

### **Test plan and outputs:**

### **Components Required:**

Following are the list of components required to design a Solar Tracker

1. Arduino Uno Board
2. Servo Motor SG90
3. Tact Switch (Button)
4. Resistors 10K – 3 Nos
5. LDR – 2 Nos
6. Breadboard
7. Connecting Wires
8. 5 to 12 Volt power Supply

### **Working of the Project:**

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 as shown in the figure above. 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

There are three cases that are to be followed:-

#### **Case 1: Sun is in the left side**

Light on LDR1 is high because the shadow of barrier falls on LDR2 so solar plate moves clockwise.

### Case 2: Sun is in right Side

Light on LDR2 is high because the shadow of barrier falls on LDR1 so solar plate move anticlockwise.

### Case 3: Sun is in the Center

Light on both LDR's is equal so, plate will not rotate in any direction.

**.Outputs:** Output is shown in the demo video below. You can see that the plate moves in the direction of light, but some fluctuation is visible in video because light is coming from multiple sources. Fluctuation is automatically removed when system is placed in direct sunlight.

### Components Used

Search:

Component	Specification	Quantity
Arduino Nano		1
USB Cable	For Programming	1
Switch	SPDT	1
Switch	Momentary	1
Resistors	10K Ohm	3
LDR Sensor		2

Component	Specification	Quantity
Servo Motor	9g	1
Power Source	9 or 12 Volt	1
PCB	Copper Clad/Zero PCB	