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Version Number:

Team Members :

Team No:

Module: Model Based System Engineering

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**Case Study on Automatic Street**

**Lights**

**Requirements:**

**Empathize Research:**

**This project aims to the conservation of energy,by doing this we would be able to use the energy for some important places like hosptitals,villages etc.This project is accomplished by using the microcontrollers and sensors that will control the electricity based on objects detection and also based on darkness.By this project unused electricity can be reduced,lifetime of the streetlights can be enhanced and helps us to increase the safety measurements.**

# High level Requirements:

HR01-Object Detection

HR02-Turn on the lights automatically

HR03-Charging

HR04-Day light detection

HR05-Speed detection

Low level Requirements:

LR01-Manual on and off

LR02-Adjusting the Brightness

LR03-Wifi for switching

SWOT Analysis:

Strengths:

1.Conservation of Energy.

2.Safety for Pedestrians.

3.Risk of accidents is minimized.

4.No external wiring.

Weakness:

1.Continuous maintenance is required.

2.Charging is based on climatic conditions.

Opportunities:

1.Highways.

2.Local streets.

3.Harbours.

4.Industrial Roads.

5.Colleges,Offices

Threats:

1.Risk of Theft.

2.Replacement of batteries.

5W1H:

What?-Automatic Street Iights.

Why?-Conservation of Energy.

Where?-Highways,Local streets,Industrial Roads.

When?-During the night time and for darker climates and areas.

Who?-Users are public people.

How?-Based on the objects detection the light will turn on.

Design:

Block diagram:

Diagram

Description automatically generated

Structural Diagram:Diagram

Description automatically generated

# 

# Evaluation:

Unit Testing:

1.LDR Sensor

2.Photoelectric Sensor

3.PIR Sensor

Summary:

The streetlight automation system is the best way to reduce the consumption of power.It decreases manual switching and most importantly the maintenance is reduced.This system can be easily implemented in agricultural fields,home automation etc.