SMART STREET LIGHT SYSTEM

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ABSTRACT

Currently in the whole world enormous electric energy is consumed street lights are usually very costly to operate bad controlling of street lights lead to vehicle accidents. Today street lights system is not flexible most of the controlling is manual where as some are automated based on environment parameters. Biggest problem is to handle remote area locations manual mistakes result into power wastage. So there is a need of efficient street light system to provide wireless access for controlling it. Server which can be used to control whole city's street light and low cost internet technology can be used for remote access. Proposed system controls all the street lights using an android application all the street lights connected to a junction these junctions are controlled by an android application as per the need street lights can be switched on/off. The main motive behind implementing this project is to save energy..

I INTRODUCTION

Street lights are the key factor of any city to make it smart city. But we have seen such situation where our street lights are ON in presence of daylight. So we want to develop such a system which will operate street lights of the city at anytime. The motivation of this project is to design a smart lighting system which targets the energy saving and autonomous operation which is economical and affordable for the streets. Design a smart lighting system with modular approach design, which makes the system scalable and reliable. Design a smart lighting system which is compatible and scalable with other commercial product and automation systems, which might include more than one lighting systems.

This paper presents a new economical solution for street light control systems. The control system consists of a control circuitry and the electrical devices. This also includes client server mechanism where user can directly interact with web based application to control the Street lights from any place with the help of android application. A street light control system has been developed to control and reduce energy consumption of a town's public lighting system. This ranges from controlling a circuit of street lights and/or individual light with android application and network operating protocols. This includes sending and receiving instructions via separate data networks, at high frequency over the top of the low voltage supply or wireless. Street lights are connected to the junction. There are multiple junctions each junction covering some particular part of the city.The main aim is to

provide IP to every junction which can be controlled through internet. The main motivation behind implementing project is to save energy. It is an automated system designed to increase the efficiency and accuracy on automated time control,governed and pattern basis.

II LITERATURE SURVEY

Smart street lamp monitoring system using Xbee wireless module. Their aim is to monitor the health of street lamps and forward monitored result to the control station. Inside the lamp module, it consists of light dependent resistors (LDR) module, microcontroller module and transmission module. The lamp module communicates with the control centre through wireless using Xbee. The LDR module consists of two LDR. One of the LDR is install on top of the street lamp for the checking the day/night status condition while the other LDR is placed under the street lamp to monitor and check the lamp's health status. The results of the LDRs are sent to microcontroller, where the microcontroller will process the data and send the data to the transmission module. In the transmission module, there is wireless Xbee that transmit the data through wireless to the control centre. In the control centre, it will monitors each of the street lamp status, as well as controls the operation of the street lamps.

Automatic Street Light Control System Using Microcontroller This paper aims at designing and executing the advanced development in embedded systems for energy saving of street lights. Nowadays, human has become too busy, and is unable to find time even to switch the lights wherever not necessary. This paper gives the best solution for electrical power wastage. Also the manual operation of the lighting system is completely eliminated. In this paper the two sensors are used which are Light Dependent Resistor LDR sensor to indicate a day/night time and the photoelectric sensors to detect the movement on the street. The microcontroller PIC16F877A is used as brain to control the street light system, where the programming language used for developing the software to the microcontroller is C-language

. Intelligent Street Lighting System Using Gsm: The system comprises of server, GUI to display and nodes which are micro controlled processed with embedded sensors measuring different parameters. Each node in the network is linked to the main server via a protocol. The analog data sensed by the sensor is converted in digital form, processed by microcontroller and then sent to the server. The master controls all the slaves .The other nodes sends the data to master and the master collects the data and further sends to concentrator and server where the data is monitored and on necessary alterations process it to switch On/Off the nodes devices.

Intelligent Street Light System using RF Transmission The proposed prototype of intelligent street light can detect daylight and vehicles and vary the intensity of the LED based street lamps as per the traffic flow. It can also help in monitoring of street light system and fault detection through RF wireless technology. If intelligent street light is designed and installed in the cities, then, lot of power can be saved and this will also minimize the cost of maintenance over traditional wired systems. The system is versatile, and can be extended as per user needs..

III EXISTING SYSTEM

Currently all the street lights are controlled manually.Street lights are not switched on/off according to need due to human mistakes.

IV PROPOSED SYSTEM

System involves efficient street light control system to provide wireless access for controlling it. Server is used to control street light. Low cost internet technology is used for remote access . System controls street lights using android application. As per the need street lights can be switched on, off or according to pattern

