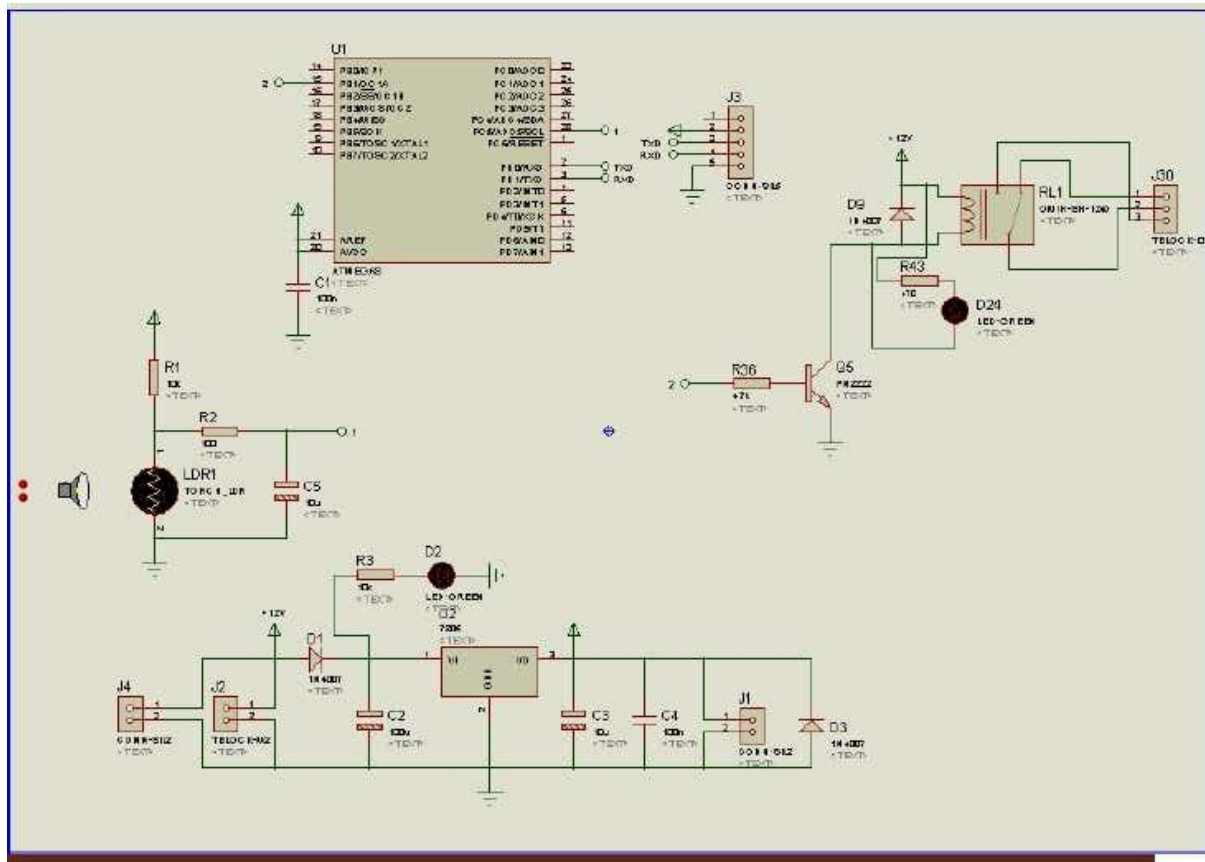


The project implemented here is one such project where the microcontroller Atmega328 based system automatically controls the street lights.



## Circuit Description

This is the circuit diagram sketching. We will define this in three part

Part 1: Power input circuit

Part 2: Operation in LDR and Microcontroller.

Part 3: Output of relay.

In this section we came to know that how the parts connected and how they work. The three most important sections will describe through this process. In this circuit diagram we used different electronics parts. They are following: Resistors, Transistor, Capacitors, voltage regulator, LDR, LED, power supply, microcontroller and relay.

