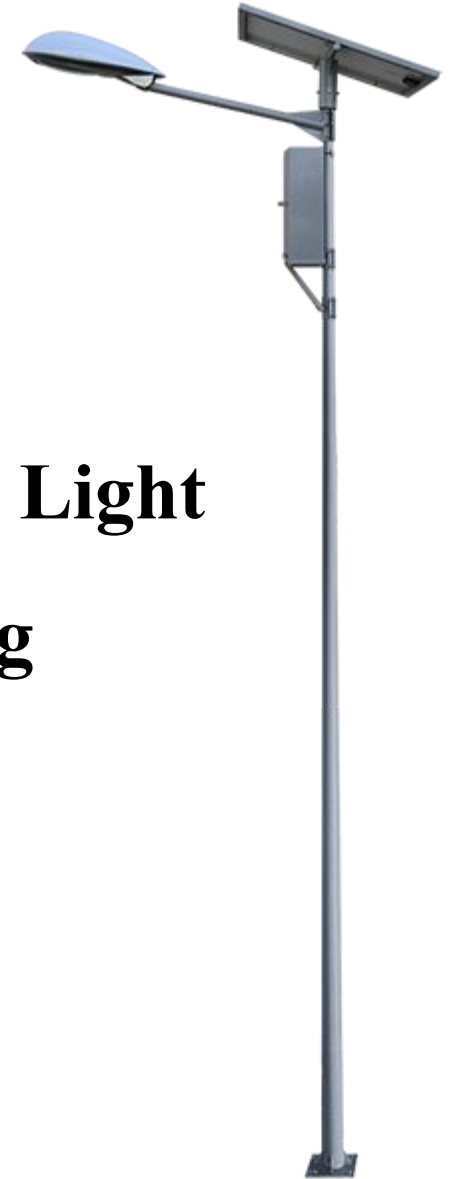




LAMPIONE

For Brighter Future

Centralized Monitoring System For Street Light Fault Detection and Location Tracking



Team Member Details

Team Leader Name: M BARATH KUMAR

Branch : BE Stream : EEE Year : III

Team Member 1 Name: KARTHIK S L

Branch : BE Stream : EEE Year : III

Team Member 2 Name: RAMPAVITHRAN RP

Branch : B.Tech Stream : IT Year : III

Team Member 3 Name: NITHISH F R

Branch : B.tech Stream : IT Year : III

Team Mentor 1 Name: Ms. S. SHEEBA RACHEL (Assistant Professor , IT , Sri Sairam Engineering College)

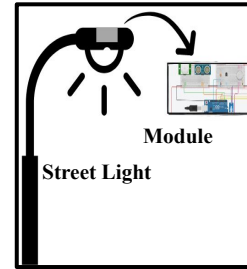
Category : Academic Expertise : AI, Deep Learning Domain Experience : 13 Years

Team Mentor 2 Name: Mr. J. JOHN PRATAP SINGH (Piping Manager, L&T Energy Hydrocarbon)

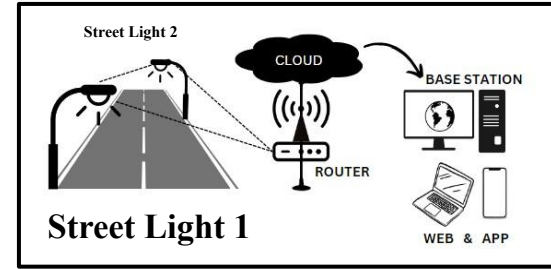
Category : Industry Expertise : AI, ML Domain Experience : 18 Years

IDEA APPROACH :

- Increasing street light faults due to higher numbers.
- Developing an automated fault detection system.
- Hardware includes sensors (LDR, motion, thermal, voltage, gas) and microcontrollers.
- Sensors identify faulty lights and send reports with GPS location.
- App detects faulty lights, provides defect details.
- Reports sent to EB personnel for quick repairs.



