



**DR. D. Y. PATIL INSTITUTE OF TECHNOLOGY,
PIMPRI, PUNE -18.**

Department of Electronics & Telecommunication

**Project Based Learning Synopsis
(2020-21)**

**MOTION DETECTING STREET LAMP WITH GAS DETECTING
SMARTSTREET SYSTEM**

GROUP NO.: 31

STUDENTS DEATAIL:

SR.NO.	STUDENTS NAME	ROLL. NO.
1.	ANIMESH JAMGADE	SETC02
2.	BHAGYASHREE SHROTE	SETC06
3.	SANYUKTA RAUT	SETC11
4.	TRIPTI GIRI	SETC13
5.	ANIKET PRASAD	SETC14
6.	ANKITA NARSALE	SETC14

NAME OF GUIDE: MRS. PRITI SHINDE

SYNOPSIS:

TITLE: “MOTION DETECTING STREET LAMP WITH GAS DETECTING SMART STREET SYSTEM.”

ABSTRACT:

Now-a-days the amount of power consumed by lighting and streets share a major energy demand. During night all street lights will be on in conventional energy street lighting system. To overcome from this issue, a proper energy saving method and light control to be implemented. The proposed work is to have controls like to switch OFF light during no vehicle movements in street and automatically switch it ON when vehicle arrives. In this work LED lights are used for street arrangements, the Photodiodes and IR sensors are used to sense vehicle movement from the proposed method the overall energy being utilized nowadays for lighting can be minimized.

This project can be used to detect gas leaks and also smoke. Smoke detector circuit which not only sense the smoke in the air but also reads and displays the level of smoke in the air in PPM. The circuit triggers the alert system when smoke or gas leakage is detected. This MQ5 gas sensor is sensible to LPG, alcohol, methane etc. Methane, iso-butane, propane, LNG and cigarette smoke. It detects the presence of a dangerous LPG leak in a car or in a service station, storage tank environment. The sensor has excellent sensitivity combined with a quick response time. If it senses gas leakage from the storage the output goes low.

PROBLEM STATEMENT:

The amount of power consumed by lighting and streets share a major energy demand. Hence leading to high amount of energy wastage and moreover in today's world, everyone is busy in their own life that people rarely take care of using resources effectively. Gas like CNG used in vehicle operation and if there is any amount of leakage of these types of gases it can cause a huge loss to life and property.

AIM : The main aim of a new smart street lighting system is to control energy efficient LED street lights to turn on only when needed and smartly detect smoke leakages on street.

OBJECTIVES :

