RESEARCH ARTICLE OPEN ACCESS

Automatic Lighting Using Arduino and PIR Sensor

Karthikeyan.R.A , Saran Sriram.K , Piyush.D

ABSTRACT

Automatic Room Lights using Arduino and PIR Sensor, where the lights in the room will automatically turn ON and OFF by detecting the presence of a human. Such Automatic Room Lights can be implemented in your garages, staircases, bathrooms, etc. where we do not need continuous light but only when we are present.

Keywords:- Arduino, PIR

I. EXISTING SYSTEM

Nowadays without electricity we cannot imagine our daily life because electricity has become a necessity for all, without which day-to-day life chores & daily activities become stand still. Due to the depletion of non-renewable resources, conservation of mandatory and by doing so we can reduce electricity bills as well. We know that energies like wind energy, solar energy and hydro energy are called renewable energy sources which are renewable in nature. Therefore, utilization of these resources for power supply is the best possible way of producing, conserving and renewing energy, which is advantageous as it is pollution free, affordable, and free from environmental impacts.

DISADVANTAGE OF EXISTING SYSTEM

Disadvantages and challenges in using LEDs. LEDs are currently more expensive, price per lumen, on an initial capital cost basis, than more conventional lighting technologies. The most common design of a heat sink is a metal device with many fins, which conducts the heat away from the LED.

II. PROPOSED SYSTEM

On the other hand, the energy resources like petroleum, coal, natural gas, uranium and propane are called non -renewable resources, because their supplies are limited. Many environmental effects and day-by-day depleting energy resources warn us to save energy by using automatic room controller an Energy efficient lighting systems. Nowadays the wastage of electricity has become a routine thing for us, and the problem has become frequent at homes, schools, and colleges and even in industries. Sometimes we notice fans and lights keep on working even in the absence of people. This often happens in homes, offices and public places due to utter negligence of the inmates.

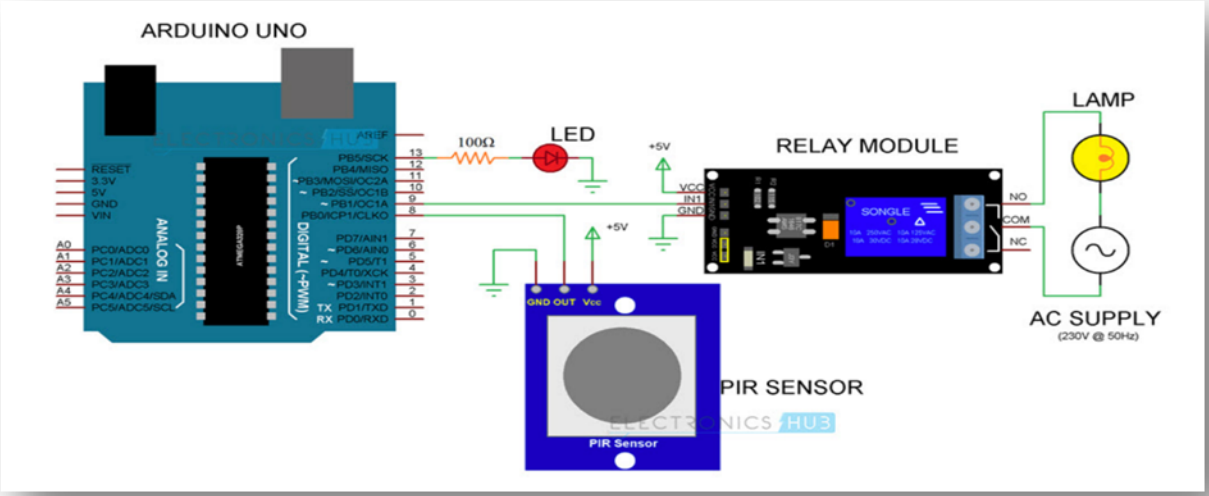
ADVANTAGE OF PROPOSED SYSTEM

It is easy to integrate with lighting system such as automatic lighting system.
It is used for energy consumption or energy management by automatic control of brightness level in mobile phones and auto ON/OFF of street lights based on ambient light intensity.
LDR (i.e. photoresistor) based light sensors are available in different shapes and sizes.
Light sensors need small voltage and power for its operation.
Photoresistors are lower in cost, bi-directional and offer moderate response time.
Photodiodes offer quick response time, lower in cost and provide digital output.
Phototransistors are very fast and provide immediate output compare to photoresistors.
Phototransistors generate high current compare to photodiodes.

