SMART INDIA HACKATHON 2023

SIH

SYSTEM FOR STREET LIGHT FAULT DETECTION AND LOCATION TRACKING

PROBLEM STATEMENT: CENTRALIZED MONITORING SYSTEM FOR STREET LIGHT FAULT DETECTION AND LOCATION TRACKING

TEAM NAME: TEAM NEXUS

TEAM LEADER: K.R.LOKESH
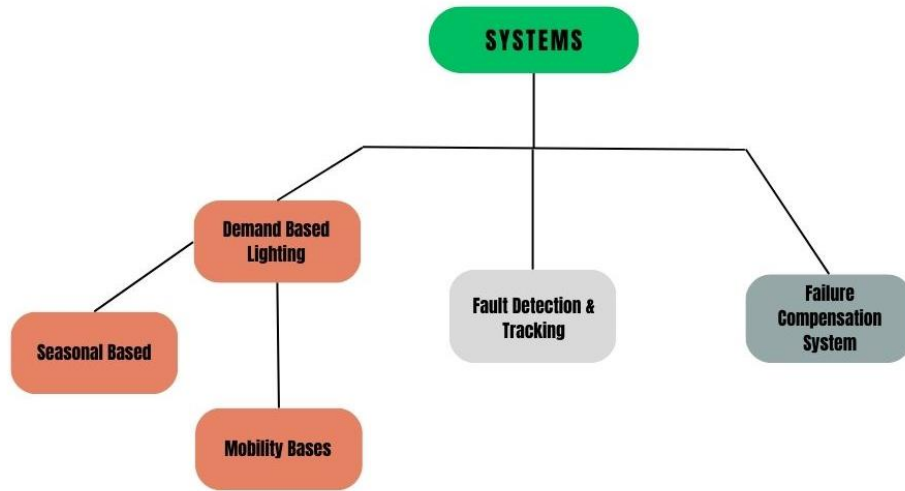
PS CODE: SIH1512

INSTITUTE CODE (AISHE): 1133

INSTITUTE NAME: VELAMMAL INSTITUTE OF TECHNOLOGY

THEME NAME: SMART AUTOMATION

MINISTRY: MINISTRY OF HOUSING & URBAN AFFAIRS

COMPONENTS

- LDR sensor
- Arduino microcontroller
- LED Lights
- GPS module & receiver
- Surge Protection Device (SPD)
- Servo Motors
- Buzzers

IDEA /APPROACH

Automated street lighting fault detection and centralized monitoring system.

The purpose of street lights is to support the night life of humans, but when they fail it causes chaos.

A system that can detect the faulty street lights and report it to a centralized monitoring system.

IDENTIFYING FAULTY STREET LIGHTS

There are many failure points in a LED light. For example the failure of LED driver leads to flickering, partial or complete loss of the LED light.

In such cases the photodetector reports the Arduino controller, in turn a signal is transmitted via a GPS module from the hub to the control room.
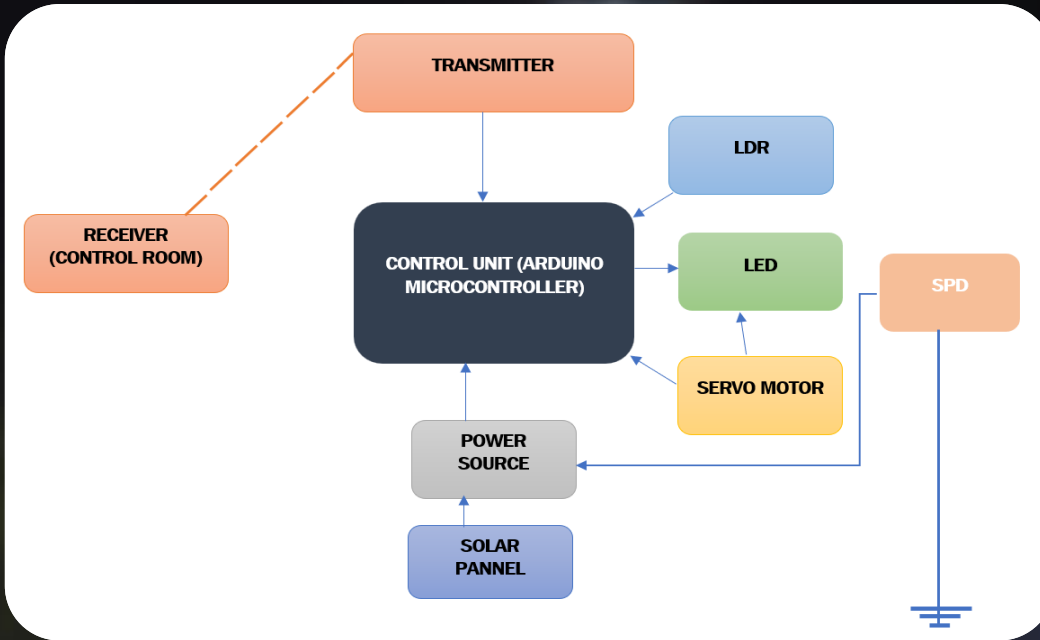
DEMAND BASED SCHEDULING

During different seasons, the street lights need to operate in different times of the day. This system adjusts the intensity of the LEDs based on surrounding light. The sensor

CENTRALIZED MONITORING APPLICATION:

A computer application will be developed to do the following tasks. The microcontroller will send the location coordinates of the faulty street light. The application will be able to receive this coordinates and store the data. This data can be stored in a database and can be used for analysis and creating mathematical model. This data can also be used for research purpose. This application will be able to send message to the service men and also will initiate a buzzer alarm in the control room.

DEPENDENCIES:

- Sensors

- Database system

- Communication devices

- Controllers

- Artificial Intelligence Model

SHOW STOPPERS:

- Potential damage of sub systems due to very harsh weather. But this can be prevented by making a strong housing for the systems.

- Takes time to implement this system.

USE CASES:

- This will help to monitor the lighting infrastructure.

- Improves the lives of citizens.

- Saves energy

- Collected data can be used for research.

- Extends the life of street lights

TEAM MEMBER DETAILS

Team Leader Name: K.R.Lokesh

Branch : B.tech   **Stream : AI&DS**   **Year : II**

Team Member 1 Name: Mohammed Parves A
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Branch : B.tech   **Stream : AI&DS**   **Year : II**

Team Mentor 1 Name: Mrs. M.Hemalatha

Category (Academic/Industry): Artificial Intelligence

Expertise (AI/ML/Blockchain etc):

Domain Experience (in years):