## BLOCK DIAGRAM

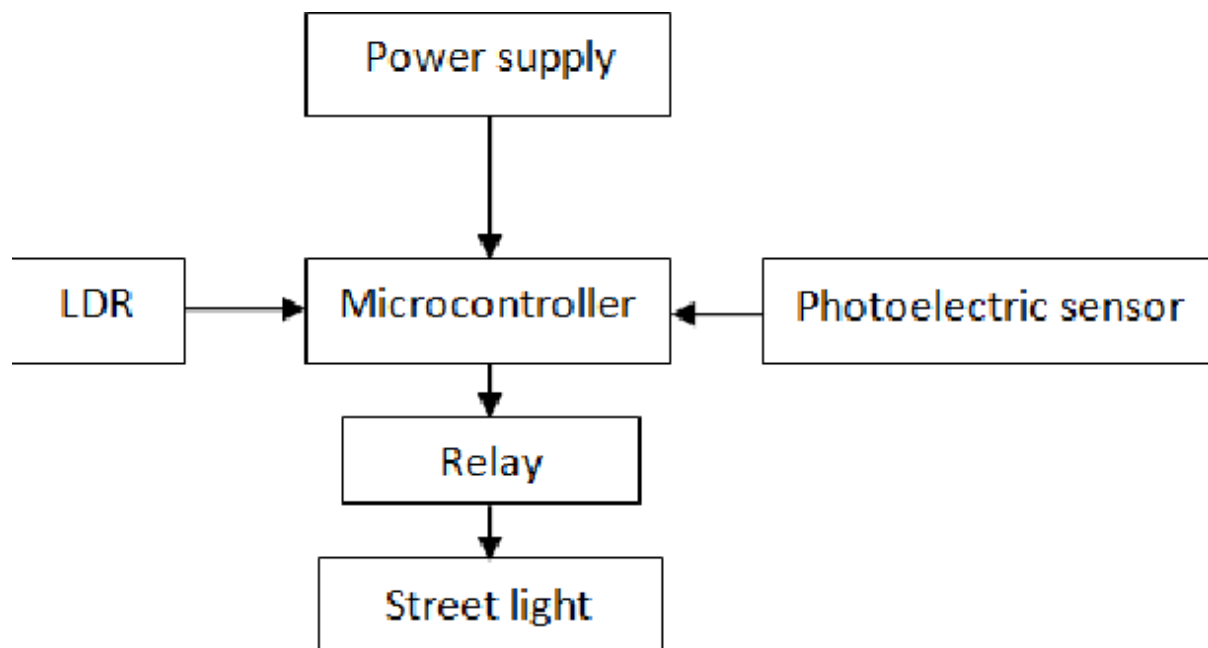
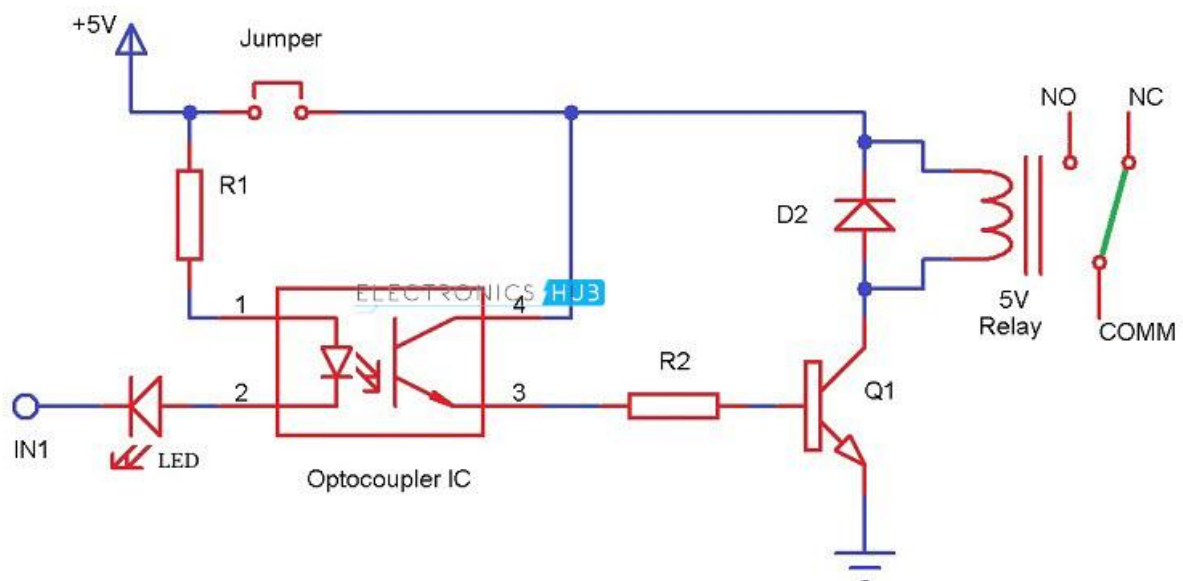


Fig. 1 Block diagram of street light system

## Component Description

### 5V Relay Module

A 5V Relay Module is used in this project which helps 8051 Microcontroller to operate high voltage AC loads like a light. The detailed circuit of the Relay Module is shown in the following image. It consists of a 5V Electromechanical Relay, an Optocoupler IC, transistor, two resistors and two diodes.



LDRs or Light dependent resistors are very useful especially in light/dark sensor circuits. Normally the resistance of an LDR is very high, sometimes as high as 1000000 ohms, but when they are illuminated with light resistance drops dramatically. Electronic onto sensors are the devices that alter their electrical characteristics, in the presence of visible or invisible

light. The best-known devices of this type are the light dependent resistor (LDR), the photodiode and the phototransistors. Light dependent resistors as the name suggests depend on light for the variation of resistance

LDR are made by depositing a film of cadmium sulphide or cadmium selenide on a substrate of ceramic containing no or very few free electrons when not illuminated. The longer the strip the more the value of resistance.

When light falls on the strip, the resistance decreases. In the absence of light the resistance can be in the order of 10K ohm to 15K ohm and is called the dark resistance. Depending on the exposure of light the resistance can fall down to value of 500ohms. The power ratings are usually smaller and are in the range 50mW to 0.5W. Though very sensitive to light, the switching time is very high and hence cannot be used for high frequency applications. They are used in chopper amplifiers. Light dependent resistors are available as disc 0.5cm to 2.5cm. The resistance rises to several Mega ohms under dark conditions. The below figure shows that when the torch is turned on, the resistance of the LDR falls, allowing current to pass through it .

