RF AND INTERNET BASED ADVANCED STREET LIGHT CONTROLLING SYSTEM

K.JEYA PRAKASH, D.S.KIRAN KUMARREDDY,KAMMARI HARI PRASAD,

MASULA BALACHANDRA

ASSISTANT PROFESSOR,BTECH, BTECH ,BTECH
ELECTRONICS AND COMMUNICATION ENGINEERING
,
KALASALINGAM ACADEMY OF RESEARCH AND EDUCATION

KRISHNANKOIL 626 126,MADURAI, INDIA

Abstract: Street lights are been consumed a heavy amount of electric energy to overcome from this or to save power consumption we gave automatically turn ON and OFF by using with timer and with motion sensor .Our project is mainly to save energy and it can be renewable also. Our aim is to save people during night-time. And in a day time the lights will be automatically off because we will set timer for the lights connection when to ON OFF. Power consumption of electrical energy is used to reduce the energy through system. Motion sensor is employed for to detect the motion of the item. And that we can detect the motion up to 180 degree within the area. By using Blynk app we are able to operate the on/off and also we are able to use the timers for setting the time that may save our energy without wasting it which time we are able to keep what percentage hours we wish we are able to keep through timer setting . Relays are used to control for opening and closing the electrical device and acts like a switch. Moreover in this current world many of them are wasting the power consumption by turning the lights on during day times our motto is to reduce the power consumption and make them awareness of the Electricity bill. Many changes has been developed and developing the smart street light system through technology.

Index Terms- **Motion Sensor, Arduino UNO, Relay, Bulb, WI-FI Module**

INTRODUCTION

Street lighting is an important in villages and cities it was established in past years. And it is useful in weather conditions also, so as to be in a safe way the roads streetlights has be implemented and it will be helpful so many public use. And we can simply say that it is a type of eco-friendly.

We need to stop wasting the natural resources because they are very helpful for us so we should not loose this type of resources are it will gone forever. If we are not using the resource we need stop or switch off. Now a days we see streetlights will be on during sunrise also this will be reducing lot of energy. To save power energy and detection of sensor and to switch lights automatically this all can be develop through software technology. Design will be detail out in software part where the flow of the system operation will be detailed out elaborated. Energy conservation has become the need of the hour especially in a developing country like India. The fossil fuel are depleting fast and alternate sources not reached expected levels, even solar energy is more expensive. Lighting system are been with the new technology. Because of increasing stuff cost and environmental issues, manufacture develop new ideas. It offers better cost efficient and avoids green house gas emissions electricity and environment. The second solution is used in cloud computing based control system that reads and updates data whenever and wherever needed so that it can be so useful to so many. Base station is created with a web-based stand alone application for controlling and monitoring of the street lights. Finally the last solution is to use a dim control and an sensor for reducing the power.

LITERATURE SURVEY

K.S. SHEELA ,

This paper can be set to operate in automatic mode, which regulates the streetlight according to brightness and dimness Algorithm and light intensity. This control can make a reasonable adjustment according to the seasonal variation. we can take the initiative to control streetlights through PC monitor terminal. This street light system also includes a time cut-out function, and an automatic control pattern for even more electricity conserving, when vehicles pass by, the light will turn on automatically, later turn off. [1]

J. F. JOSEPH D. A. DURAND

In this proposed work they conserves energy by reducing light intensity and detects the damaged lights in a street. It uses sensors such as LDR and Ultrasonic. The LDR is used to sense the presents of light in morning to switch off the street lights automatically and the Ultrasonic sensor is used to sense object on the street to increase the intensity of the light.[2]

A. S. WEDDELL,

These can allow services to be delivered more efficiently and reliably, enriching residents' and visitors' experiences, and the data generated can be used for innovative new applications. While many sensors enabling these applications can be grid-powered, there is an increasing need for autonomous distributed or wearable sensing devices, which may also perform edge analytics.[3]

JIA,

However, current street lamps have lack of smart characteristics, which increases both danger and energy consumption. In order to address these problems, a smart street lamp (SSL) based on the fog computing for smarter cities is proposed in this paper..[4]

Fabio Leccese,

It is a fully remote controlled isle of lamp posts based on new technologies. It has been designed and organized in different hierarchical layers, which perform local activities to physically control the lamp posts and transmit information with another for remote control. [5]

Noriaki yoshiura

This paper discusses a smart street light system, whose concept is proposed by Fujii et al. The main aim of smart street light systems is that lights turn on when needed and light turn off when not needed. Moreover, the smart street light system in this paper behaves like usual street lights that turn on all night [6].

