

**AUTOMATION STREET LIGHT
CONTROL SYSTEM USING ARDUINO**

MPMC MINIPROJECT

REPORT

AUTOMATION STREET LIGHT CONTROL SYSTEM

USING ARDUINO

ABSTRACT

In many areas, generally, the street light control is done manually. That means, some person turns on the light in the evening time and turns them off in the morning time. However, there are a few drawbacks to this manual method of controlling the street light. Accidents may occur if the person forgets to turn on the street lights. Also if the street lights are not turned off in the morning then it causes electricity wastage. If we implement a time-based street light controlling system, then it will cause a problem since the evening start time is different in winter and summer. This project of automatic street light control can be used to overcome all these drawbacks. This project aims at designing and executing the advanced development in embedded systems for energy saving of street lights. Nowadays, human has become too busy, and is unable to find time even to switch the lights wherever not necessary. Also, the manual operation of the lighting system is completely eliminated. Automatic control of street lights is designed to turn on and turn off street lights automatically. This project checks the amount of light. If there is enough light, it automatically turn off street lights. But if there is not enough light, this project will automatically turn on street lights. one can also adjust it according to its requirement. (i.e.), The street lights are turned on at night time because the light intensity is low at night. And the street lights are turned on in the daytime since the light intensity is sufficient in the daytime. Light sensor is used to detect intensity of light. Arduino is used interfaced with light sensor to sense amount of light available. Control signal is generated with the help of Arduino after analyzing amount of light. This project aims to reduce the side effects of current street light system and find a solution to save power.

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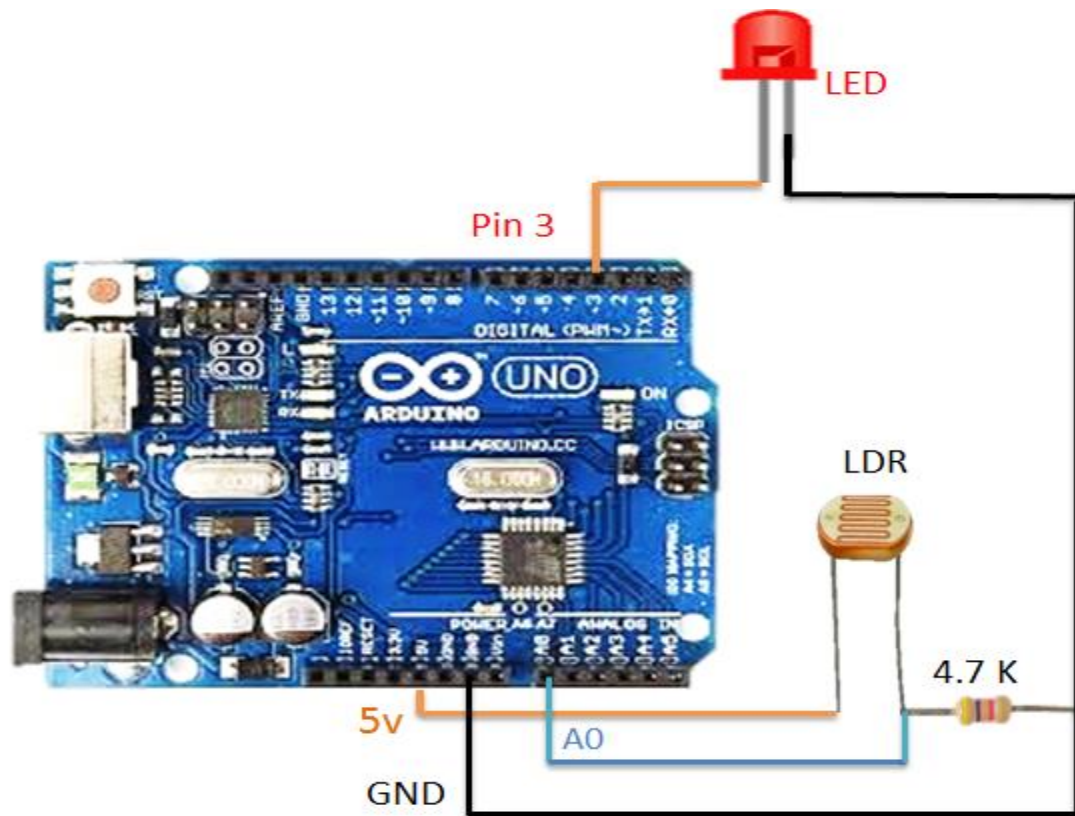
3.3.REFERENCES

CHAPTER 1

1.1 INTRODUCTION:

This project aims at designing and executing the advanced development in embedded systems for energy saving of street lights. Nowadays, human has become too busy, and is unable to find time even to switch the lights wherever not necessary. Also, the manual operation of the lighting system is completely eliminated. Automatic control of street lights is designed to turn on and turn off street lights automatically. This project checks the amount of light. If there is enough light, it automatically turn off street lights. But if there is not enough light, this project will automatically turn on street lights. one can also adjust it according to its requirement. (i.e.), The street lights are turned on at night time because the light intensity is low at night. And the street lights are turned on in the daytime since the light intensity is sufficient in the daytime. Light sensor is used to detect intensity of light. Arduino is used interfaced with light sensor to sense amount of light available. Control signal is generated with the help of Arduino after analyzing amount of light. This project aims to reduce the side effects of current street light system and find a solution to save power.

