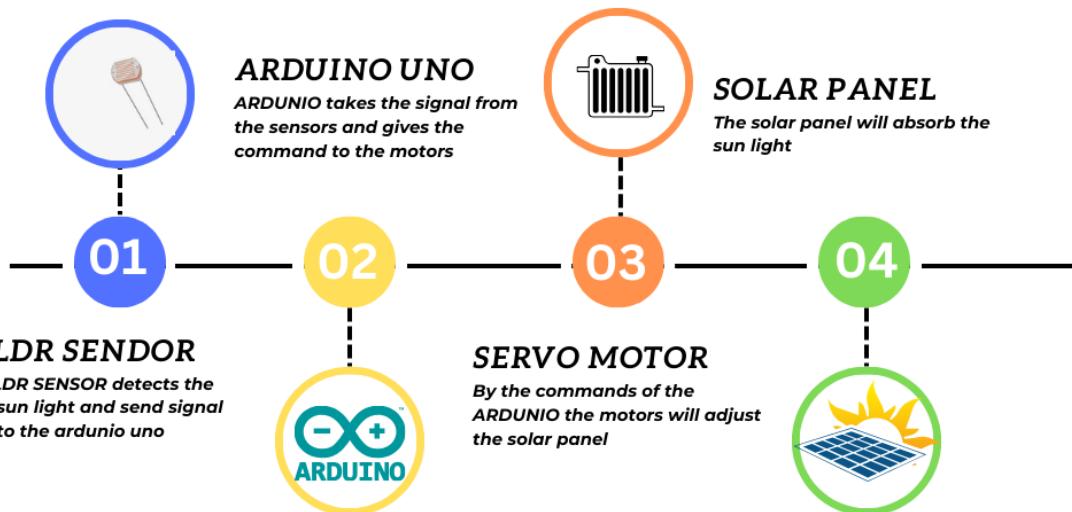


# SMART SOLAR TRACKING SYSTEM



**Aim:** The aim of our project is to maximize energy efficiency by ensuring that the solar panel always faces the sun. To achieve this, you'll use LDR sensors placed at the corners of the solar panel. These sensors will detect changes in light intensity as the sun moves across the sky. When light falls on the sensors, an Arduino Uno program will command the connected motors to adjust the solar panel's orientation, keeping it aligned with the sun's position.

## Working :

### 1. LDR Placement:

- Attach LDR sensors to the corners of the solar panel.
- These sensors will continuously monitor the light intensity falling on them.

### 2. Arduino Control:

- Connect the LDR sensors to the analog pins of the Arduino Uno.
- The Arduino will read the sensor values and determine the direction of the sun.

### 3. Solar Panel Movement:

- The solar panel is mounted on a mechanism (motors) that allows it to rotate.
- Based on the LDR readings, the Arduino will decide whether the solar panel needs to move clockwise or anticlockwise.
- If the sun is on the left side, the solar panel will rotate clockwise. If on the right side, it will rotate anticlockwise.
- When the sun is directly overhead (both LDRs receive equal light), the panel will remain stationary.

### 4. Motor Control:

- The Arduino will send commands to the motors to adjust the solar panel's position.
- The motors will rotate the panel to face the sun, maximizing energy capture.

### 5. Continuous Tracking:

- Throughout the day, the solar panel will track the sun's movement, ensuring optimal exposure.