

# Automatic Smart Street Light System

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**Abstract:** The Project is designed to detect vehicle movement on highways to Switch ON only a block a street lights ahead of it(VEHICLE),and to switch off the trading light to save energy. During night all the lights on the highway remain On for the vehicles, but lots of energy is wasted when there is no vehicle movement. This support system provides a solution for energy saving. This is achieved by sensing and approaching vehicle and then switch on a Block of street lights ahead of the vehicle. As the vehicle passes by, the trading lights switch off automatically. Thus, we save a lot of energy.

**Keywords:** Street Light, Arduino, Microcontroller, Ultrasonic sensor.

## I. INTRODUCTION

So when there are no vehicles on the highway, then all the lights remain off. However, there is another mode of operation where instead of switching off the light completely, they remain on with 10% of maximum intensity of the light. As the vehicle approaches, the block of street lights switch to 100% intensity and as the vehicle passes by, the trading light revert back to 10% intensity again. High intensity discharge Lamp(HID) presently used for the urban street light are based on the principle of Gas Discharge. thus the intensity is not controllable by any voltage reduction. White Light emitting Diode(LED) based lamps are soon replacing the (HID) in street light. Intensity control is also possible by pulse width modulation(PWM) generated by the micro controller. Sensors used on the either side of the road sensed vehicle movement and sense logic command to micro controller to switch ON/OFF the LEDs. Thus this way of dynamically changing intensity on/off helps in saving a lot of energy. The project uses an 8051 series micro controller.

## II. MAIN OBJECTIVE

The main objective of the present project is to reduce the power consumption and efficient utilization of renewable source for the application of street lighting. Hence, this paper is aimed at design and implementation of an automatic system to reduce energy by using an array of infrasonic sensors, which senses the human or the vehicle movement. LDR is used to detect the presence of day light. In this system the street light are switched ON/OFF automatically during the presence of human or Vehicles only during night.

## III. METHODOLOGY

- To achieve the above discussed objectives, a stepby- step methodology has been followed.

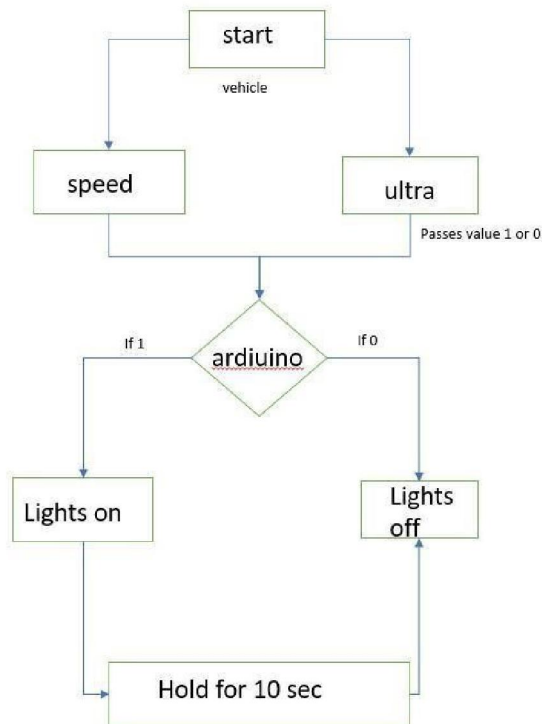
The details of methodology are given below:

1. This system are developed to control and reduce energy consumption.
2. Of a towns public lighting system using different technologies the existing work is used in the High intensity Discharge lamp(HID).
3. HID presently used for Urban street light are based on principle of gas discharge, thus the intensity is not. Controllable by any voltage reduction method as the discharge path is broken.

## IV. DIAGRAMS

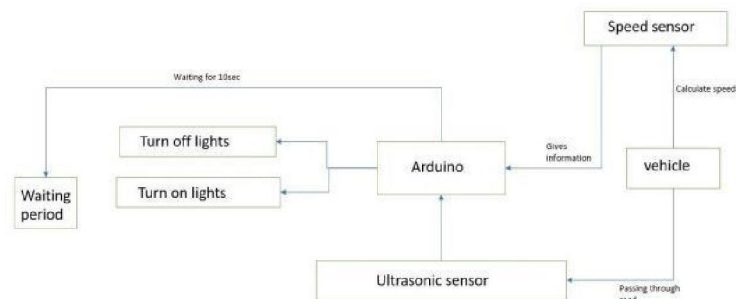
### 4.1 Use Case diagram.

The various actors of the system along with their functionality are described in the



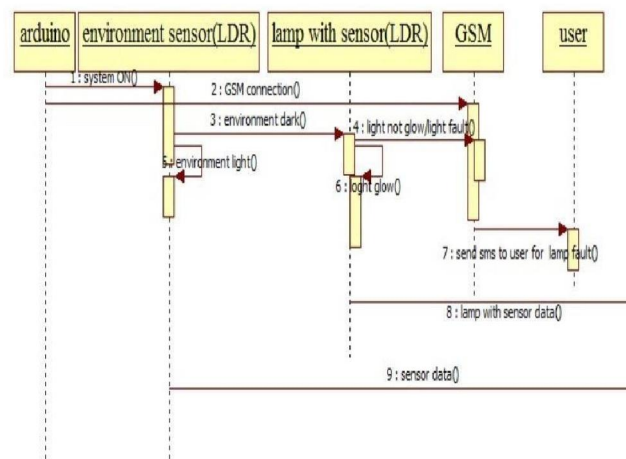
#### 4.2 Data Flow Diagram

The data flow diagram of the system is given in the diagram:

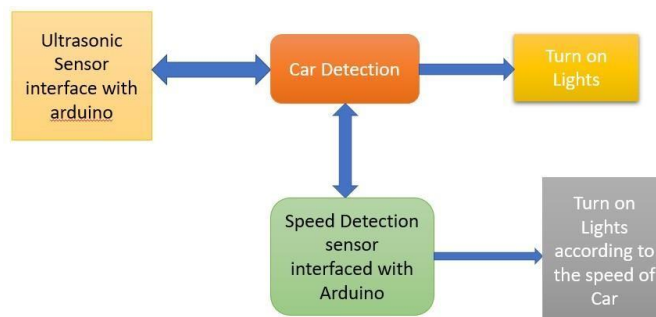


#### 4.3 Sequence Diagram

The overall sequence diagram of the goal system is given below



#### 4.4 Project Modules



#### ACKNOWLEDGMENT

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