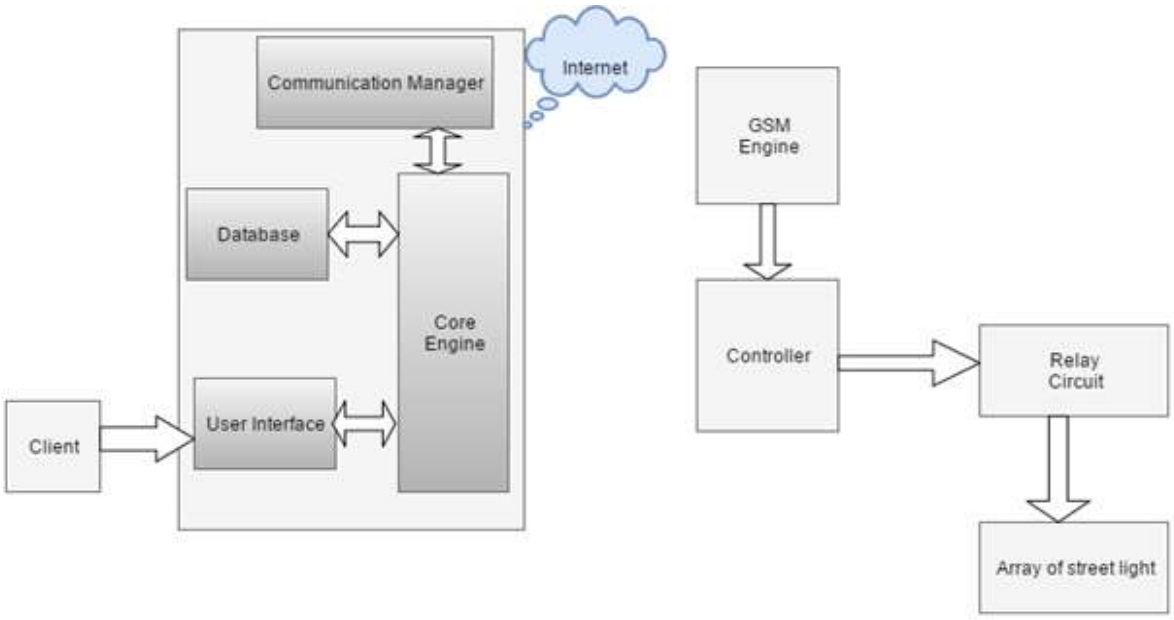

Fig. Architecture Diagram

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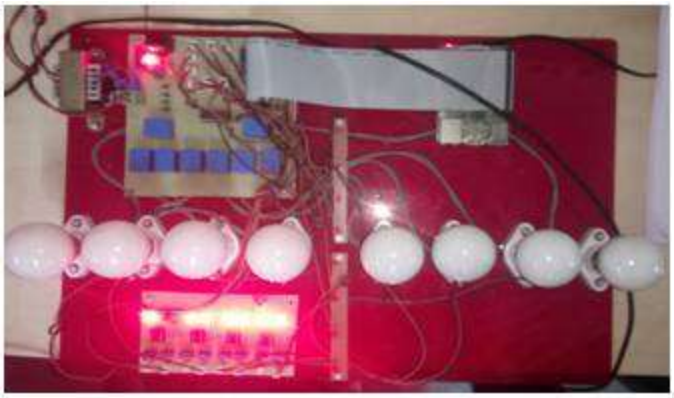
V METHOD

HTTP stands for Hypertext Transfer Protocol. It's a stateless, application-layer protocol for communicating between distributed systems, and is the foundation of the modern web. HTTP allows for communication between a variety of hosts and clients, and supports a mixture of network configurations .To make this possible, it assumes very little about a particular system, and does not keep state between different message exchanges. This makes HTTP a stateless protocol. The communication usually takes place over TCP/IP, but any reliable transport can be used. The default port for TCP/IP is 80, but other ports can also be used. Custom headers can also be created and sent by the client. Communication between a host and a client occurs, via a request/response pair. The client initiates an HTTP request message, which is serviced through a HTTP response message in return. The current version of the protocol is HTTP/1.1, which adds a few extra features to the previous 1.0 version. The most important of these, includes persistent connections.

A web service is any piece of software that makes itself available over the internet and uses a standardized XML messaging system. XML is used to encode all communications to a web service.Web services are self-contained, modular, distributed, dynamic applications that can be described, published, located, or invoked over the network to create products, processes, and supply chains. These applications can be local, distributed, or web-based. Web services are built on top of open standards such as TCP/IP, HTTP, Java, HTML, and XML.Web services are XML-based information exchange systems uses the Internet for direct application-to-application interaction. These systems can include programs, objects, messages, or documents.A web service is a collection of open protocols and standards used for exchanging data between applications or systems. Software applications written in various programming languages and running on various platforms can use web services to exchange data over computer networks like the Internet in a manner similar to inter-process communication on a single computer. This interoperability (e.g., between Java and Python, or Windows and Linux applications) is due to the use of open standards. The basic web services platform is XML + HTTP

VI RESULT



The above figure depicts the hardware of the proposed system consisting of LEDs, transformer, raspberry pi 3

The above figure shows the output for command given from android application. The given hardware is connected to server via internet.

The above figure shows alternate pattern which can be used when road is not much crowded, thereby reducing electricity consumption by 50 percent.

VI CONCLUSION

In this paper Smart street lighting system is described that integrates new technologies offering ease of maintenance and energy saving. It tackles the problem of energy wastage which in turn reduces power consumption, increases road safety and gives efficient way to handle switching on/off streetlight by using automatic and time scheduling approach.

VII ACKNOWLEDGEMENT

Every work is source which requires support from many people and areas. It gives us proud privilege to complete the project "SMART STREET LIGHT SYSTEM " under valuable guidance and encouragement of my guide Prof. H.A Bhute. We are extremely grateful to our respected H.O.D.(Computer Dept.) Prof. M. P. Wankhade for providing all facilities and every help for smooth progress of project. We would like to thank all the Staff Member of

Computer Engineering Department for timely help and inspiration for completion of the project.

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