In this paper many kinds of sensor combination sense environment's change, the multi-sensor exhibition can combinatory logically control the new intelligent street light controller system. And based on the degree of illumination control fixed time, in the automatic foundation fixed time, according to the multi-sensing exhibition survey data's special combination change,.[7]

The proposed system for the cloud based automatic system involves the automatic updating of the data to the lighting system. It also reads the data from the base station in case of emergencies. Zigbee devices are used for wireless transmission of the data from the base station to the light system thus enabling an efficient street lamp control system.[8]

This work presents a smart system for managing public lighting networks based on wireless communication and the DALI protocol. Wireless communication entails significant economic savings, as there is no need to install new wiring and visual impacts and damage to the facades of historical buildings in city centers are avoided.[9]

In this proposed work cases of difficult or impossible walking, the use of a wheelchair is becoming essential. Manual or electrical wheelchairs are satisfying for most of the low and medium level disability case where patients can use the wheelchair independently. However, in severe cases, it is difficult or impossible to use wheelchairs independently.[10]

METHODOLOGY

Our model demonstrates of an   programmed controlling street lights which can be operated through bylink as described below, Notifications will be directly sent an light operator through by link app .Through bylink app which can set an timer we the lights should be on ,A motion sensor which can detect an motion then lights will automatically ON .Relays acts like an switches. And notifications only sent for who has been registered.

PROPOSED SYSTEM

In olden days humans are responsible to look after controlling of the system. And now modern technology we can mange street lights either to ON/OFF. By developing the ideas which are in there mind they invented remote control which they have to take wherever they go here the power consumption will be wasted because during day time also without off they will take remote control to work place to overcome from this they discovered sensors which can automatically on/off without anyone support.. The proposed system are going to be controlled without using an the human intervention also needed to operate the system. The sensors can mange ON/OFF without any support and by doing this process correctly we can again utilize the energy without wastage which is that thus specializing in reduced energy wastage.

