the renewable energy sector
- Long-term cost savings for consumers and businesses

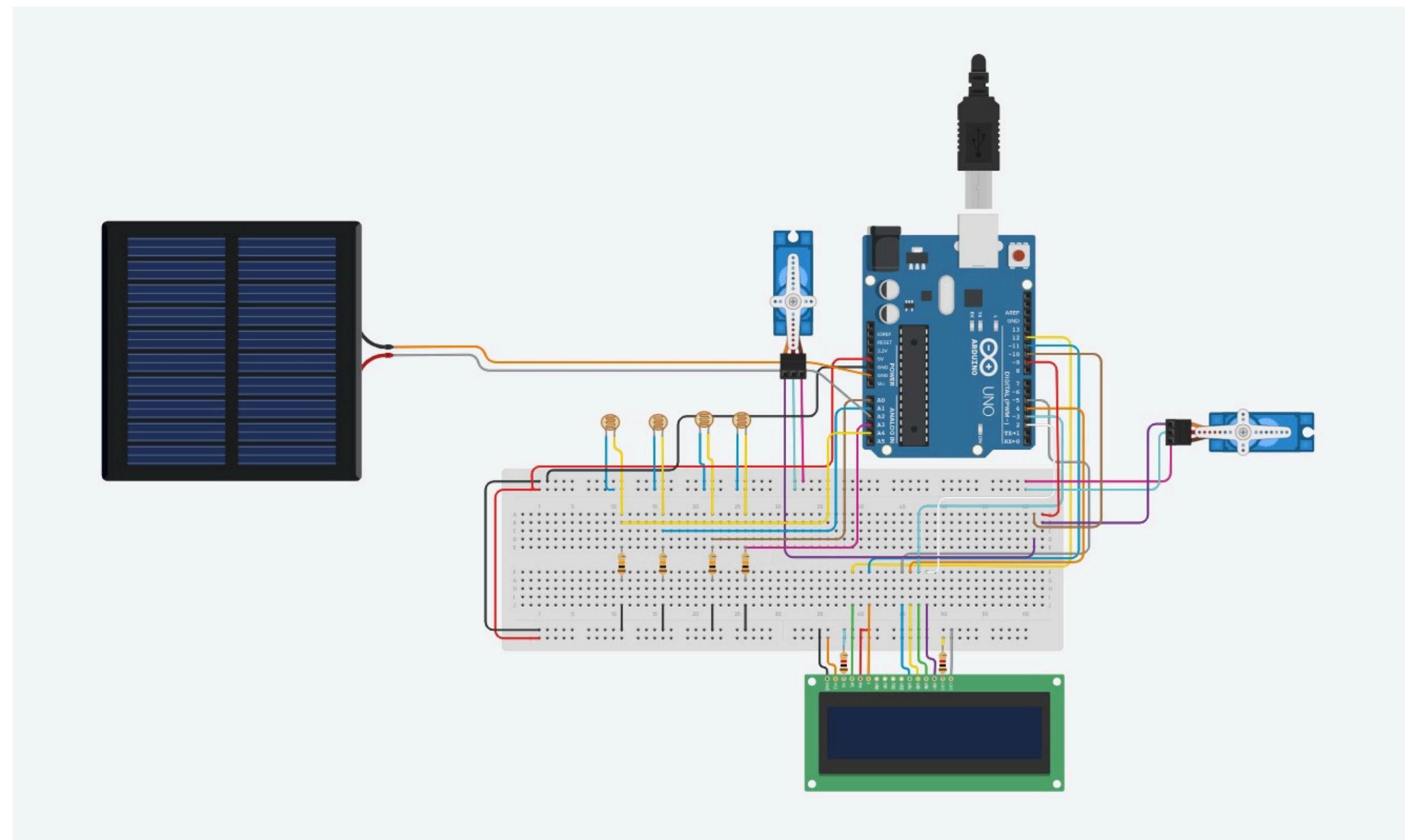


Health Benefits:

- Improved air quality
- Reduction in health issues related to fossil fuel pollution



