

LITERATURE SURVEY

Date	27 April 2023
Team ID	NM2023TMID09640
Project Name	IOT based weather adaptive street lighting system



PROJECT TITLE :

“IOT based weather adaptive street lighting system”

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CASE STUDY I

TITLE: Smart lighting - Intelligent & weather adaptive lighting in street lights using IOT

AUTHOR: Asis Kumar Tripathy ; Alekha Kumar Mishra ; Tapan Kumar Das

YEAR: 2017

ABSTRACT:

A smart road lighting framework conforms to light yield in the view of use and inhabitation, i.e., computerizing grouping of pedestrians, cyclist, cars and public transports. The smart road light administration proposes the establishment of the remote based framework to remotely track and control the genuine vitality utilization of the road lights and take suitable vitality utilization decrease measures through power molding and control. The road light controller ought to be introduced on the shaft lights which comprise of microcontroller alongside different sensor and remote module. The road light controller introduced into the city light shaft will control LED road lighting relying upon the movement stream, convey information between every road light

CASE STUDY II

TITLE: The Intelligent Control of Street Light System in Oman through Internet of Things Technology

AUTHOR: Asma Ali Hassan AL. Balushi; Syed Imran Ali Kazmi; Jitendra Pandey; Ajay Vikram

YEAR: 2020

ABSTRACT:

Intelligent Street Lights System based on LED lights is one of the most important concepts in today's life. As now a days world depends on the IoT technologies in different areas. Street lights system will be controlled through IoT technology. In the whole world, enormous energy is consumed by the street lights, which are turned ON automatically all the night. Thus, this will waste a huge energy of the country. The intelligent street light system will work in such a way to turn the LED lights ON when the vehicle is passing through it and when not the LED lights turned OFF. The primary aim of this research paper is to reduce the power energy consumption and cost of the street lights system. This paper presents the intelligent street lights system that is controlled through IOT technology, which is connecting to sensor device "Ultrasonic" and then to microcontroller device using Wi-Fi connectivity. In addition, it will use the cloud services and mobile application to present the information of the system for the system administrator.

CASE STUDY III

TITLE: Intelligent autonomous street lighting system based on weather forecast using LSTM

AUTHOR: Didar Tukymbekov, Ahmet Saymbetov, Madiyar Nurgaliyev,

YEAR: 2020

ABSTRACT:

Existing traditional street lighting systems are characterized by a high level of energy consumption compared to automated intelligent systems that offer different operating modes depending on traffic and power system load. The most promising energy sources systems are hybrid installations that switch the load to the grid in adverse weather conditions. Such systems may increase the energy efficiency of the street lighting system, but they are not completely autonomous. In this case, the most important problem is to provide the street lighting system with energy in adverse weather conditions. In this paper, an autonomous street lighting system with adaptive energy consumption based on weather forecast was shown. The proposed street lighting system is completely independent of traditional power sources and is completely powered by solar panels. The main energy consumers of a street lighting system are lamps. The consumption of lamps can be changed to the minimum brightness level required by outdoor lighting standards. Forecasts of energy generation by solar panels can be obtained using LSTM. It is based on weather and solar radiation forecasts data for the coming days. The brightness levels of lamps are calculated and changed using the methods proposed in this paper. The probability of reaching the critical level of batteries does not exceed 0.10% and fluctuates around 0.05% most of the time when simulating for 1000 days under random weather conditions. Simulation of energy consumption by the street lighting system using the proposed method shows stable and sustainable performance in Almaty, Kazakhstan. The obtained results in this work can be used for designing autonomous street lighting and outdoor lighting systems.

CASE STUDY IV

TITLE: A Study on IoT based Smart Street Light Systems

AUTHOR: Dr. A. Senthil Kumar , K. Vignesh , M. Sakthivel , K. Priya , Princymol Joseph

YEAR: 2020

ABSTRACT:

Today's modern world people preferred to live the sophisticated life with all facilities. The science and technological developments are growing rapidly to meet the above requirements. With advanced innovations, Internet of Things (IoT) plays a major role to automate different areas like health monitoring, traffic management, agricultural irrigation, street lights, class rooms, etc., Currently we use manual system to operate the street lights, this leads to the enormous energy waste in all over the world and it should be changed. In this survey we studied about, how IoT is used to develop the street lights in the smart way for our modern era. It is an important fact to solve the energy crises and also to develop the street lights to the entire world. In addition with the study on smart street lighting systems we analyzed and described different sensors and components which are used in IoT environment. All the components of this survey are frequently used and very modest but effective to make the unswerving intelligence systems.

CASE STUDY V

TITLE: Smart City: Recent Advances in Intelligent Street Lighting Systems Based on IoT

AUTHOR: SaraAlMaeeni, HussainAttia, MaenTahruri,

YEAR: 2022

ABSTRACT:

Based on the importance of energy saving in terms of reducing the carbon impact and global warming problems, smart street lighting systems have been proposed in the past few years with different specifications. These systems include sensors for controlling the light intensity and connectivity for recording weather conditions and diagnosing lamp failure remotely. This paper discusses many published research studies regarding smart street lighting systems, providing a comparison between these systems which emphasizes the limitations of each one of them. Current and future trends are highlighted.

Street lighting is a core infrastructure piece in urban and semiurban cities. It provides a number of advantages such as improving safety for drivers and pedestrians. Nowadays, street lighting accounts for about 13–14% of the world's electricity annual production and the market is continuously growing. It is expected that by 2027, there will be about 363 million street lights around the world. Consequently, enormous energy is consumed by the street lights, which makes it imperative to work on solutions to reduce street light consumption.