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Automatic Control of Street Lights

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***Abstract –** Automatic light control system elaborates the design and construction. This electronic system is developed to eliminate the disadvantage of the existing systems. Tge results based on Microcontroller calculate and automatically detects geographical area respectively ensure very precise On/Off mode of the lighting system. This circuit uses lights sense. Due to this electronic devices increase the bulbs life in results of the dimming effect. The illumination decrease this help to reduce energy consumption. The main components in this project are Microcontroller, Relay, lights sensor. Relay is electromagnetic device this is used to is lote the circuits electrically and magnetically . Lights sensor is used to sense the presence of light..*

***Keywords-** Microcontroller, Light Dependent Resistors(LDR),Relay*

I – INTRODUCTION

This project helps us to save the energy or stop the waste energy. As we all know that automatic control of street lights is simple yet powerful concept. This project we used two transistor as a switch that would be help in operation of circuit. The Street lights are the major requirements in today's life for safety purposes and avoiding accidents during night. Providing street lighting is one of the most important and expensive responsibilities of a city. Lighting can account for 10-38% of the total energy bill in typical cities worldwide. Street lighting is a particularly critical concern for public authorities in developing countries because of its strategic importance for Now, we need arise to make the system automated so that human intervention and manual work avoided and create the transparency in system. It also encourages social inclusion by providing an environment in which people feel they can walk in hours of darkness. Despite that in today's busy lifestyle no one bothers to switch it OFF/ON when not required. Inefficient lighting wastes significant financial resources each year, and poor lighting creates unsafe conditions.

Energy efficient technologies and design can cut street lighting costs dramatically. The main consideration in the present field technologies are Automation, Power consumption and cost effectiveness [1],[2].

Automation is intended to reduce man power with the help of intelligent systems. Power saving is the main consideration forever as the sources of the power are getting diminished due to various reasons. To Designing a cost efficient system is very important as the requirement is more. In order to overcome this problem, automatic street light control methods are introduced. The main objective of our project is to provide a better solution to minimize the electrical wastage in operating street lights, in this era of automation humans are restless and are not in a position to regulate the manual operations in any field, a rapid advancement in embedded systems has paved path for the design and development of microcontroller based automatic control systems. Our project presents an automatic street light controller using light dependent resistor (LDR). By using this system manual works are removed.

- street lights are automatically switched ON
- when the sunlight goes below the visible
- region of our eyes. It automatically
- switches OFF the street lights under
- illumination by sunlight. It is a simple and

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- powerful concept, to switch ON/OFF the
- street light system automatically. It
- automatically switches ON the streetlight
- when the sunlight goes below the visible
- region of our eyes and switches OFF the
- streetlight when ample amount of sunlight is
- available. The component used for light
- sensing is a Light Dependent Resistor. By
- using the LDR we can operate the streetlight
- automatically, when ample amount of light
- is available the streetlight will be in the OFF
- state and when it is dark the light will be in
- ON state, it means LDR resistance is
- inversely proportional to light falling on it.

II -PROJECT IDEA

The main consideration in the present field technologies are Automation, Power consumption and cost effectiveness. Automation is intended to reduce man power with the help of intelligent systems. Power saving is the main consideration forever as the source of the power(Thermal, Hydro etc.,)are getting diminished due to various reasons. The main aim of the project is Automatic street power saving systemwith LDR, this is to save the power. We want to save power automatically instead of doing manual. So its easy to make cost effectiveness.

III- LITERATURE SURVEY

We need to save or conserve energy because most of the energy sources we depend on, like coal and natural gas can't be replaced. Once we use them up, they're gone forever. Saving power is very important, instead of using the power in unnecessary times it should be switched off. In any city STREET LIGHT is one of the major power consuming factors. Most of the time we see street lights are ON even after sunrise thus wasting lot of energy. Over here we are avoiding the problem by having an automatic system which turns ON OFF the street lights at given time or when the ambient light falls below a specific. intensity. Each controller has an LDR which is used to detect the ambient light. If the ambient light is below a specific value the lights are turned ON[3]. A light dependent sensors is interfaced to the pic18f452 microcontroller it is used to track the sun light and when the sensors goes dark the led will be made on and when the sensor founds light the led will be made OFF. It clearly demonstrates the working of transistor in saturation region and cut-off region. The working of relay is also known Microcontroller and the code is written in c language in MikroC ide, the resulted .

