

CHAPTER 1

INTRODUCTION

1.1 General Introduction

AIM: To design street lights monitoring and control system with the centralized server.

A well-designed, street lighting system should permit users to travel at night with good visibility, in safety and comfort, while reducing many malfunctions occurs during night and enhancing the appearance of the neighborhood. Conversely, poorly designed lighting systems can lead to poor visibility which may not be helpful for any pedestrian and who are passing by that street.

Quite often, street lighting is poorly designed and inadequately maintained (e.g., there are large numbers of burned-out lamps), and uses obsolete lighting technology, thus consuming large amounts of energy and financial resources.

The objective for this project is to design a lighting system which targets the energy saving and autonomous operation on economical affordable for the streets and immediate remedy on complaints. The Energy Consumption of various services can be recorded and accounted. Build an energy saving lighting system with integrated sensors and controllers. Moreover, errors which occur due to manual operation can also be eliminated. As all the Street Lights can be switched ON/OFF through computer from central control station and no labor is required for switching ON/OFF. Doing all these in turn increases the performance and life of the lamps.

1.2 Motivation Behind the Work

Existing methods like registering the complaint switching on/off the light manually is time consuming requires workforce of man power. The new method automatic ON/OFF and fault detection without human intervention is easier when compared to the existing system.

Providing street lighting is one of the most important and expensive responsibilities of a city. Street lighting is a particularly critical concern for public authorities in developing

countries because of its strategic importance for economic and social stability. Our proposed plan for street light monitoring and control system can provide street lighting maintenance. This maintenance can also enable municipalities to expand street lighting to additional areas, increasing access of providing street light for all the streets and also other underserved areas. In addition, improvements in lighting quality and expansion in services can improve safety conditions for both vehicle traffic and pedestrians.

1.3 Scope of the Project

- Switch on and off automatically.
- Street light false detection.
- Automatic switching off alternate lights during night time for power consumption.
- If complaint not rectified by area wise system then information to higher level office(Zonal level) based on some constraint like not rectified even after two days.
- Alert notification and automatic off for particular street light if there is any abnormal/subnormal consumption of power to avoid short circuit or any such related problems, also message to the respective workman.
- 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.

1.4 Organization of Work

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 pole 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 and based on this information charts are derived. The charts are displayed in the street light section which contains information like power consumption, total number of burning hours, total number of interruptions, tallies the actual power consumption

with the power supplied, details of fault detection i.e. actual location of street light. The system is also provided with optimal sleep scheduling protocol to increase the lifetime of the street lights.

This kind of proposed effective street lighting is an important way of increasing road safety at night; it improves the quality of life for residents by deterring crime and by making people feel more secure. Lighting is also used to improve the ambience of areas, which is commercially beneficial to businesses and the prosperity of the city as a whole.

Summary

A well-designed, street lighting system should permit users to travel at night with good visibility, in safety and comfort, while reducing many malfunctions occurs during night and enhancing the appearance of the neighborhood. Providing street lighting is one of the most important and expensive responsibilities of a city.

The objective for this project is to design a lighting system which targets the energy saving and autonomous operation on economical affordable for the streets and immediate remedy on complaints.