CIRCUIT DIAGRAM



WORKING PRINCIPLE

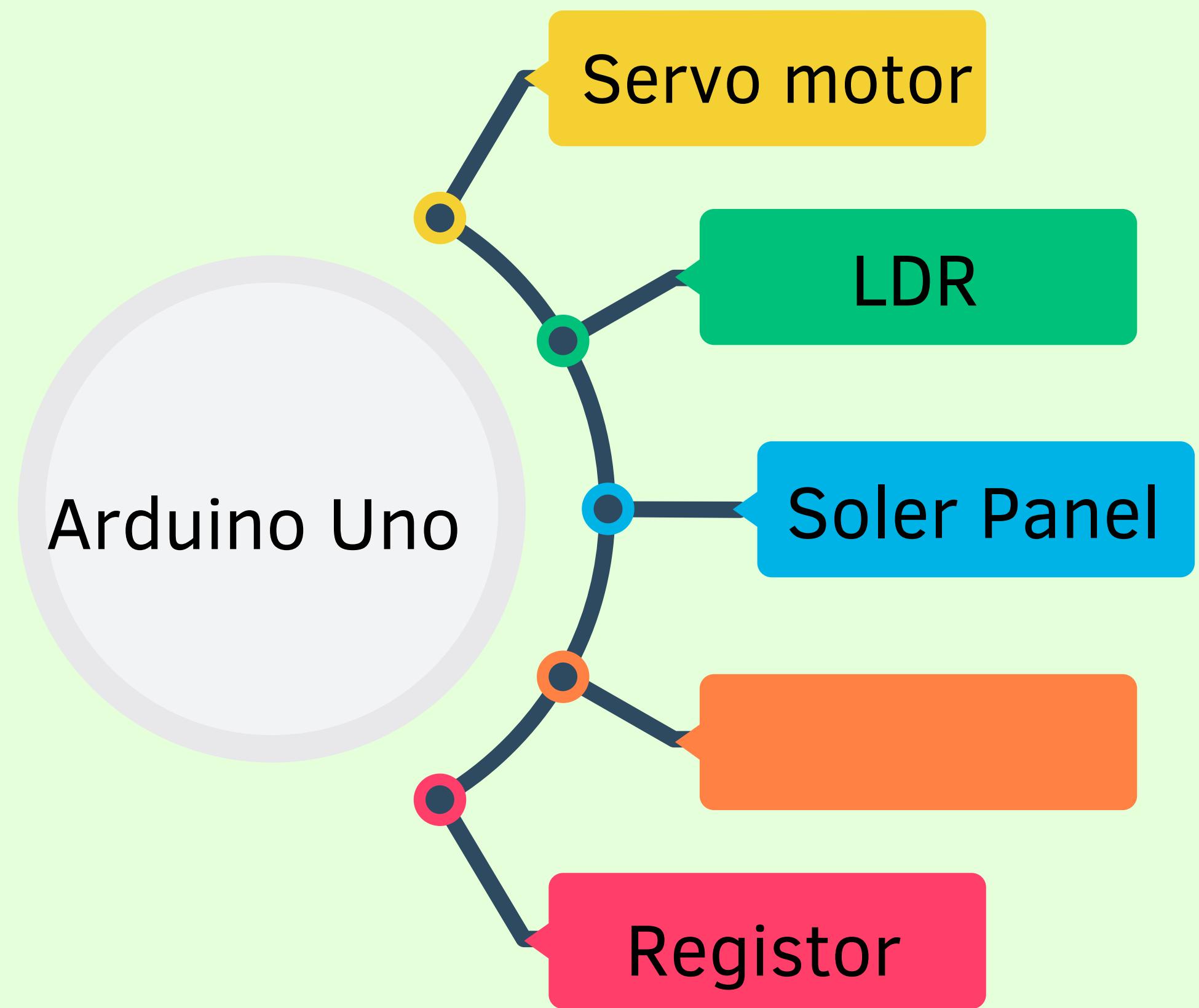
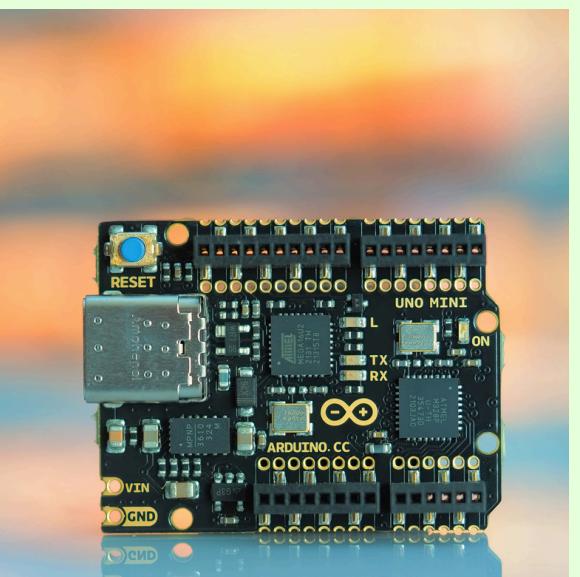


Two LDR's (Light Dependent Resistor)
LDR1 & LDR2 are connected to
Analog pins of the Arduino. A solar
plate is attached in parallel to the
axis of the servo motor and both the
sensors are kept on the solar plate.
LDRs detect Sunlight and they send a
signal to the Arduino, It will guide two
Servo Motors to better place the
solar panel to maximize its efficiency.
The design & the arrangement is done
in such a manner that the movement
of the sun is from LDR1 to LDR2, as
shown in the image below.

