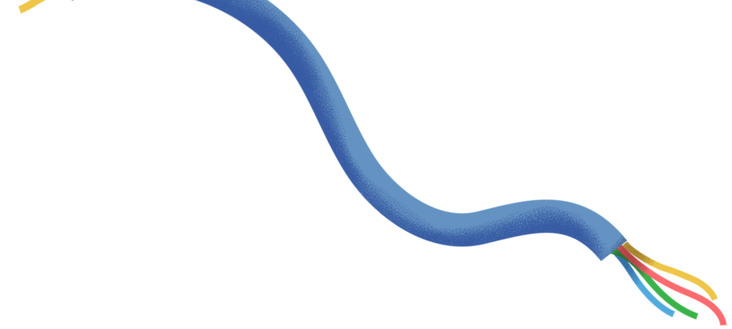
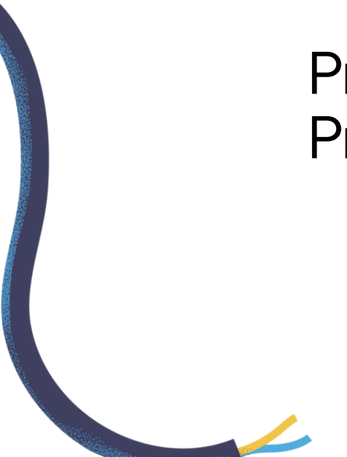


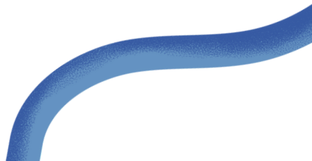
FULMINE

FORECASTING ENERGY CONSUMPTION DEMAND IN INDUSTRIES

Project Guide,
Prof.Bino Thomas

Team Members,
Taniya Thomas
Praise Elizabeth Thomas
Priya Babu
Rithika Anilkumar

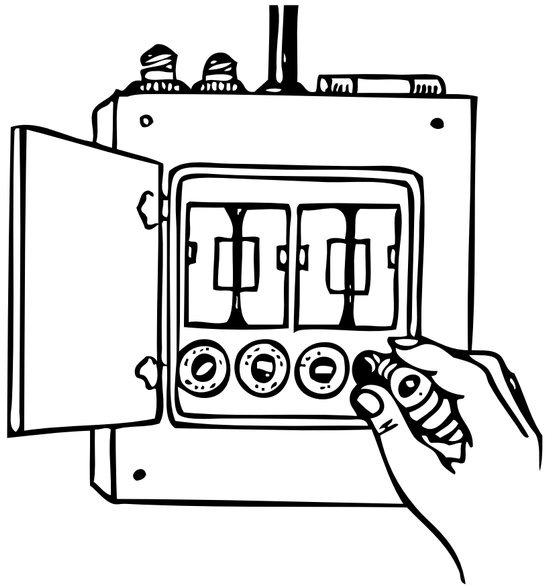




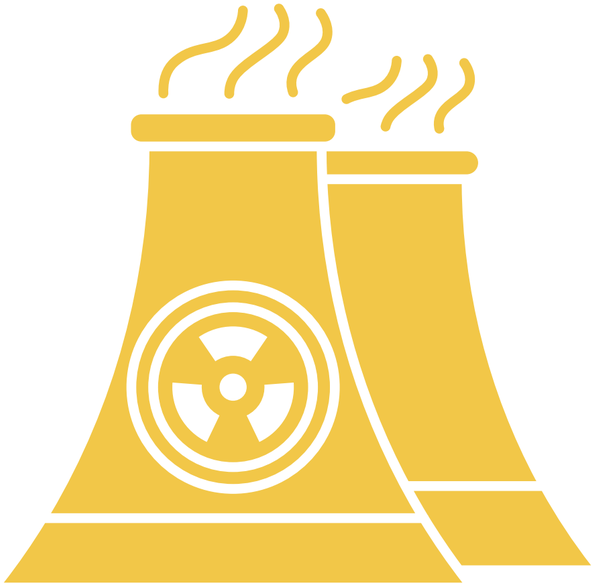
Today's Focus

- Problem Statement
- Literature Survey
- Requirement Analysis
- Designs
- Modern Tools
- Cost Estimation
- Gantt Chart