BLOCK DIAGRAM
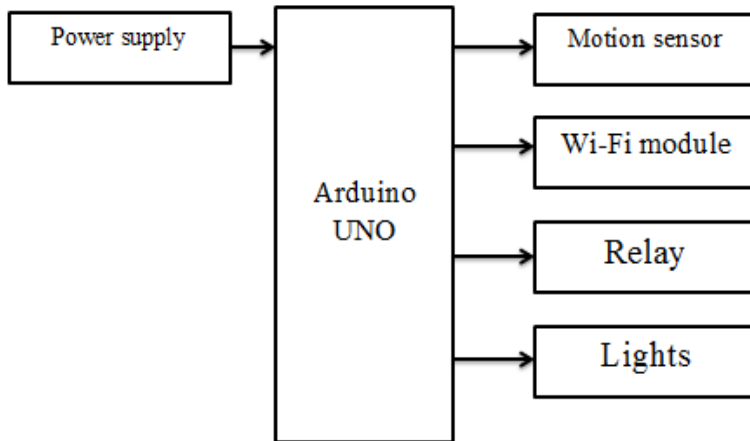
Fig 1 :Block Diagram
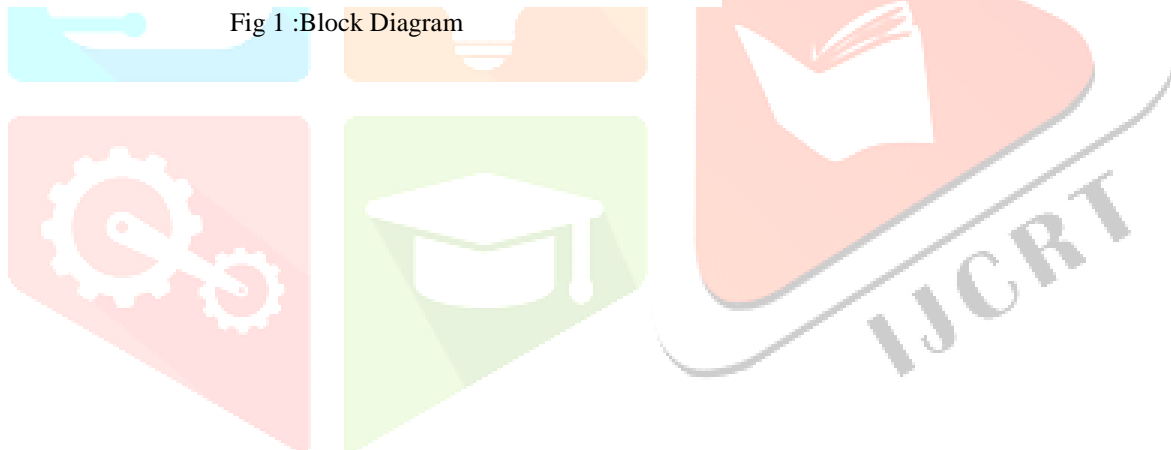
FLOWCHART
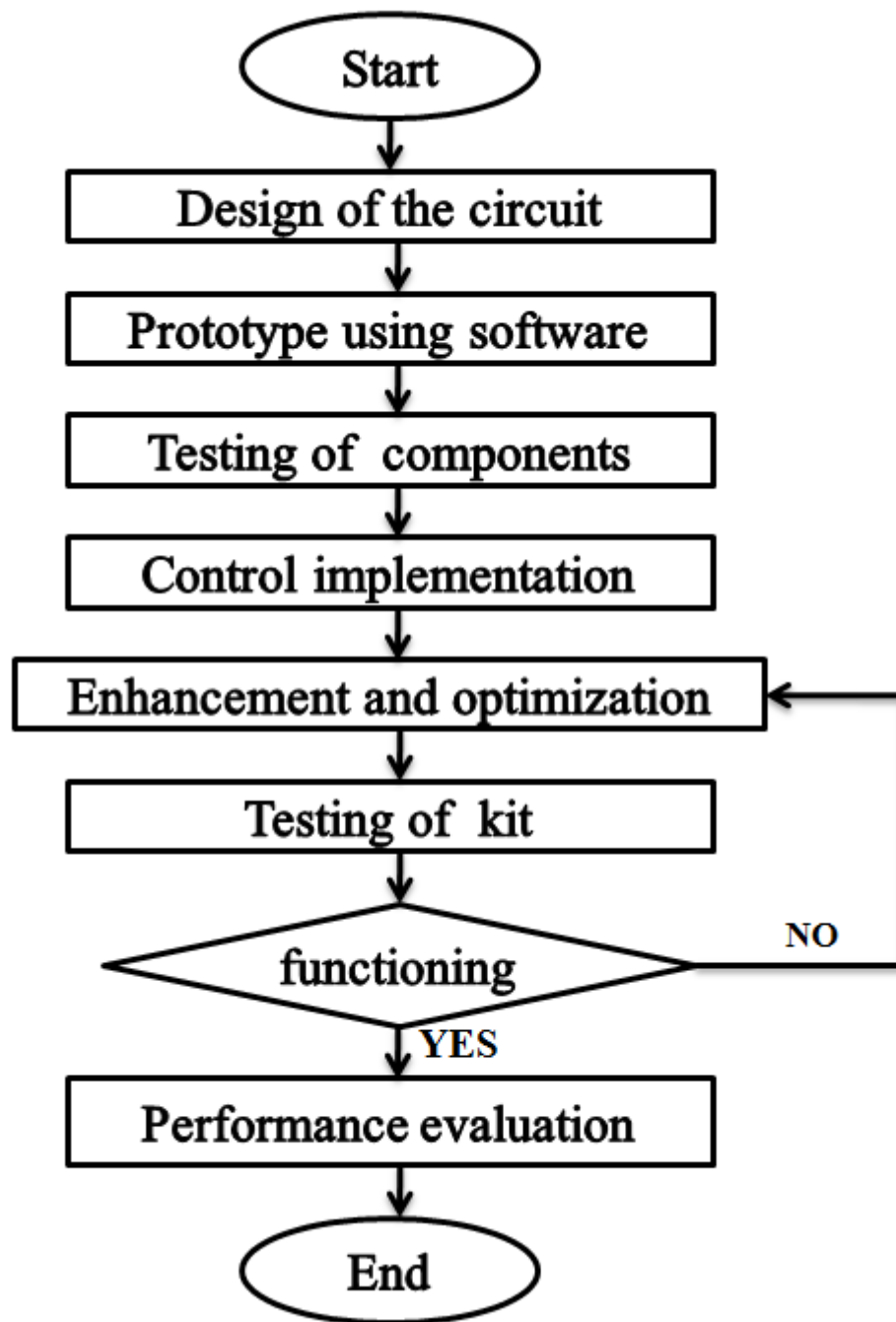
Fig 2 :Flow Chart

