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LIGHTS ON/OFF ACCORDING TO MOTOR MOVEMENT

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Abstract: It is designed for the more advanced development in embedded systems for energy of electricity saving of road side street lights. In general, street lights are switched on for full nights and off for day time. But at night time, street lights are not that important if there is no traffic on road. It deals with street light on and off based on vehicle movement. Automation is implied for the decrease of labor as the human has gotten to be excessively occupied and even incapable, making it impossible to discover time to switch the lights. Presently a day's everybody are mindful of the availability of limited power sources like coal, biomass, and hydro and so on. Unnecessary wastage of power in the street lights is one of noticeable power. By using this system energy consumption is reduced. IR sensor and Arduino are main components of the project.

Keywords – IR sensor, Arduino UNO.

I. INTRODUCTION

In growing world, street light systems in industries or cities are increasing. The major thing in every field of different technologies like electrical and electronics are less cost, automation and less power utilization. This article illustrates that by detecting vehicle movements street lights will glow. This method of controlling Street lights by vehicle movements is one of the most evolving system in India to conserve the energy.

Generally, controlling street lights system is very simple thing. It turn ON in the night time and turn OFF during the day time by using transistor. This total process will be done by using LDR (light dependent resistor). Nowadays saving energy is very important part and everyday energy resources are decreasing. In order to save energy for next generations we need to take care of this resources. This doesn't require any manual methods for turn ON/OFF the street lights. The street light method identifies whether there is any light needed or not.

In electronics automation created major impact because automation gives more accuracy, energy saving, reliability and more over this automated systems does not require any manual operations done by humans. Energy saving is main aim in the current situation and we should automate the system at maximum extent where ever it is possible.

High power LED is used in this system to maintain the accuracy. This (LDR) was designed with sun light to detect sensor which is able to sense and identify the sunlight. It gives the same information to a Arduino micro controller. The Arduino micro controller is interfaced with the street lights and it is the responsibility of the controller to switch the status of the lights. The major advantage of the device is it not only controls the status of the light but also controls the intensity of the light with respect to the intensity of the light received from the Sun.

II. EXISTING SYSTEM

Now a days most of the cities spending more money on electrical bills and street lights power consumption is very huge in cities. Currently we are using manual system in this we need to switch ON in the lights in evening before the sunset and they are switched OFF next day morning after there is sufficient light outside. So here there is a lot of power energy is wasting between ON and OFF timing. Disadvantages of existing system:

- Manually Switch off/on of Street Lights
- More Energy required.
- High expensive.
- Extra manpower.

III. PROPOSED SYSTEM

Street lights are switched on for full night and during day time they are switched off. But at the night time, street lights are not required if there is no traffic. conserving of this power energy is very fundamental factor these days as energy resources are getting reduced day by day.

Advantages of proposed system:

- Maintenance Cost Reduction.
- Automatic Switching of Street lights.
- Reduction of light pollution
- Reduction in CO emission.
- Wireless Communication.
- Reduction of man power
- This idea can be implemented on both small roads and busy roads.
- Energy Saving

IV. SYSTEM DESIGN

In this proposed system, the component requirements for the system design are IR sensor module, photo diode and Arduino UNO processing unit.

An every IR sensor have an IR Receiver and an IR Emitter. IR emitter is an IR LED that every time without any stop it emits infrared radiations while power is supplied to it. IR receiver can tell to a transistor with its base current used by the intensity of IR light received. if there is a Lower intensity in IR light that leads to higher resistance between collector- emitter terminals of transistors controls the current from collector to emitter. This modification in resistance will further leads to modify the voltage at the output of voltage divider

V. AURDINO

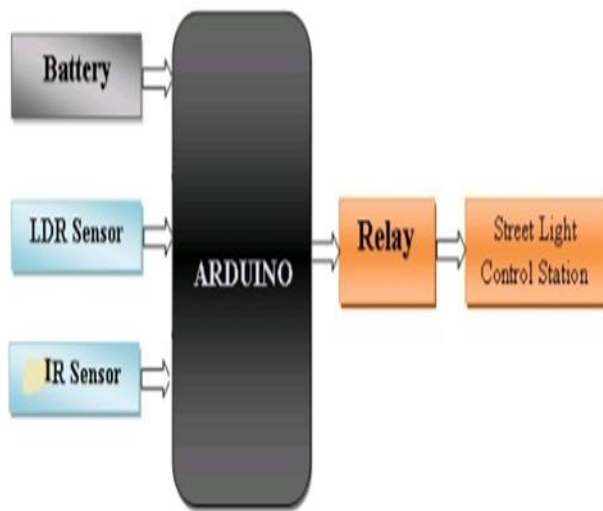
Aurdino is a micro controller with single- board , it uses to make the application of communication of objects or environments more attainable. it consists of an open- source hardware and that board is designed around an 8- bit Atmel AVR microcontroller or a 32- bit Atmel ARM. USB interface is a Current models feature, 6 analog input pins, as well as 14 digital I/O pins this pins allows the user to join different type of extension boards. it operates with a voltage of 4.5- 5V.

VI. SYSTEM ARCHITECTURE



Basically, the processor of the Arduino board uses the Harvard architecture where the program code and program data have separate memory. It consists of two memories such as program memory and data memory. Wherein the data is stored in data memory and the code is stored in the flash program memory. The Atmega328 microcontroller has 32kb of flash memory, 2kb of SRAM 1kb of EPROM and operates with a 16MHz clock speed.

The Arduino Uno R3 is based on the ATmega328 (datasheet) with a microcontroller board. This Arduino consist of 14 digital i/o pins in that 6 can be used as PWM outputs, 6 analog inputs, a 16 MHz crystal oscillator, a USB connection, a power jack, a reset button and an ICSP header. This architecture consist of battery LDR Sensor IR sensor and control station communicates through Aurdino.



VII. CONCLUSION

By implementing Smart Street light, everyone can save more amount of energy which is done by placing sodium vapor lamps by LED and implementing an extra features for more security purposes. It computes the unnecessary wastage of electricity, caused by manually switching of streetlights when they are not required. It also gives more efficient and smart automatic control system with the help of IR sensors. It can also reduce the energy taking and maintains the low cost. The system is very useful extendable and especially very adjustable to user needs.

VIII. REFERENCE

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