Problem Statement



- Efficient energy management is crucial for sustainability in industries, as energy demand is rapidly increasing.
- To optimize energy flow and reduce costs, we propose a forecasting approach that uses statistical models and machine learning to predict energy consumption and schedule machine usage.
- By minimizing electricity costs while meeting energy demand, this approach can significantly increase efficiency and optimize energy distribution in various industries
- .
  With practical implications, this system offers a promising solution for enhanced energy management and operational performance.



LITERATURE SURVEY

TITLE	AUTHOR	REMARK
IoT Based Smart Energy Management for Smart Home	Mehmet TASTAN	Smart Energy Management (SEM) system utilizing NodeMCU and Android
A review of energy-efficient scheduling in intelligent production systems	Kaizhou Gao, Yun Huang, Ali Sadollah, Ling Wang	Emphasizing the use of swarm intelligence and evolutionary algorithms
Flow Shop Scheduling for Energy Efficient Manufacturing	Hao Zhang	Optimize flow shop scheduling for energy-efficient manufacturing

TITLE	AUTHOR	REMARK
ENERGY MANAGEMENT ALGORITHMS IN SMART GRIDS: STATE OF THE ART AND EMERGING TRENDS	Joelle Klaimi, Rana Rahim-Amoud , Leila Merghem-Boulahia , Akil Jrad	Explore the use of energy management algorithms in smart grids to minimize renewable energy intermittency
Manufacturing Scheduling for Energy Cost Reduction in a Smart Grid Scenario	Hao Zhang , Fu Zhao , John W. Sutherland	Consider shifting electricity usage from on-peak hours to off-peak hours

Objective

- Accuracy Improvement
- Model Robustness
- Real-Time Forecasting
- Scalability
- User- Friendly Interface