ALGORITHM

Design the circuit
We need to relinquish power supply to the components
After that we are going to insert the code within the arduino uno
Motion sensor it can detect the infrared rays from objects
Relay is employed as a switch to change on/off the bulb.
And by using WIFI module we will get the notification to the mobile.
Check the all the connections. Check the Output.

HARDWARE DESCRIPTION

Arduino UNO:

Arduino is developed by aurduino.cc. Arduino UNO is a board, which is based on microchip. ATmega328p micro controller. It has two sets of pins there are Analog and digital input/output pins. It has 6 Analog input /output, 14 digital input/output pins. Its operating voltage is +5v and here we have used 3 sensors.

Fig 3:Arduino UNO

LED LIGHT:

LED stands for Light Emitting Diode. LED is the expensive electronic components within the sixties, utilized in handheld calculators and other similar devices. Through research and development, LED technology advanced, became more efficient and fewer expensive. Light is produced when the particles that carry this (known as electrons and holes) combine together within the semiconductor material.
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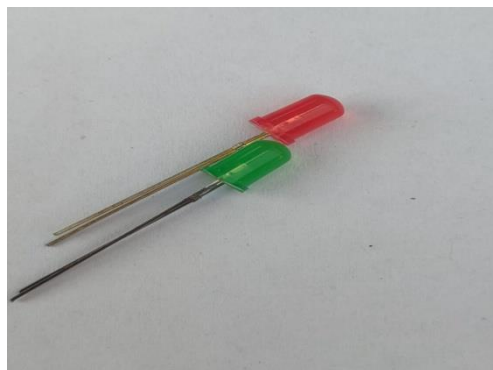
Fig 4:Led Light

RELAY:

Relay will act like a switch that open and close circuit electromechanically or electronically. Relays it can act as like closing and opening for the another circuit A relay diagrams show, when a relay contact is often open (NO), there's an open contact when the relay isn't energized.
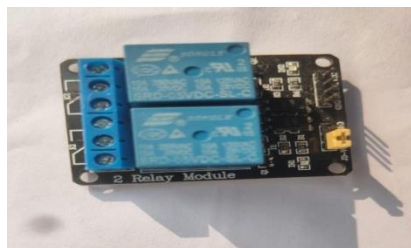

Fig 5:Relay

MOTION SENSOR:

A passive infrared sensor (PIR sensor) is an electronic sensor that measures infrared (IR) light radiating from objects in its field of view. They work entirely by detecting infrared radiation (radiant heat) emitted by or reflected from objects.

Fig 6: Motion Sensor

WI-FI MODULE:

        Wi-Fi could be a popular wireless networking technology. The Wi-Fi was invented by NCR corporation/AT&T in Netherlands in 1991. By using this technology we are able to exchange the knowledge between two or more devices, such has laptops, but it's now extensively using for mobile applications and consumer electronics like televisions, DVD players and digital cameras. There should be two possibilities in communicating with the WI- FI connection which or client will be through access point to the client connection.

Fig 7:Wi-Fi Module

FIELD SURVEY

Recently we visited to an electrical office which is in my area we asked about the lighting system problems they are mentioned below

"It is difficult to monitor each light either it is on/off ."

So, we proposed our model to save the power consumption when the lights gets switched on then Operators will get direct notification then we can save the energy.