INTERNAL
WORKING

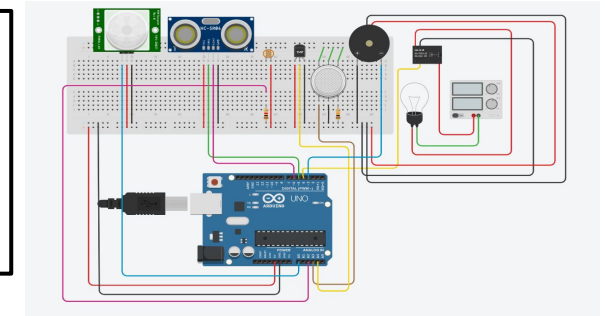


TARGET ENVIRONMENT
SETUP

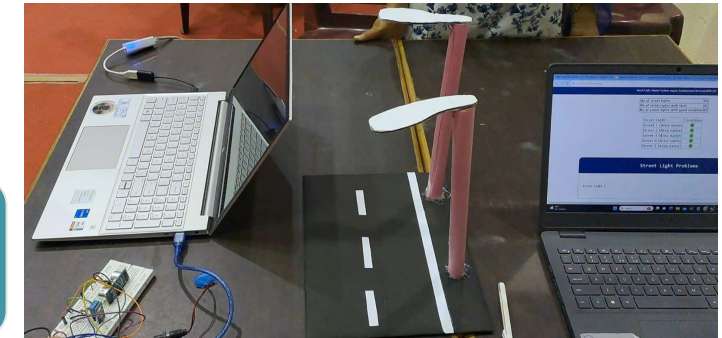
COMPLETION STATUS

85%

HARDWARE CIRCUIT



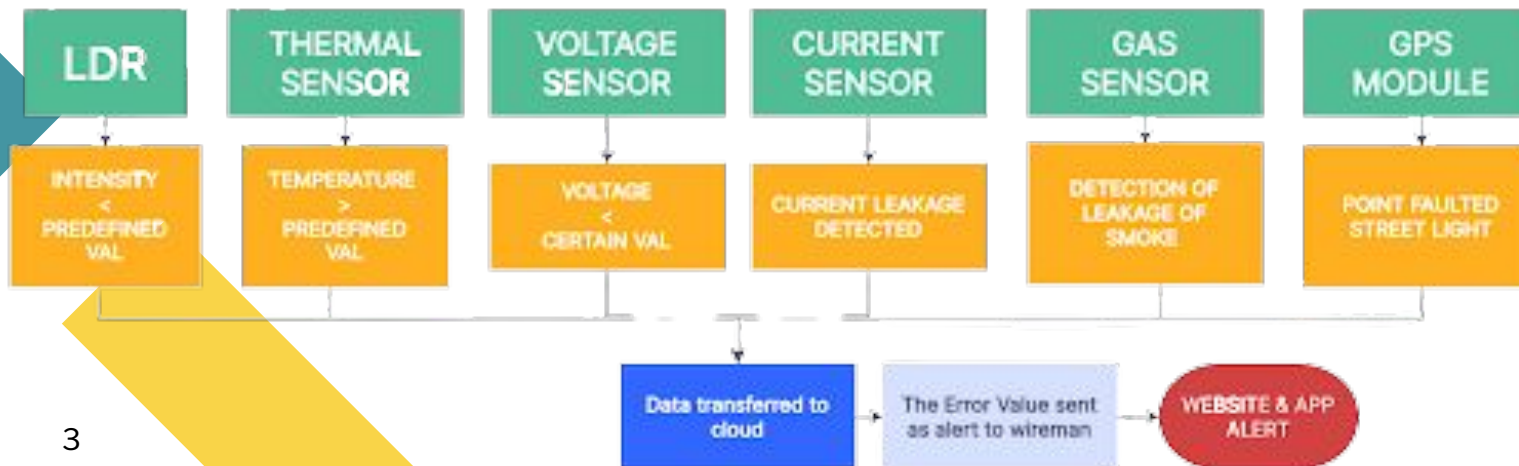
PROJECT SETUP



PROJECT LINK :

<https://drive.google.com/file/d/1jCDarqossgmHzJ9pG2GgglwUuaiGvet/view?usp=sharing>

WORKFLOW DIAGRAM



TECH STACK

- **HARDWARE**
 - Thermal Sensor
 - LDR
 - Current Sensor
 - Earth Leakage Relay
 - Flame Sensor
 - GPS Module
- **SOFTWARE**
 - Firebase
 - Visual Studio
 - Arduino Cloud

LAMPIONE APPLICATION

The LAMPIONE application interface consists of several screens:

- Employee Sign In:** A screen with fields for Email Address and Password, a Login button, and a link to Forgot Password?
- SELECT LOCATION:** A screen with a map showing various locations (leo muthu nagar, Somangalam, Manimangalam, Poonthandalam) and a continue button.
- Street light dashboard:** A screen showing the status of street lights, including a due date (Tuesday, 10:00am), total number of street lights (3), and no of street light working (2). It also has a Check for faults button and a Mark as Complete button.
- Pending task:** A screen showing a list of tasks (Task Name, Assigned To, Status) with buttons for Pending and Mark as Complete.

TECHNOLOGY READINESS LEVEL

- 9 Product ready for induction
- 8 Production Design validated in Field/End-User Trials and verified for QA/Standards
- 7 Prototype validated in Field/End-User Trials
- 6 **Prototype demonstrated in target platform after system integration**
- 5 Prototype validated for for system integration to target platform
- 4 Functional prototype for lab validation
- 3 PoC to demonstrate functions of critical subsystems /modules
- 2 Product concept formulated
- 1 Basic scientific principles

USE CASE

- In Non functioning of lights
- In Current Leakage
- In Cable Breakage
- For Street Lights in rural and urban areas

DEPENDENCIES

- Electrical sensors
- Power source
- Android application
- Location detection
- Data Management

SHOW STOPPERS

- Weak Internet connections
- Bugs (Minor)

COMPONENTS

- LDR
- Voltage sensor
- Thermal sensor
- current Sensor
- Gas Sensor
- Motion Sensor
- GPS Module

HARDWARE BRIEF :

LAMPIONE Hardware comprises of an Arduino UNO Wifi Module which acts as the CPU of the system. It senses the Street light Fault & location of the defected light through LDR,GPS MODULE, THERMAL SENSOR, VOLTAGE SENSOR, GAS SENSOR. All the sensed data are transferred to the Database through NodeMCU ESP8266 module in Arduino. They can be monitored through the LAMPIONE-Website by the authorities & also by the Public through LAMPIONE-APP.

SOFTWARE BRIEF :

LAMPIONE has dual monitoring site specifically designed for monitoring and detecting defect in street light . The website is made for the AUTHORITY and the application for the public to view the status of the defective street light and to raise questions.The APP as well as the website as a time duration of 96 hrs to repair the street light & they also specifies the type of defect

The LAMPIONE web application interface shows a login form with fields for Employee ID and Password, a Sign In button, and a link to Forget Password?. Below the login form, there is a table titled "Street Light Problems" with columns for Street Light, Status, and Location. The table lists various street lights and their current status (On, Off, Faulty, etc.).

WEB APPLICATION INTERFACE