

# STREET LIGHT SYSTEM

VAMSHI SAINI

## BASIC IDEA:

This Project aims for designing and executing the advanced development in embedded systems for energy saving of street lights. We are all aware that the street lights are switched on manually after it gets dark in the night and is switched off the next day when there's sufficient light.

But There is a high possibility and real-time instances where they're not switched on at the correct time causing troublesome experiences to drivers who travel at night and also sometimes are not switched off, leading to sheer wastage of energy.

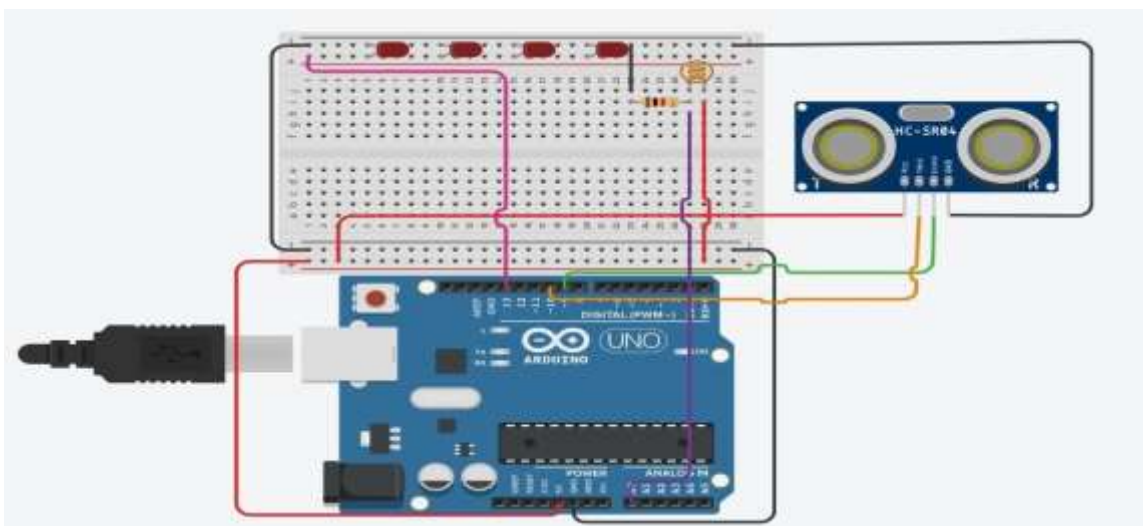
So, this proposed project helps to overcome these difficulties and help us to save energy resources.

We're going to Discuss the creation of its prototype, which can later be equipped into real time applications.

## REQUIRED COMPONENTS

- Arduino UNO
- Ultrasonic Distance Sensor – HSR-04
- LEDs- Preferably Yellow x4
- Resistor – 10Kohms
- Photo-Resistor
- Jumper Wires and Mini Breadboard
- Cardboard Box
- External Power Supply (If needed)

## CONNECTIONS & CIRCUIT DIAGRAM



**Note: The Above circuit is made from Tinker CAD**

Connections are pretty much easier and not that complex.

First Let's Setup the Cardboard as shown here.

So, initially setup a Cardboard Chassis to make it a replica of a real time environment. Once it is done, we can start off with connecting LEDs to the Arduino.



- Use Pin 13 to Connect the LEDs and make sure to connect them in series to each other on the breadboard
- Later, connect a Photo-Resistor, taking one of its terminals to the Power supply and connect the other terminal to 10K resistor.
- Then Choose any of the Arduino pins, (Say A0) and connect the terminal with resistor to Arduino.

Now, Consider the ultrasonic sensor, The HSR-04 has 4 pins:

- The VCC is given to the Power Supply.
- The Gnd is given to common gnd.
- The Trig pin has been given to Pin 10.
- The Echo pin has been given to Pin 9.

## **WORKING**

Once the Connections are set-up, and after Uploading the code, if we run it

We can clearly observe that initially the lights are switched off, if any vehicle enters in its (sensor) proximity, the LEDs glow and provide the light. This Proximity can be set accordingly to the need.

The work of the Photo-resistor is that, if there is sufficient light falling on it, it doesn't let the LEDs glow unnecessarily, and makes them glow only when there's no sufficient light falling on it.

Hence this System can be applied in real time and can reduce the wastage of electricity and can reduce the manual work force in the department.