SURVEY QUESTIONS AND NEED ANALYSIS REPORT

1.For whom does the street lights problems will go ?

   a.   operator
   b.   Public
   c.   Both a and b
   d.   None of the above

2.Mention the consequences for an lightning system on the roads?
a.Loss of victims life
b.Loss to victim family
c.none of the mentioned
d.Both a and b
3.If lightning systems are not working properly what should do?
a.people should go to office and compliant
b. it will give notification to the operator
c.both a and b
d.none of the mentioned

4.Everyone must aware of street lights system ?
a.true
b.false
5.Controlling Street lights are only working in urban areas ?
a.true
b.false

NEED ANALYSIS:

Kalasalingam Academy of Research and Education

Degree: B. Tech   **Branch/Sec:** ECE/B

Course name: Community Service Project   **Year/Sem:** III/VI

Name of the Staff: Mr.P.Naveen   **CourseCode:** ECE18R399

NEED ANALYSIS REPORT

Title of the project : 'RF AND INTERNET BASED ADVANCED STREET LIGHT CONTROLLING SYSTEM'
Students: **Guide:** Mr. k.jeya prakash

1.   D.S.KIRAN KUMARREDDY (9918005102)

2.   KAMMARI HARI PRASAD(9918005090)

3.   MASULA BALACHANDRA(9918005064)

 Background Information:

Based on the survey we have noticed that the major problem in the street lights are delay in information to authorities.

Student Contribution:

From the above survey and after doing proper analysis we came forward to give a solution to their problem. So our proposed work "RF AND INTERNET BASED ADVANCED STREET LIGHT CONTROLLING SYSTEM"
will save power consumption by getting notification.

Relevancy to Community : This project serves the community in the domain of providing information to emergency service in no

delay time .

Outcomes Of Need Analysis

Analysis Of Survey Questions
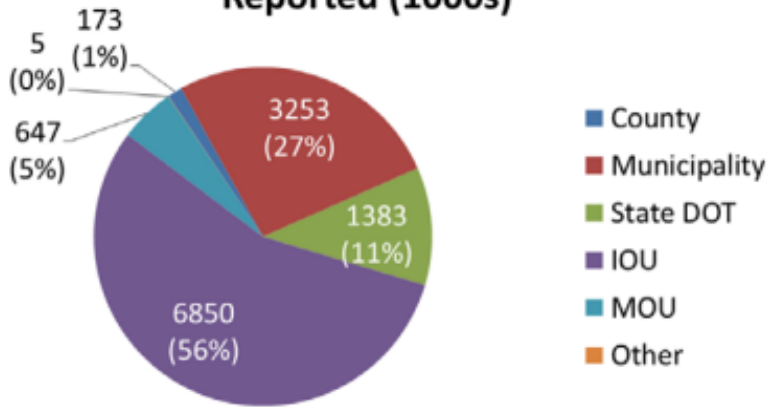
RESULTS AND DISCUSSION

