Smart Street Light

About Project: In this project we create a smart street lighting system that automatically adjusts lighting based on ambient light levels. This system uses an LDR (Light Dependent Resistor) sensor to detect surrounding light intensity and control the street lights accordingly. This reduces energy consumption by ensuring lights are on only when needed, particularly at dusk, dawn, and in dark conditions.

Functionality of smart street light

Automatic Light Control: The LDR detects light levels and sends a signal to the PeeCee(microcontroller). When ambient light is low, the microcontroller turns the light on. When light levels increase (e.g., at dawn), it turns the light off.

Energy Efficiency: By operating only when needed, the system conserves energy and reduces power costs, making it ideal for large-scale installations.

Prerequisite

- Resistor and resistivity

- Intensity

- Light

- Electric circuit

Learning Outcomes

We Will Learn About-

- What is energy?

- Resistor and Resistivity of light.

- Understand LDR(Light dependent resistor) sensor and its types.

- Scientific principle of LDR sensor.

- Applications of LDR sensor.

Ask About….

- How is intensity different from brightness?

STEAM

SCIENCE: Energy, Light, Resister, resistivity of light, Intensity, Light, Electric circuit.

ARTs: use different LEDs as our preference.

Mathematics: Resistivity is the measure of how much an electrical conductor opposes the flow of current through it. $\rho = RA/I$
Where
  ρ is the resistivity,
  R is the resistance,
  I is the material's thickness,
  A is the cross-sectional area.

Technology/**E**ngineering: Introduction to microcontrollers and coding, Sequential programming for smart street light using LDR sensor and 2C LED**.**