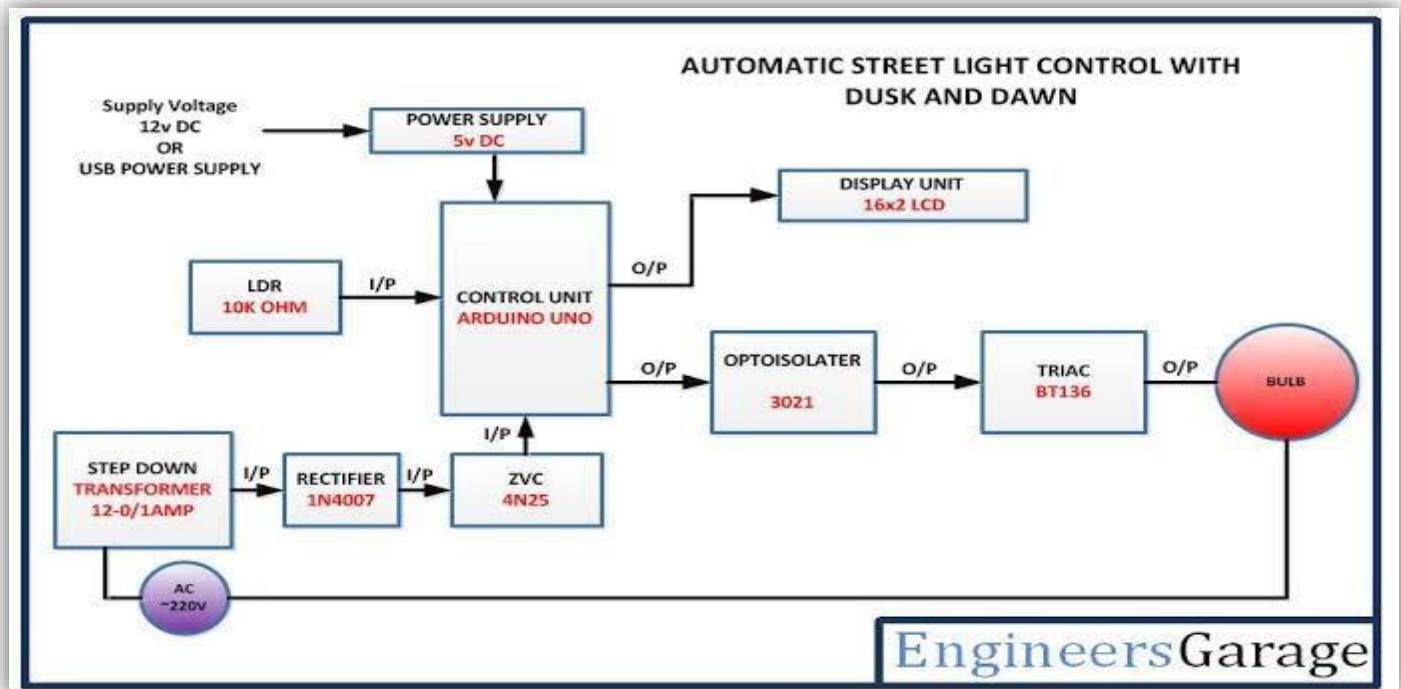
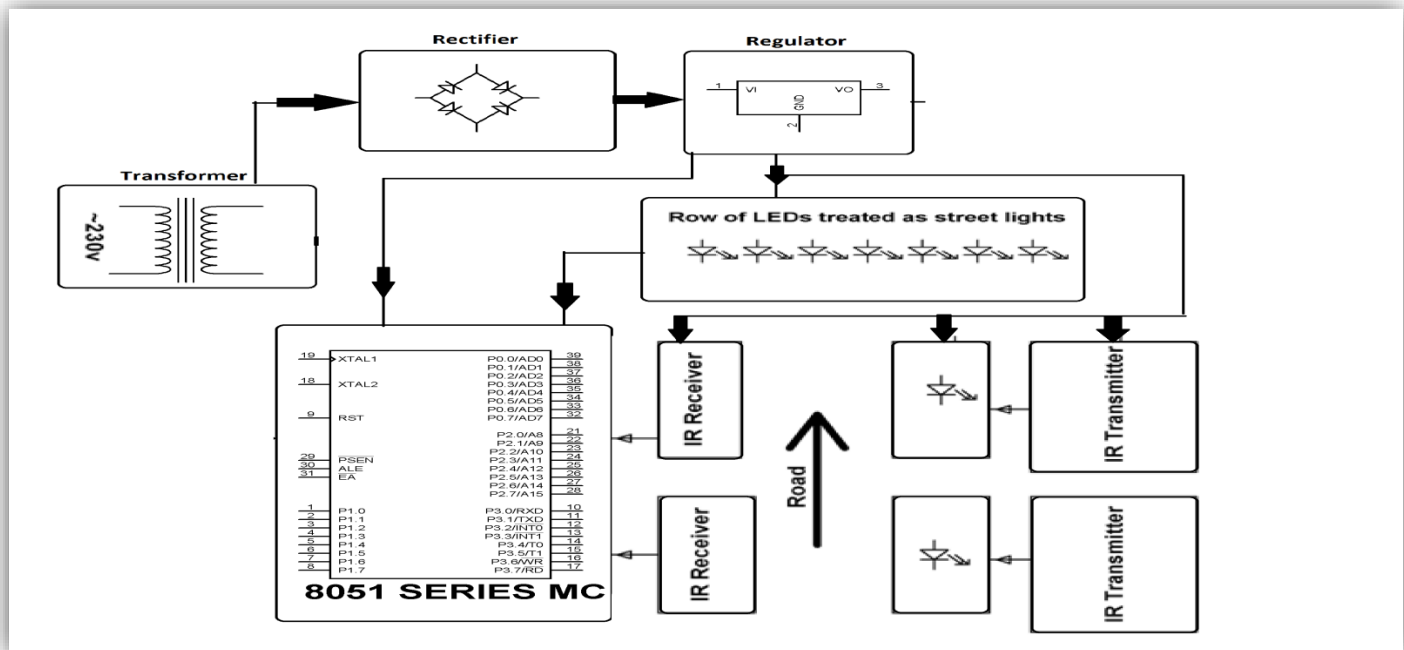
- To reduce consumption of electricity by street lamps
- To efficiently use the resources of our planet
- To alert officials regarding any gas leakages on streets
- To make our life more comfortable and eco friendly