1.2.CIRCUIT DIAGRAM:



HARDWARE CONNECTION:

Arduino 3rd pin connected to LED +ve

Arduino GND connected to LED -ve through 4.7k

Arduino +5v is connected to LDR One End

Arduino A0 pin is connected to LDR other end

Arduino GND is connected to LDR other end with 4.7k

CHAPTER 2

2.1.COMPONENTS REQUIRED:

S.NO.	COMPONENTS REQUIRED	QUANTITY
1.	LDR	1
2.	LED	1
3.	RESISTOR(4.7Kohms)	1
4.	ARDUINO UNO	1
5.	BREADBOARD	1
6.	CONNECTING WIRES	1

2.2.PROGRAM:

Program related to LDR and LED interfacing to Arduino

```
#include <SoftwareSerial.h>
```

```
int sensorPin = A0; // select the input pin for the LDR
```

```
int sensorValue = 0; // variable to store the value coming from the sensor
```

```
int led = 3;
```

```
void setup() { // declare the ledPin as an OUTPUT:
```

```
pinMode(led, OUTPUT);
```

```
Serial.begin(9600); }
```

```
void loop()
```

```

{

Serial.println("Street light control system");

sensorValue = analogRead(sensorPin);

Serial.println(sensorValue);

if (sensorValue < 100)

{

Serial.println("LED light on");

digitalWrite(led,HIGH);

delay(1000);

}

digitalWrite(led,LOW);

delay(sensorValue);

}

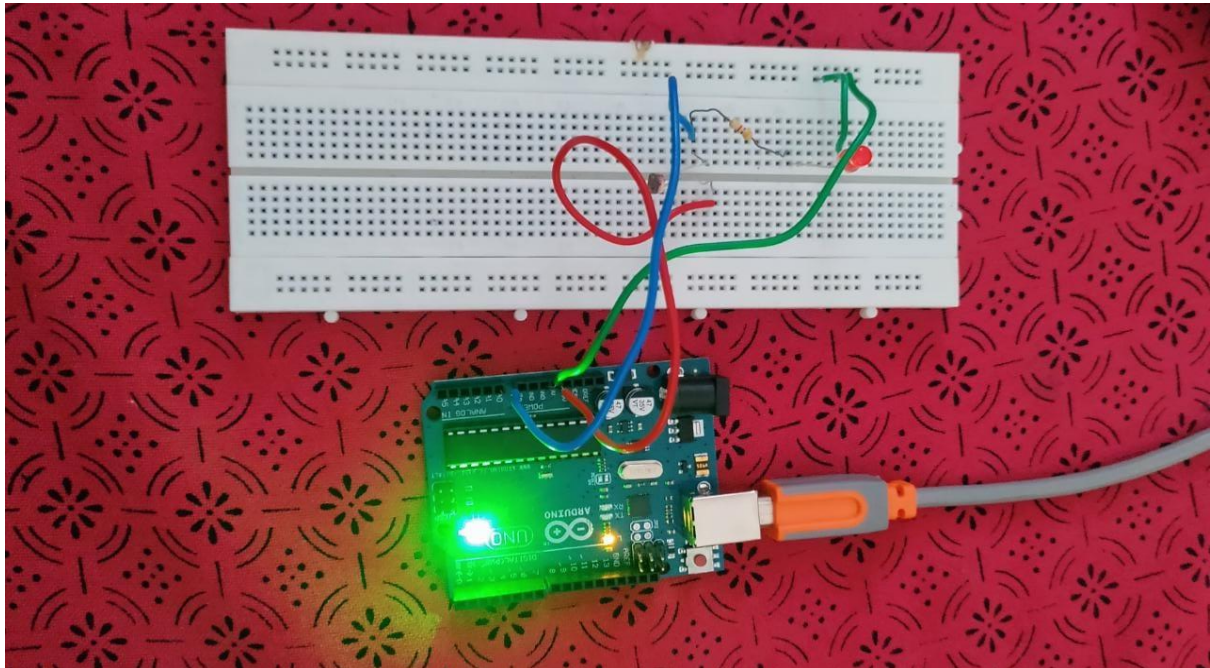
```

2.3.WORKING:

- Components are connected as per the circuit diagram.
- Since we are using Arduino uno, we have to upload the arduino program of our project in Arduino IDE and then run the program.
- If the LDR detects light, the LED will be in OFF condition.
- If the LDR do not detect light, the LED will turn ON.
- Thus, in night time the street light will automatically turn ON using this mechanism in our project.

CHAPTER 3

3.1.RESULT:



```
sketch_jun6a.ino
10
11 pinMode(led, OUTPUT);
12
13 Serial.begin(9600);
14 }
15
16 void loop()
17 {
18
19   Serial.println("Automatic Street Light Automation");
20
21   sensorValue = analogRead(sensorPin);
22
23   Serial.println(sensorValue);
24
25   if (sensorValue > 100)
26   {
27     digitalWrite(led, HIGH);
28   }
29 }
```

Output Serial Monitor x

Message (Enter to send message to 'Arduino Uno' on 'COM5')

Aut Light Automation
500
LED light on

482
LED light on
Automatic Street Light Automation
475
LED light on

Arduino IDE 2.1.0

When there is low amount of light the light automatically glows and when there is sufficient amount of light it automatically turns off the light.

Here based on our room condition the threshold value we took is 100 for the LDR sensor. When we place a hand on LDR (Not allowing any light on LDR) arduino automatically turns on the LED. When we remove our hand on LDR. Arduino automatically Turns Off LED

3.2.CONCLUSION:

Thus the project automatic street light control is done successfully and output is verified. This project also finds applications in large societies, University campuses, industrial campuses, and many other places as Smart intelligent lights are the need of time. This circuit can also be modified to be used inside the house or schools and companies to control devices depending upon light intensity.

3.3.REFERENCES:

<https://www.instructables.com/Auotmatic-Street-lights-control-using-LDR-and-Ardu/>

<https://techatronic.com/automatic-street-light-control-system-with-arduino/>