Requirement Analysis

FUNCTIONAL REQUIREMENTS

NON-FUNCTIONAL REQUIREMENTS

Functional Requirements

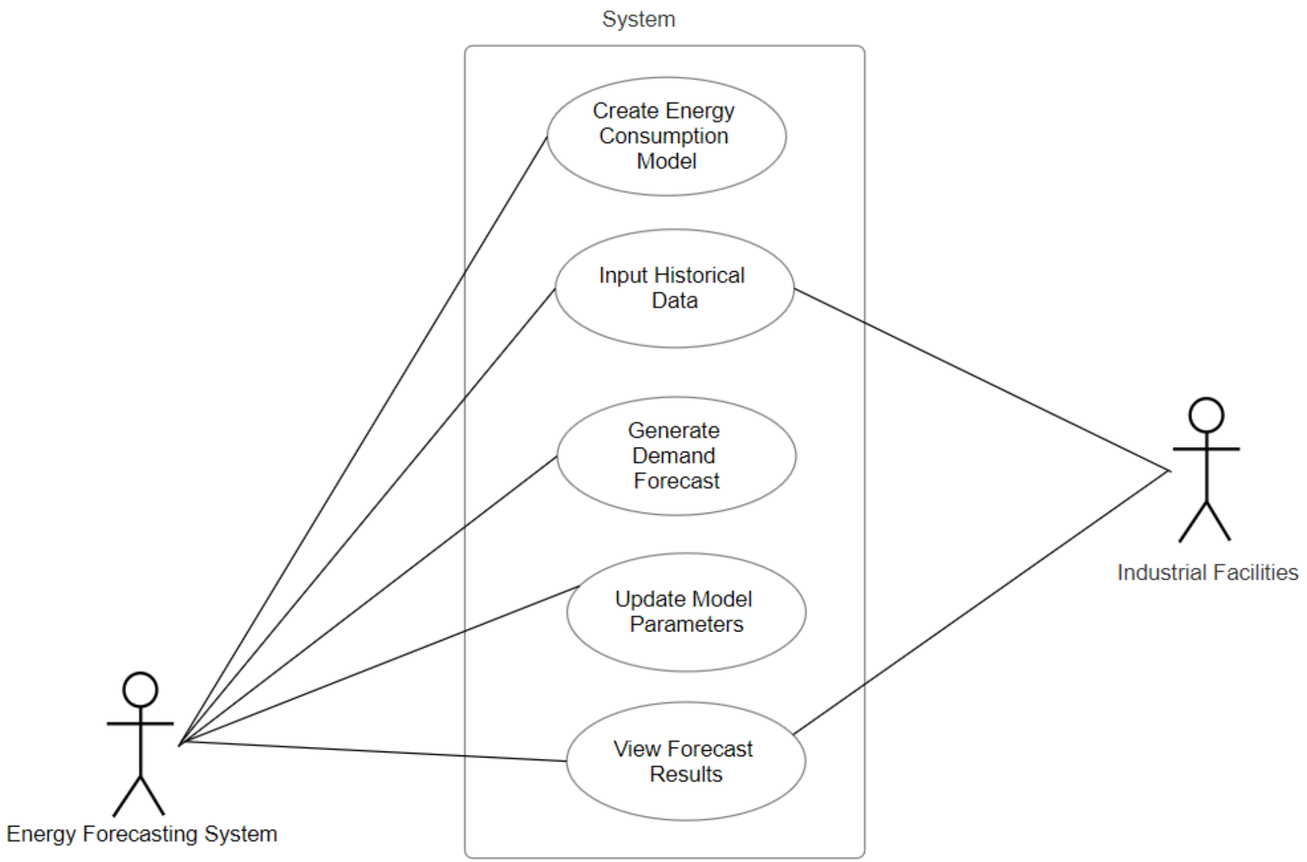
- **Energy forecasting**: The system should be able to forecast energy consumption accurately using statistical models and machine learning algorithms.
- **Machine usage scheduling:** The system should be able to schedule machine usage to optimize energy flow and reduce costs.
- **Energy demand management**: The system should be able to manage energy demand by minimizing electricity costs while meeting energy demand.
- **Real-time monitoring:** The system should be able to monitor energy consumption in real-time to identify potential issues and optimize energy distribution.
- **Data analysis and reporting:** The system should be able to analyze data and generate reports to provide insights into energy consumption patterns and identify areas for improvement.