Literature Survey:

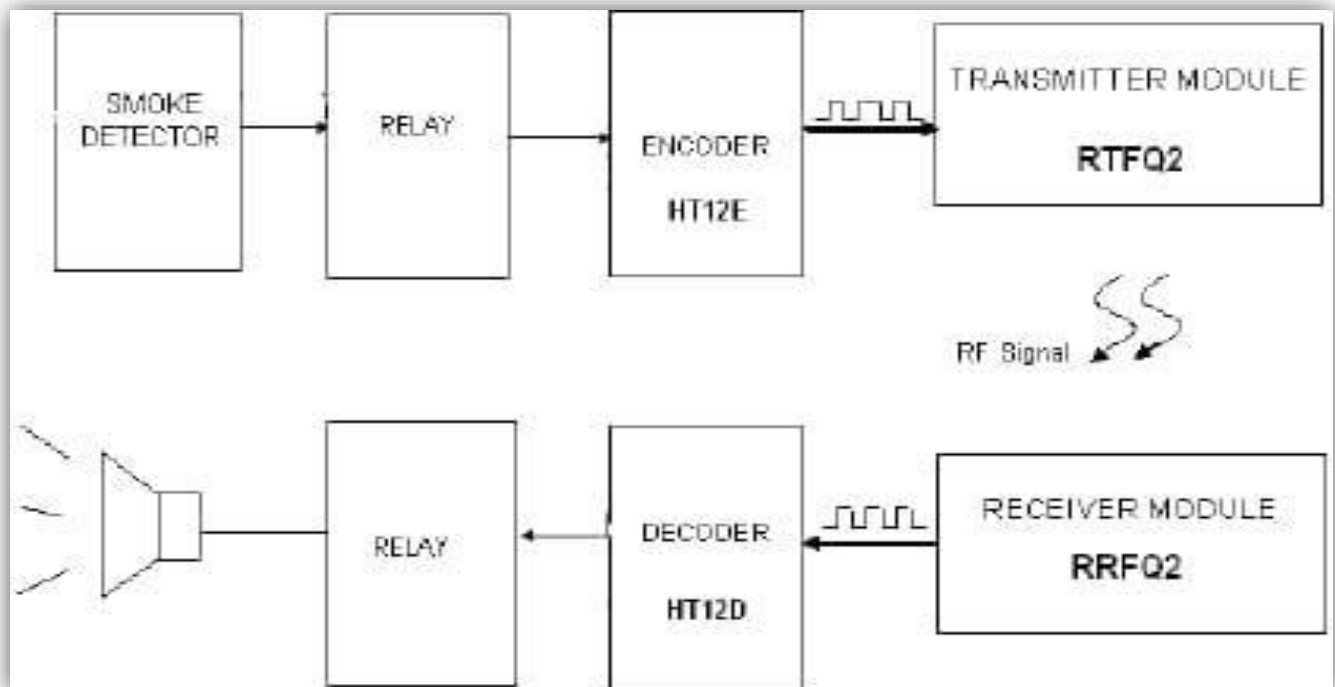
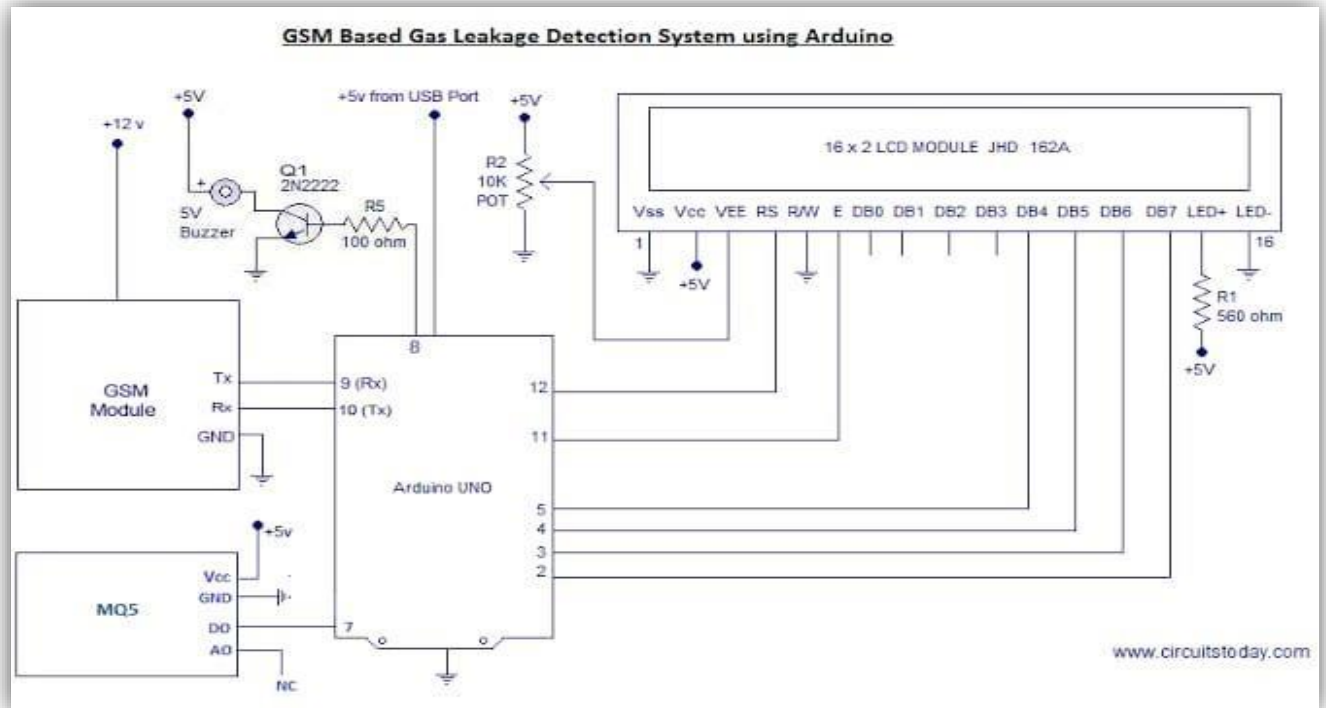
SR. NO.	PAPER TITLE	AUTHOR	NAME OF JOURNAL/ CONFERENCE	YEAR OF PUBLICATION
1	Automatic Street Light Control by Detecting Vehicle Movement	. N. Yashaswini, N. Raghu, S. Yashaswini and G. Prathib Kumar	Electronics, Information & Communication Technology (RTEICT),	2018
2	Smart Power Consumption Street Light That Glows On Detecting Vehicle Moment Utilizing The Solar Power - An Energy Saving Approach	Ankit Patel , Snehal Patel Student	Student, Electronics and Communication department, Laxmi institute of Technology, Sarigam-Valsad. Gujarat	2015
3	Comparison of ESP programming platform.	Filip Rak, Józef Wiora	Department of Measurements and Control Systems, Silesian University of Technology, Gliwice, Poland	2021
4	I Advanced gas leakage, fire and power supply failure monitoring system	Amirul Asraf Roslan, Rashimi Baharom	Indonesian Journal of Electrical Engineering and Computer Science.	2019
5	IOT Based Air Quality Monitoring	Kinnera Bharath Kumar Sai, Somula Ramasubbareddy, and Ashish Kr. L	scalable computing: practice and experience	2019