Table 1: Differences between Existing work And Proposed Work

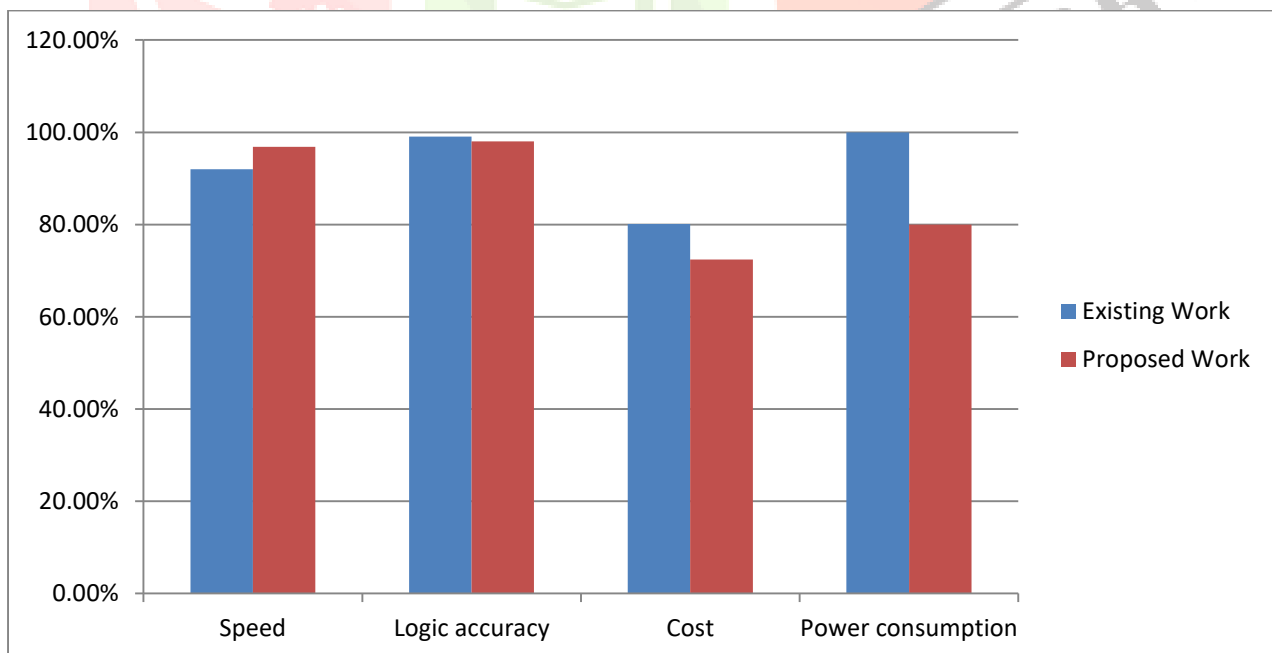| Parameters	Existing Work	Proposed Work
Speed	92.01%	96.84%
Logic accuracy	99.05%	98.05%
Cost	80.15%	72.4%
Power consumption	100%	80%

Fig 7: Pie Chart For Differences between Existing work And Proposed Work

Table 2: **Comparision between different processsors:**

Case	Existing work	Proposed work
Detection criteria	Most systems do not used motion sensors	Motion sensors have been applied
Getting notification when bulbs gets ON.	They do not have this feature	We have provided this feature
Cost effectiveness	Most of the street lights monitored through pc monitor	We reduced cost and we will monitor through mobile by applications.

SYSTEM TEST RESULTS

Table 3: Difference Between Expected Output and Observed And Test Output Result

Test case	Expected output Result	Observed output result	Test output result
operator can be able to get SMS	SMS should be received	SMS should be received	Pass
Operator can able to identify which light is not working	Identify not working light	Identify not working light	Pass
Detection of sensor	Motion should be detected	Motion should be detected	Pass

CONCLUSION AND FUTURE WORK

CONCLUSION:

By using our project we can save the electrical power consumption and moreover we reduce the power also and it is important for everyone who are living in public. And also use of wireless technology can help us without any stress it can be turned on off automatically without any support. More over without wasting power energy we can utilize the renewable energy. And we can save the energy and that energy can be renewable at any source.

FUTURE WORK:

For this project we can extent in the future by adding an IOT street lights can communicate with each other wirelessly while monitoring traffic conditions, tracking maintenance updates, alerting officials to potential security risks, and more.. Our proposed system can be additionally added a motion detector which can detect the motion

Fig 8: program for output

Fig 9: Overview Of Our Project
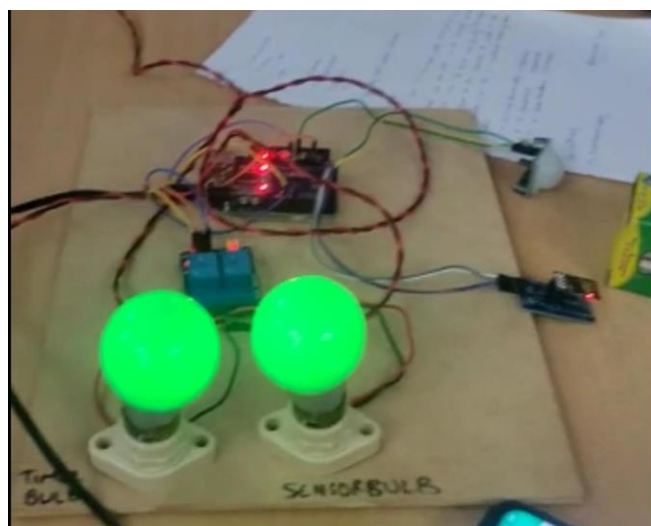
Fig 10: Output Of Our Project

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