Non-Functional Requirements

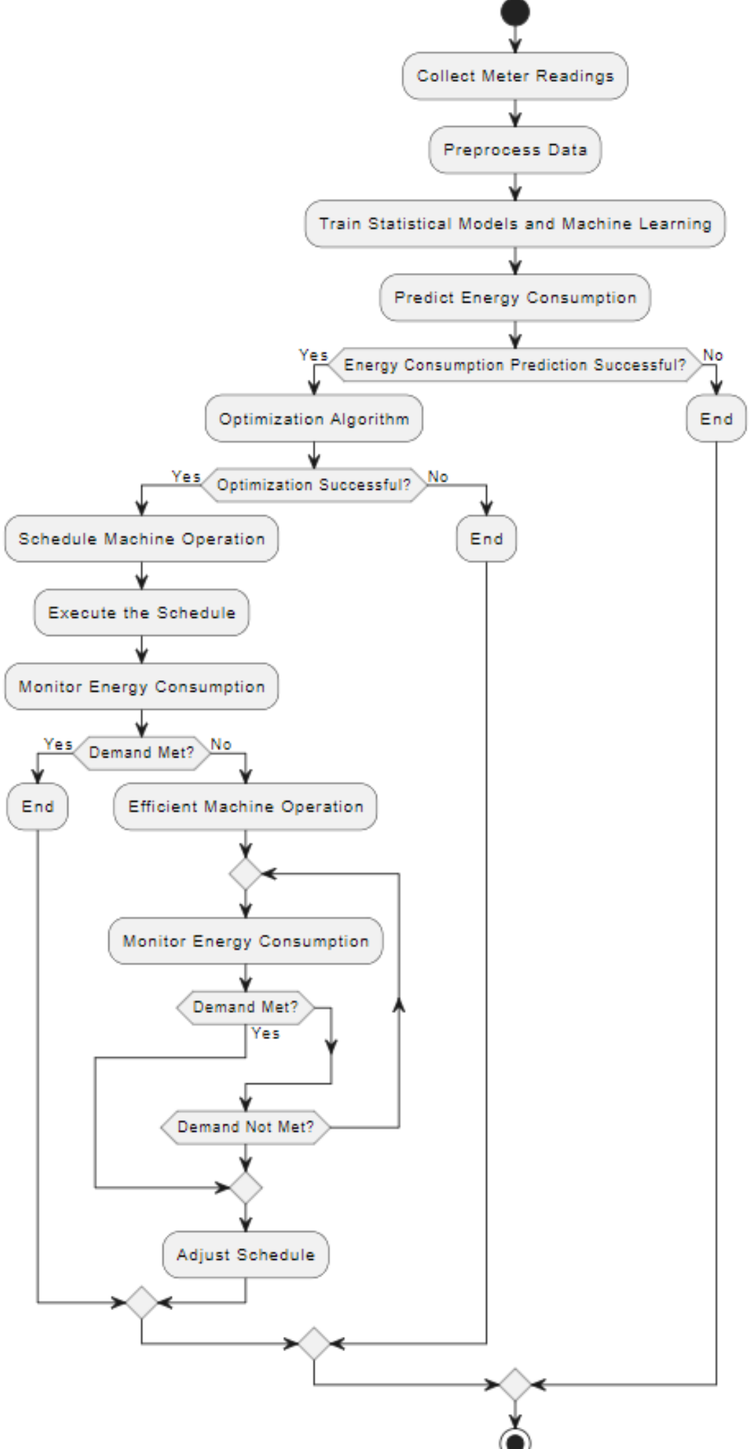
- **Reliability:** The system should be reliable and operate without failure for extended periods.
- **Scalability:** The system should be scalable to accommodate future growth and expansion.
- **Security:** The system should be secure and protect against unauthorized access and data breaches.
- **Maintainability:** The system should be easy to maintain and update, with minimal downtime.