MODULE

- Energy efficient
- Less cost
- No human interactions

III. SCHEMATIC DIAGRAM



ARDUINO UNO

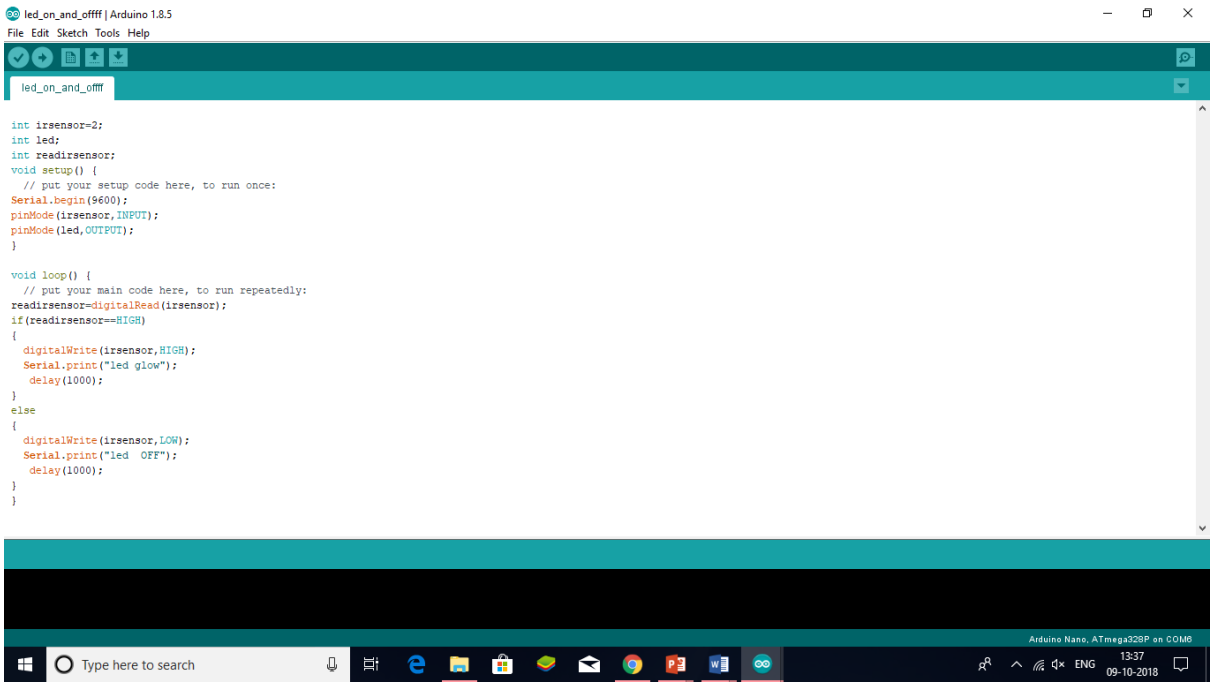
Arduino is an open source computer hardware and software company, project, and user community that designs and manufactures single-board microcontrollers and microcontroller kits for building digital devices and interactive objects that can sense and control objects in the physical and digital world

RELAY BOARD

A Relay Module is a very useful component as it allows Arduino, Raspberry Pi or other Microcontrollers to control big electrical loads. We have used a 2-channel Relay Module in this project but used only one relay in it. The relay module used in this project is shown below.

PIR 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 are most often used in **PIR**-based **motion** detectors.



IV. CONCLUSION

From this project we conclude that an approach is taken to control automatic light with the help of various devices and the user was informed about the entry of the person through a PIR SENSOR at the receiver.

REFERNCES

[1] M. N. N. A. Asghar, M.H., "Principle application and vision in internet of things (iot) & Communication Technologies (GCCT) 2015 Global Conference on, may

[2] 2015.A. R. C. Y. O. K. Withanage, C., "A comparison of the popular home automation technologies, pp. 1-11, may 2014.

[3] S. E. T. B. C. A. Urfaliglu, O., "Signal processing communication and applications conference 2008. siu 2008. ieee 16th", pp. 1-4, april 2008.

[4] F. M. G. K. D. Sukmana, Husni Teja, "Wireless and mobile (apwimob) 2015 ieee asia pacific conference on", pp. 183-187, august 2015.

[5] E. A. Elkamchouchi, H., "Design and prototype implementation of sms based home automation system", pp. 162-167, november 2012.

[6] O. N. C. S. A. P. B. Sahani, M, "Circuit power and computing technologies (iccpet) 2015 international conference on", pp. 1-6, March 2015.

[7] T. Ming, Zhao Chua, "Automatic face and gesture recognition 2008. fg '08. 8th ieee international conference on", pp. 1-6, September 2008.

[8] B. R. Pavithra, D., "Iot based monitoring and control system for home automation", pp. 169-173, April 2015.

[9] M. J. H. B. T. A. M. K. T. Baig, M.Q., "Artificial intelligence modelling and simulation (aims) 2014 2nd international conference on", pp. 109-114, November2014