IV- PROBLEM STATEMENTS

Existing methods like registering the complaint, switching on/off the light manually is time consuming & requires man power. The new method automatic ON/OFF and fault detection without human intervention is easier when compared to the existing system. We proposed an automatic light control system which eliminates the disadvantages of the existing systems by taking date and time from the GPS, as it also gives information about the position of the system. Based on the results the microcontroller calculates and automatically detects geographical area and retrieve relevant data for sunrise and sunset in the area, respectively ensures very precise ON/OFF mode of the lighting System. It increases bulb life in result of the dimming effect.

V - GOALS AND OBJECTIVE

- To provide lighting to the streets such that minimum possible power is consumed during nights.
- To manage the traffic flow smoothly and efficiently during night.
- To replace the conventional halogen lamp with the power LED's in the lighting system.
- To develop the hardware of control unit.

VI -PROPOSED SYSTEM

We need to save or conserve energy because most of the energy sources. We depend on, like coal and natural gas can't be replaced. Once we use them up, they're gone forever. Saving power is very important, instead of using the power in unnecessary times it should be switched off. In any city STREET LIGHT is one of the major power

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consuming factors. Most of the time we see street lights are ON even after sunrise thus wasting lot of energy. Over here we are avoiding the problem by having an automatic system which turns ON OFF the street lights at given time or when the ambient light falls. By using this system manual works are 100 percent removed. It automatically switches ON lights when the sunlight goes below the visible region of our eyes. This is done by a sensor called Light Dependent Resistor (LDR) which senses the light actually like our eyes. It automatically switches OFF lights whenever the sunlight comes, visible to our eyes. Aim of this project is to control the street light using LDR. When the light falling nonresistance value will be change. Threes no light then the resistance value is change. From this resistance change the voltage variation can be obtained this value is given ADC of PIC. PIC is stand for peripheralerface controller. The developed electronic system eliminates disadvantages of existing system.

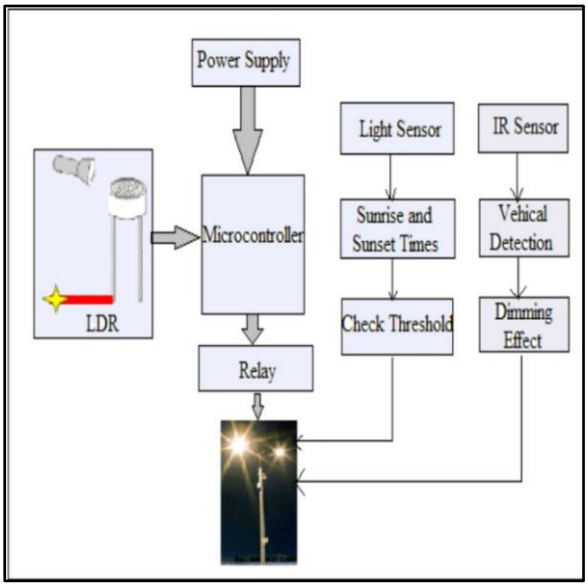

Fig 1- Bloch Diagram of Automatic control street light

VII- CONCLUSION

We design and implement an automatic system where in the street lights that are not required through the night can be dimming .Additionally, the ambiance of light is checked and lights are turned ON when is dark and turned OFF during the day. Our government is striving hard to provide electricity to customers. Thus this paper once implemented on a large scale can bring in significant reductions in the power consumption caused by street lights. Here we are Sava lot power without any wastage, by this advanced technology.

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