SOLAR TRACKING DEVICE
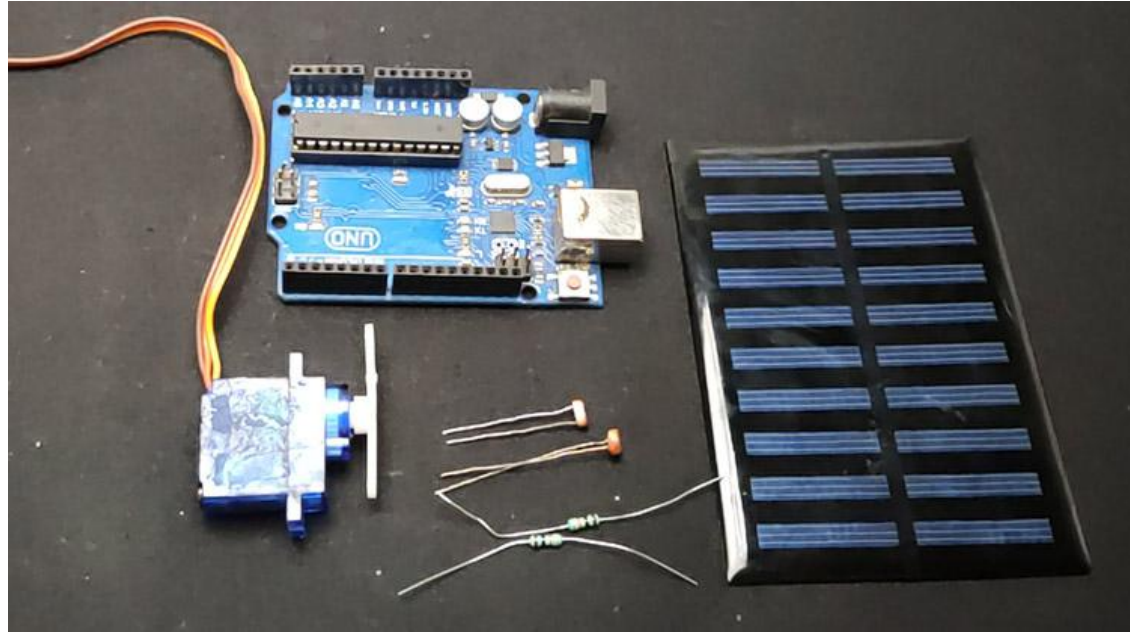
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COMPONENTS REQUIRED:

*Arduino UNO board

*Solar panel

*SG90 servo motor

*LDR sensor : 2

*10k resistor : 2

*Jumper wires

SERVO MOTOR:

Servo motor is used to rotate the solar panel.We are using servo motor because we can control the position of our solar panels precisely and it can cover the whole path of sun.We are using servo motor that can be operated with 5 volt.

LIGHT DEPENDENT RESISTOR (LDR):

A light-dependent resistor is made from semiconductor material having light-sensitive properties and hence are very sensitive to light.The resistance of LDR changes according to the light that falls on it and it is inversely proportional to the intensity of light.
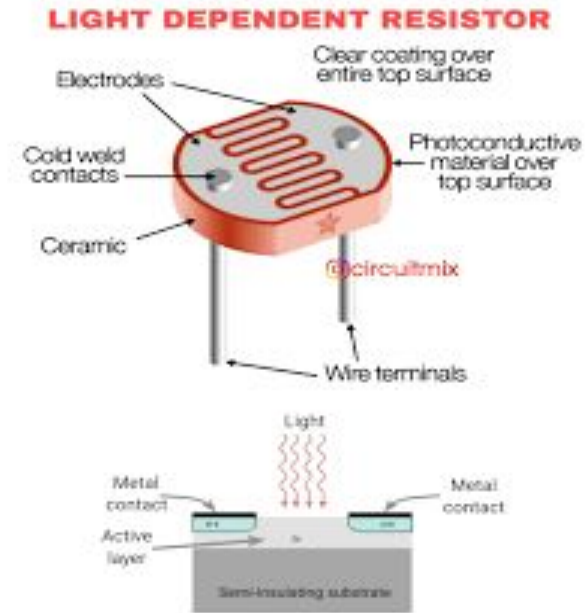
WORKING:

We measure the intensity of light with LDRs using Arduino and compare the intensity of light falling on both LDRs.Based on the intensity of light on the LDR,we give the signal to the servo motor to cause the movement.When the intensity of the light falling on the right LDR is more,the panel turns towards the right and if the intensity is higher on the left then the panel slowly turns towards the left side.

CONNECTIONS OF THE SOLAR TRACKER
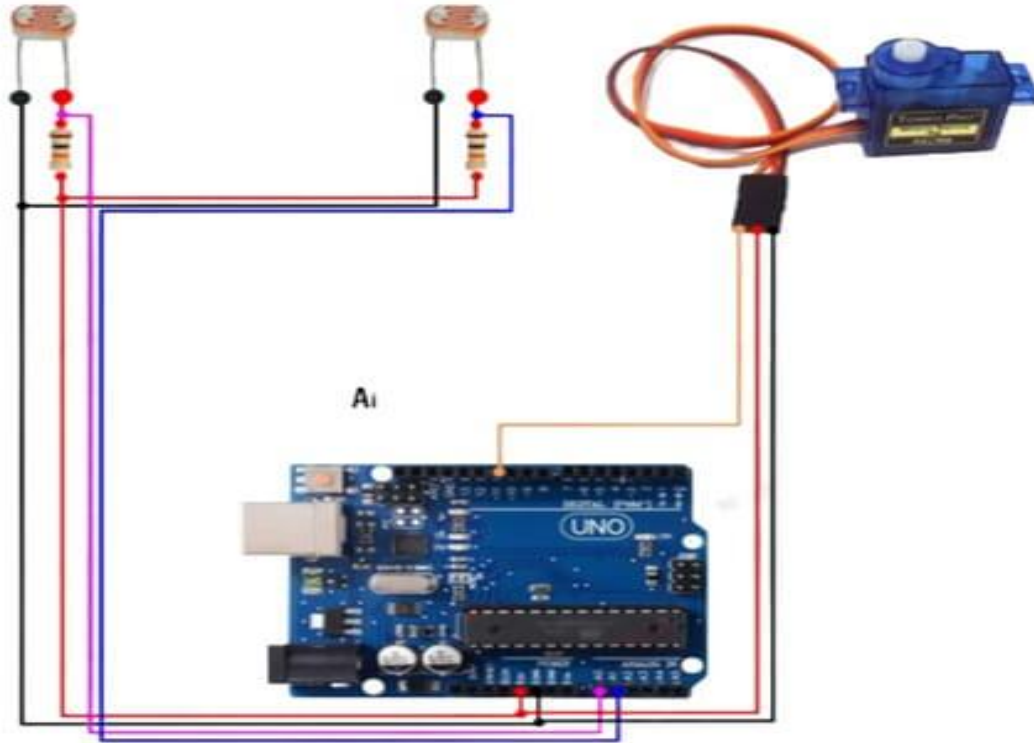
TYPES OF SUN TRACKING SYSTEM:

*Single-axis tracking:In this type of system,only one motor is used and the solar panel can move only around one axis.

*Dual-axis tracking:In this type of system,the solar panel can adjust itself on two axes,one vertical and one horizontal.This system is more efficient than the single-axis system.

ADVANTAGES:

*Solar trackers generate more electricity than their stationary solar system due to direct exposure to solar rays.

*The tracker system does not require long term maintenance because of the advancements in technology and reliability of mechatronics.

THANK YOU