

### **7.1.2 (3) Sensor based energy conversation**

Street lights are doing more in today's day-to-day life. With embedded sensors, they can collect information that help cities monitor to respond in critical circumstances such as road accident, traffic congestion, parking areas etc..., They can also be used for controlling street lights to turn on, off, flash, dim and more, providing a chance to minimize energy consumption with no compromise in safety. This technology can be used everywhere for maximizing energy efficiency such as apartments, colony, flats, companies, schools, staircase in houses etc., These things not only provides efficiency but also reduced cost and maintenance and above all crime rates too.

Smart Street light is an automated system which automates the street. The main aim of Smart Street light is to reduce the power consumption when there are no vehicle movements on the road. The Smart street light will glow with high intensity when there are vehicles on the road otherwise the lights will remain dim or OFF. With advancement of technology, things are becoming simpler and easier for everyone in the world today. Automation plays an increasingly important role in the world economy and in daily experience. These general work is to show the power saving extent. The Smart street light provides a solution for energy saving which is achieved by sensing an approaching vehicle using the IR sensors and then switching ON a block of street lights ahead of the vehicle with high intensity. As the vehicle passes by, the trailing lights turn dim automatically. Thus, we save a lot of energy. So when there are no vehicles on the highway, then all the lights will remain dim.

Street lights are the major requirement in day to day life of transportation for safety purpose and avoiding accidents during night. Street lighting systems are becoming more complex with rapid growth of cities. To control and maintain such complex street lighting systems, various street light control systems are developed.

In Transmissive IR Sensor, the IR transmitter and receiver are placed facing each other so that IR receiver always detects IR Rays emitted by the IR Transmitter. If there is an obstacle between the IR Transmitter and Receiver, the IR Rays are blocked by the obstacle and the IR Receiver stops detecting the IR Rays. This can be configured to turn ON or OFF the LEDs (or street lights) with the help of controller. The IR transmitter is placed directly in line of sight with IR receiver, so that the IR receiver continuously receives infrared rays. Once the IR receiver receives infrared rays, the controller will detect Logic 1. If the infrared rays are blocked by some means, the controller will detect logic 0. Or it can be placed adjacent to work as obstacle detection. As an initiative we have modeled it as prototype which we have planned for our college pathways and canteen. The prototype model is shown below and the place of installation are also provided for reference.



Anantha Giri, Telangana, India

PG Block, Ananthagiri Rd, Anantha Giri, Telangana 508206, India

Lat N 17° 2' 23.9136"

Long E 79° 58' 38.4456"

01/07/21 12:19 PM

**Prototype model of automated sensor based streetlights**



ANURAG ENGINEERING COLLEGE, Telangana, India

Anantha G iri, Telangana, India

Lat N 17° 2' 52.2384"

Long E 79° 58' 8.9832"

29/06/21 01:16 PM

**Location of place where proposed to be installed**

  
Principal  
Anurag Engineering College  
. Ananthagiri (V&M), Kodad,  
Suryapet (Dt.), Telangana-508206