**Technical architecture**

Architecture of Smart Street Light System

The components that form a Smart Street Light System are:

LDR Input

IR Sensor

LED

UART

LDR Input

A Light Dependent Resistors (LDR) are light-sensitive devices, also known as photo-resistors that work based on electromagnetic radiation. They induce high resistance as they are made up of semiconductor materials. It works on the principle of Photo-Conductivity. When the light falls on the LDR, its resistance drops and current flows into the base of the first and second resistors respectively. When LDR is kept in dark, the resistance is quite high.

IR Sensor

Infrared Sensor is an electronic instrument that is used to sense characteristics of its surrounding by detecting infrared radiation. These sensors can detect motion and also the heat of the surrounding objects. Wavelengths are longer than visible light wavelengths in the infrared radiation region of the electromagnetic spectrum. The IR Sensor has LED and Receiver. It detects when the object comes closer and sends response to Arduino.

LED

Light Emitting Diode is a two-lead semiconductor light source. These diodes represent the lighting system in the Smart Street Light. The amount of light emitted by it is directly related to the surrounding light. Relay is used to switch ON/OFF the street light bulb.

UART

Universal Asynchronous Receiver/Transmitter is the microchip that controls the computer’s interface to the attached Street Light System.

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Fig. 3 – Architecture of Smart Street Light System