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A NOVEL APPROACH ON DAY LIGHT SENSING LIGHT

Dr.S.Mohan kumar,

New Horizon College of Engineering, Research Centre,Bangalore,India.

1. Introduction

When we look at the world around us one of the main essential factors that come into consideration is electricity. Electricity is very crucial to mankind as it is a very dependant factor. Due to the downfall of the natural resources, a big question lies on how electricity can be saved. Thus by using technology we can save abundant amount of energy. Technology has played a vital role in making the world a better place to live as small amount of resources and broad ideas makes it more efficient.

Automatic Lights is one of the wonders of technology as it plays a vital role in saving electricity. During the day there is abundant sunlight falling on the sensor hence the lights are switched off . During the night when the sensor does not detect any source of light it sends a signal and the lights turn on. This system eliminates unnecessary wastage of electricity and hence is efficient.This system uses an Arduino board and a LDR sensor which helps to detect any light source falling on the sensor. LDR can be widely used in street lights as they do not need to be switched on during the day. They serve purpose only in the dark and hence this system helps to resolve this problem. Thereby, it saves abundant amount of electricity and reduces manual work.

1.1 Purpose of Study

This is a very efficient and conventional method as it saves abundant amount of electricity.This system is a onetime investment and last for long. Hence it is cost efficient and beneficial.It avoids human negligence as manual switching on switching off the lights is not required.This system has various applications like Street lights, parking lott lights, head lights of vehicles and so on .

1.2 Problem Statement

"To design and Implement Day Light Sensing Light, with the help of a LDR senor avoids wastage of electricity"

1.3 Motivation

Automatic lights using LDR sensor helps in detecting the intensity of light . when intensity is LOW it automatically turns on light and turns it off when intensity is HIGH making it efficient.In the case of street lights it avoids the possibilities of accidents as one of the reasons for accidents is dim lighting. In the case of head lights of vehicles, due to human negligence one might forget to turn them off in order to overcome such a problem, this system is convenient.

These lights can be made completed automated by using solar panels. These solar panels power the arduino and hence no external power supply is required.

Reduces manpower and is a flexible technique, it just has to be serviced regularly.

1.4 Methodology

The system contains the following modules

- Sensing Module

The LDR sensor is used to detect intensity of light. When a source of light is fallen on the sensor, it detects and its OUT pin becomes Low. When there is no source of light detected , the OUT pin of the sensor becomes High.

- Arduino Module

Once the LDR sensor detects the intensity, the signals are fed into the Arduino board. This then activates the Relay module.

- Relay Module

A Relay is an electronic switch which controls the power supply. In this system, we use a relay module to operate the bulb depending on the OUT pin signal of the LDR sensor.

2.System Requirement

2.1 Hardware and Software Requirements

Hardware System Configuration:

Arduino Uno

Relay Module

LDR Sensor

Software System Configuration:

Operating System - Windows 10

Programming Language - C

Compiler - Arduino

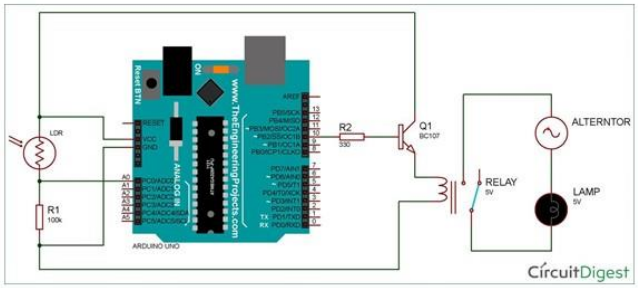
2.2 About the language used

C is a general purpose, imperative computer programming language, supporting structure programming while a static type system prevents many unintended operations. C provides constructs, that map efficiently to typical machine instructions and therefore it has lasting use in application and had formerly been coded in assembly language as well as various application softwares.

C was originally developed by Dennis Ritchie between 1969 - 1973 at Bell Labs and used to re-implement the UNIX operating system. C is the most imperative procedural language in the ALGOL tradition.It has since become one of the most widely used programming language of all time.

3.System Design

3.1 Architecture



3.2ALGORITHM USED

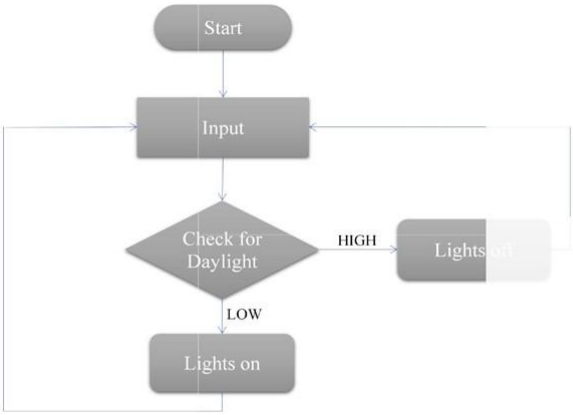
• Step 1 : Start

• Step 2 : if(range == defined zone range) Turn on the lights.else

Turn off the lights.

• Step 3 : Repeat step 2.

3.3 FLOW Chart



3.3.1 Flowchart for Motion Sensing Lights

3.4 CODE AND IMPLEMENTATION

```
int sensorPin = A0; int sensorValue = 0;
// select the input pin for ldr
// variable to store the value coming from the sensor
void setup() {

pinMode(2, OUTPUT); //pin connected to the relay
```

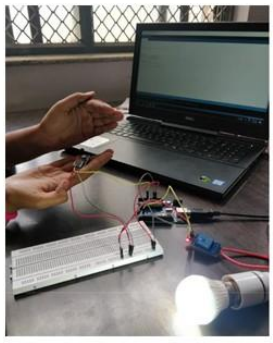
```
Serial.begin(9600); //sets serial port for communication
}
void loop() {
//read the value from the sensor: sensorValue = analogRead(sensorPin);
Serial.println(sensorValue); //prints the values coming from the sensor on the screen
if(sensorValue < 700) //setting a threshold value
digitalWrite(2,LOW); //turn relay ON
else digitalWrite(2,HIGH); //turn relay OFF
delay(100);

}
```

4.RESULTS AND DISCUSSION

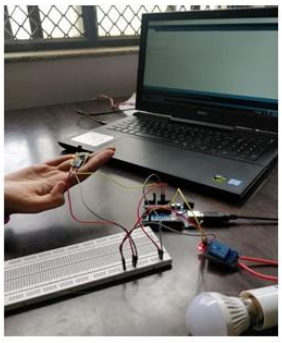
4.1 Summary of result obtained

If there is a light source falling on sensor OUT pin will be HIGH and light goes off. If there is no light source falling on sensor OUT pin will be LOW and lights turn on. Once signal is passed on to the arduino it will trigger the relay.

The relay will then function accordingly when signals are inputted.



4.2.1 Lights turn on in the absence of daylight



.2.2 Lights turn off in the presence of daylight.

5.Conclusion

The Automatic Daylight sensing light system is implemented to conserve energy and reduce wastage on a micro and macro level. The system functions based on the intensity of sunlight. When the light present in the environment is less than a particular level, the lights are switched on. This system, after testing proves to be very effective at saving energy and also helps in cost reduction. These systems, along with certain improvements can help save our future generations from having an energy crisis.

This project has been proved very effective as it can be applied in many ways , for example street lights , basement lights, park lights , headlights of vehicles and so on. This project also avoids human negligence and man power.

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Citation

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