BLOCK DIAGRAM:

1. MOTION DETECTING STREET LAMP:



2. GAS AND SMOKE DETECTION SYSTEM:



BLOCK DIAGRAM EXPLANATION:

AUTOMATIC STREET LIGHT CONTROL WITH DUSK AND DAWN:

In this work, the LED lights are used for street arrangement, the Photo diodes and IR sensors are used to sense vehicle moments.

In this block diagram, there are IR sensors which is used for interruption detection and send logic signal to microcontroller for the glowing of the LEDs ahead of the Vehicle.

Photodiodes or infrared diodes are utilized as sensors, variable resistors and transistors which work as switch.

The infrared diodes are set on side of the street and photodiodes are set on the opposite side of the street, straightforwardly confronting IR diodes.

The control signals of sensors have been fed to microcontroller 8051. In the microcontroller the control logic is implemented to control lights based on vehicles and pedestrian moments with bright and dim mode of operation and to switch off lights during no vehicles and pedestrian.

SMOKE DETECTOR:

Working of this **Smoke Detector Alarm Circuit** is easy. In this project, we have used transistor operating properties to work this circuit as a smoke detector. As we already know that we have used a BC547 NPN transistor which will turn on whenever it gets least 0.70v at its base terminal. So we have applied a Voltage Divider Circuit at its base.

But before using this circuit, we need to calibrate it by using pot. In calibration, we have applied voltage just below than 0.70v at transistor base. Whenever smoke sensor senses smoke, it reduces its resistance and due to this decrease in resistance, voltage across the base of the transistor increases. Now when the voltage at the base terminal of transistor become more than or equal to 0.70v then transistor turns on and LED lights up and buzzer also starts beeping. And when there is no Smoke, both the indication components turns off as the voltage across base terminal of transistor goes below the 0.70v.

REFERENCES:

1. N. Yashaswini, N. Raghu, S. Yashaswini and G. Prathib Kumar, "Automatic Street Light Control by Detecting Vehicle Movement," 2018 3rd IEEE International Conference on Recent Trends in Electronics, Information & Communication Technology (RTEICT), Bangalore, India, 2018, pp. 847-850, doi: 10.1109/RTEICT42901.2018.9012376.
- 2 SMART POWER CONUNPUTION .STREET LIGHT THAT GLOWS ON DETECTING VEHICLE MOVEMENT USING SENSOR 1 Ankit Patel , 2 Snehal Patel Student, Electronics and Communication department, Laxmi institute of Technology, Sarigam-Valsad. Gujarat
3. Automatic Street Lights Sakshee Srivastava Electronics And Communication Engineering, Institute Of Technology And Managemnt AL-1, Sector-7, GIDA, Gorakhpur, U.P., INDIA.
- 4.. IOT based air quality monitoring system using MQ135 and MQ7 with machine learning analysis Kinnera Bharath Kumar Sai, Somula Ramasubbareddy, and Ashish Kr. Luhach, scalable computing:practice asnd experience.,2019 SCPE,ISSN 1895-1767, DOI 10.12694/scpe.v20i4.1561.
5. Advanced gas leakage, fire and power supply failure monitoring system Amirul Asraf Roslan, Rahimi Baharom Faculty of Electrical Engineering, Universiti Teknologi MARA, Malaysia
6. Comparison of ESP programming platforms Filip Rak, Józef Wiora Department of Measurements and Control Systems, Silesian University of Technology, Gliwice, Poland, VOL. 2 NO. 2 JULY,2021pp. 77-86,ISSN: 2722-3221, DOI: 10.11591/csit.v2i2.p77-86.