HARDWARE COMPONENT

Quantity	Component
1	LCD 16 x 2
1	Arduino Uno R3
2	1 kΩ Resistor
4	Photoresistor
4	10 kΩ Resistor
2	Positional Micro Servo
1	5 V, 100 mA Solar Cell

MINI SOLAR PANEL & UNO



ADVANTAGES



SOLAR PROJECTS

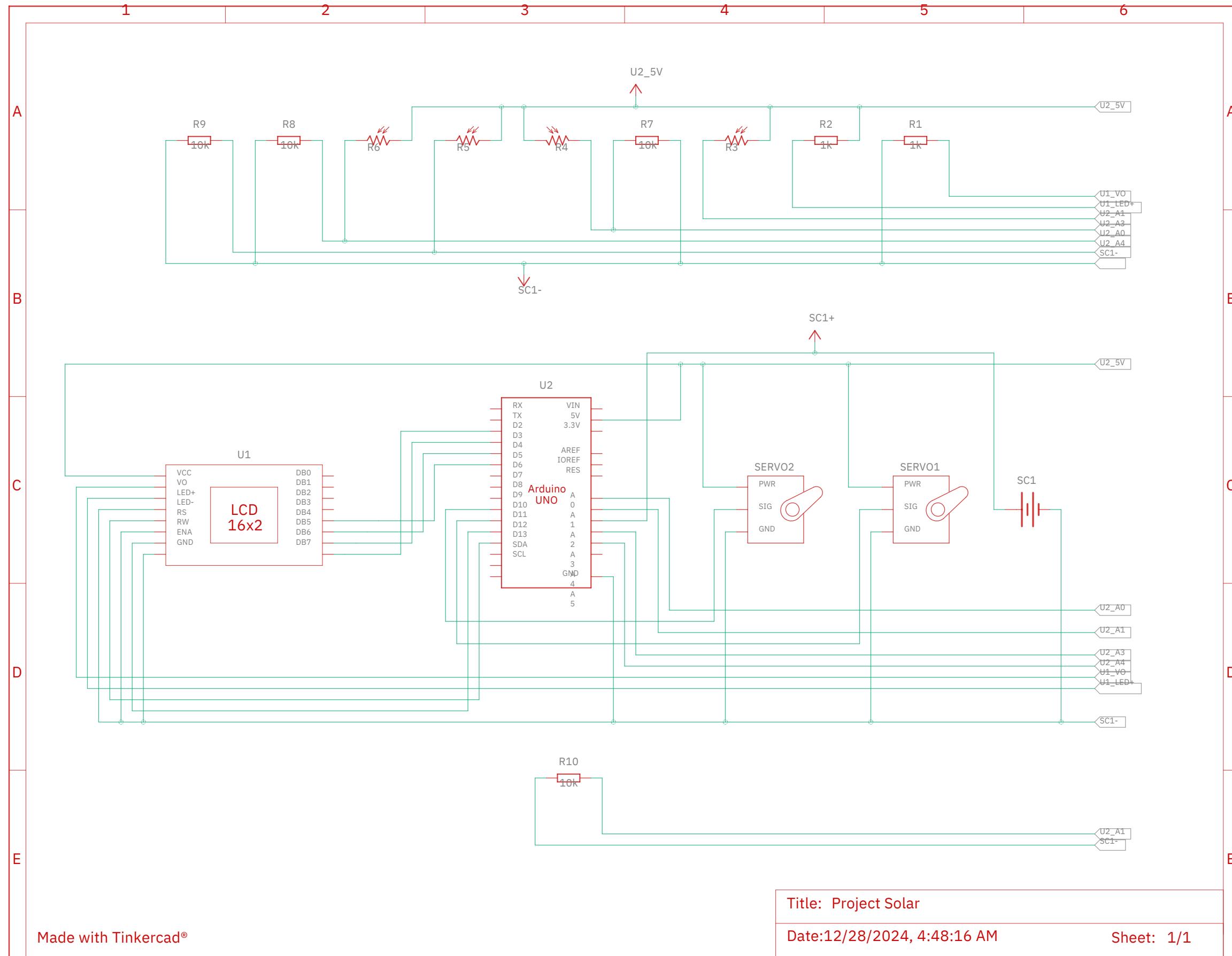
- Simple
- Low cost
- Eco-Friendly
- We can monitor directly using PC
- Tracking accuracy is more
- Reduce the usage of power from power grid

DISADVANTAGES



SOLAR PROJECT

- Storage or complimentary power system is required.
- Limited power density.
- Must be converted to AC when used in currently existing distribution grids



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Thank
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