# STREET LIGHT MONITORING & CONTROLLING SYSTEM

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## Abstract

*IOT based street light monitoring and controlling system to ensure, low power consumption, consumption monitoring, instant faulty light detection and light dimming as per external lighting conditions. Our proposed system consists of smart street lights that have external light sensing that automatically turns on at desired intensity based on amount of lighting needed. The system also allows the controller/monitoring person to check estimate power consumptions as per current intensity of light as well as predict monthly power consumption. Also each of the unit has load sensing functionality that allows it to detect if the light has a fault. It then automatically flags that light is faulty and this data is sent over to the IOT monitoring system so that action can be taken to fix it. We here use IO Gecko iot development platform for the online system using the Io gecko api to transmit data and display online.*

## 1. INTRODUCTION

The Internet of Things These Days Is Quite Popular in The Development Of Different Low-cost Systems With The Help Of A Microcontroller. Main Aim of The Internet Of Things Is To Conserve Energy By Reducing Wastage Of Electricity And Also To Reduce Labour Force Or Manpower. Streetlights Are Quite an Important Part Of A City Because It Helps In Giving Better Vision Of Roads And Streets At Night Time.

These Street Lights Are Switched ON In the Evening and Are Switched OFF In the Morning. Between This Time, These Street Lights Are Used at Maximum Intensity Even When Adequate Light Is Available. In Order to Reduce This Wastage Of Electricity, We Need An Automated Street Light Monitoring System Using IOT.

## 2. COMPONENT

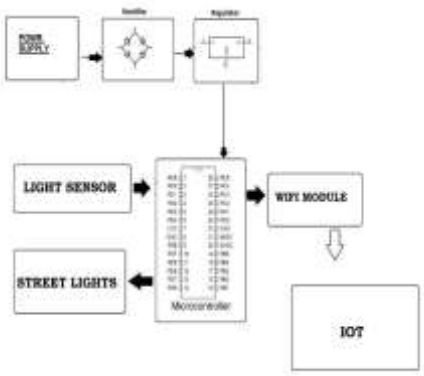
The component used in the venture cannot be detailed, as this assignment is an example for all computer system. So for positive the requirements are as follows:

• Atmega Microcontroller • WIFI Module • Current Sensor • LDR Sensor • LCD Display • Crystal Oscillator • Resistors • Capacitors• Transistors • Cables and Connectors • Diodes • PCB and Breadboards • LED • Transformer/Adapter • Push Buttons • Switch • IC • IC Sockets

• Arduino Compiler • Programming Language: C

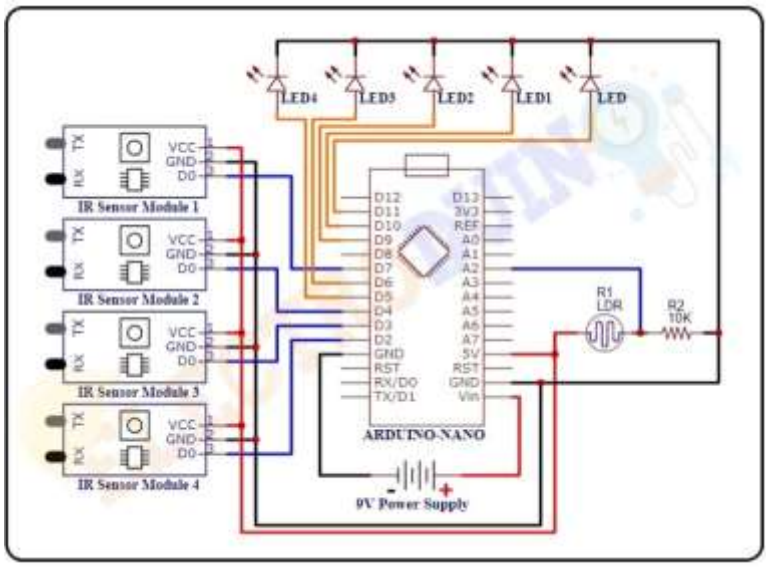
## 3. METHODOLOGY

The application is designed in such a way that we place light sensors in all the street lights circuit and which are responsible to switch on and off automatically. • Once the lights are switched on, current sensors placed at every light poles are responsible to report problem status to the centralized system with the help of GSM module attached with the circuit. • With the status available in the centralized system, the workman now can easily locate the particular light to be taken care which minimizes the time to search it and repair. • The system also collects useful information from each street light at the end of each day. The information is stored in the database such as power consumption, total number of burning hours, and total number of interruptions, tally the actual power consumption with the power supplied, details of fault detection i.e., actual location of street light




### Working of the circuit:

The output from the LDR is connected to the A0 and initially LDR flag and LDR value is set to zero. The value of LDR reference value is initialized and set to 500(baud rate). If the Arduino UNO reads any value from LDR whose value is less than the LDR reference value than it will turn on the street lights. The output from lRL and lR2, lR3, and object lR4 are connected to the pin L,2,3,4 and reference value of all sensor is set to 500(baud rate). Another four-proxy value for each object sensor are set to zero and if any object sensor detects any presence of objects, then Arduino UNO compares the value with the object reference value. If the sensed value is less than the reference value it will glow with 100% of its intensity otherwise LEDs will be off. The first and the last LED glows continuously to detect the start and end of the road



## 4. APPLICATION

▪ Government Units & Municipalities – Government organizations can save large sums of money by using an automatic solar street light system for outdoor lighting. It is forecasted that we will have 359 million street lights by 2026

▪ Great Way to Light Up Streets – Apart from lighting up streets automatic solar street light system along with CCTV can also provide us additional security. Smart solar street lights are wireless & one of the street lighting solutions.

## 5. FUTURE SCOPE

▪ Automatic switching off alternate lights during nights time for power consumption. ▪ Switch on and off automatically. ▪ Street light false detection. ▪ The useful information is collected from the street light at the end of each day this information is stored in a database and based on this information charts are derived. ▪ Chart contains information like, Power consumption, Total number of burning hours, and Total number of interruptions. ▪ Wireless Communication. ▪ Can be deployed on any street light circuit. ▪ Reduces power consumption. ▪ Reduces human resource. ▪ Increases the life time of the street light

## 6. CONCLUSION

We can conclude that using this methodology 2- way communication can be possible. Technical solution for implementation of wireless intelligent smart street lighting system is made easier. It provides a low-cost infrastructure for managing street lighting system. Single point controlling of street lights is made possible. Energy consumption can be controlled making it eco-friendly in usage The growing penetration of smart streetlights in urban environments results in a variety of challenges and opportunities.

## 7. REFERENCES

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