DESIGNS

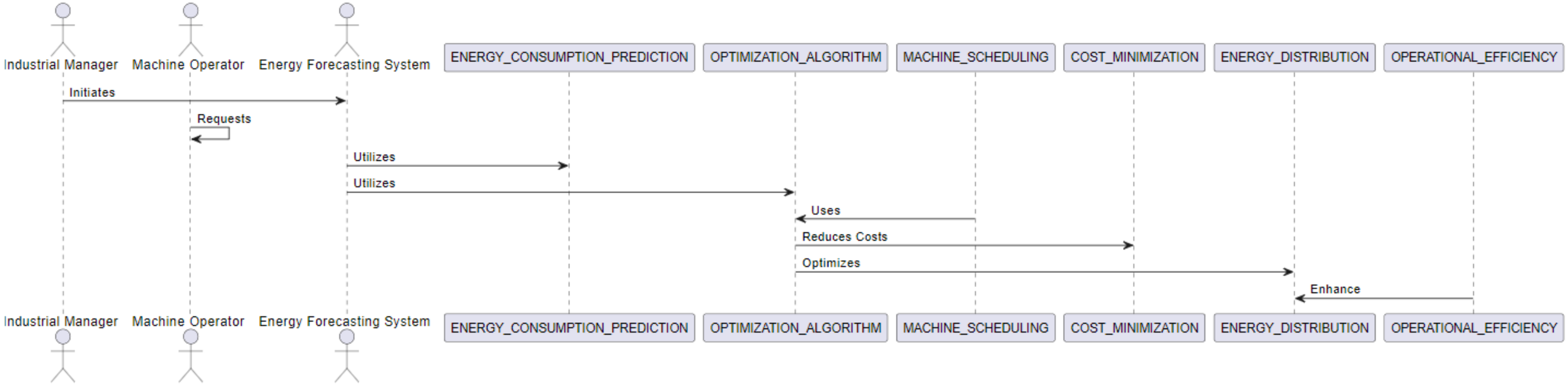
Use Case Diagram



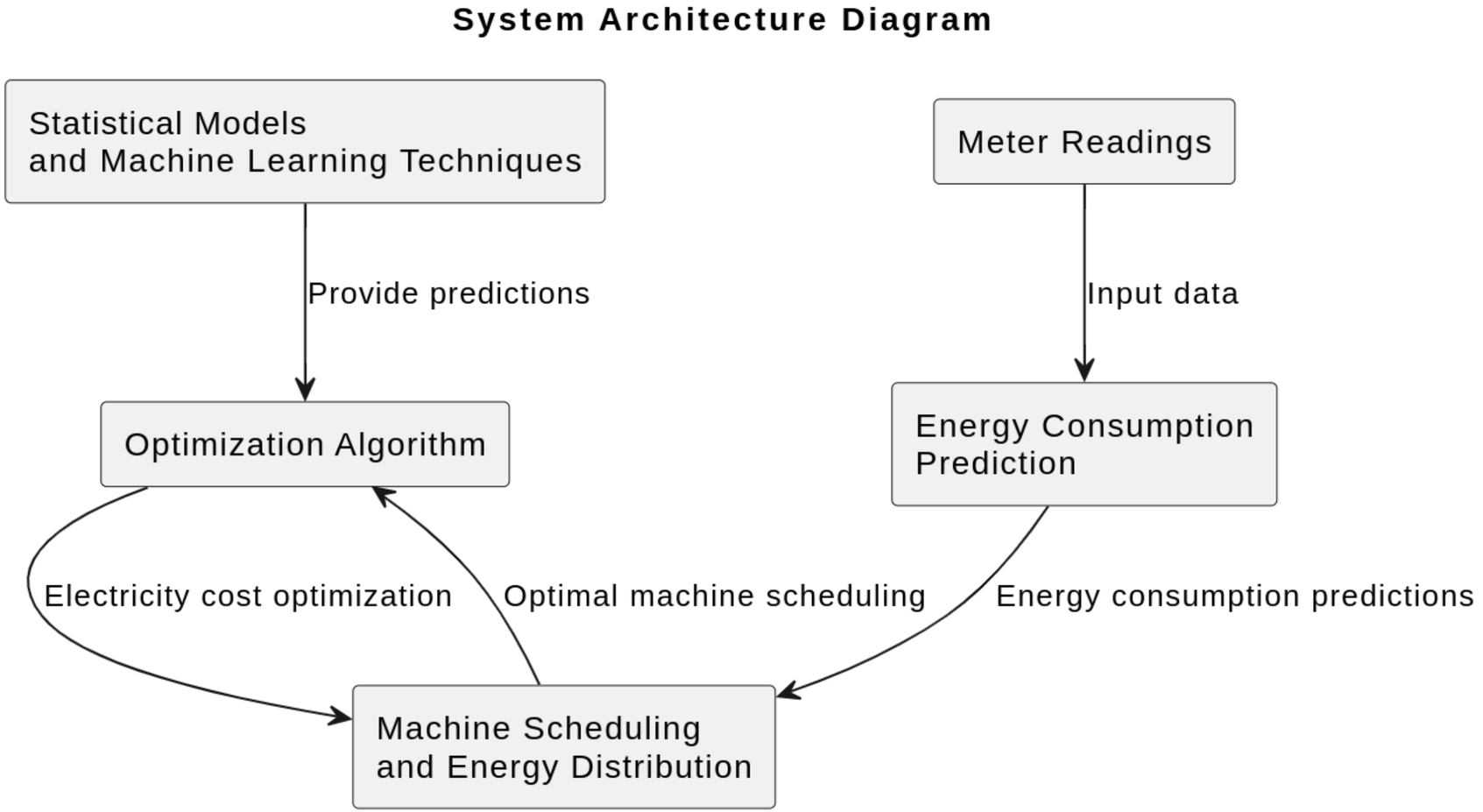
ACTIVITY DIAGRAM



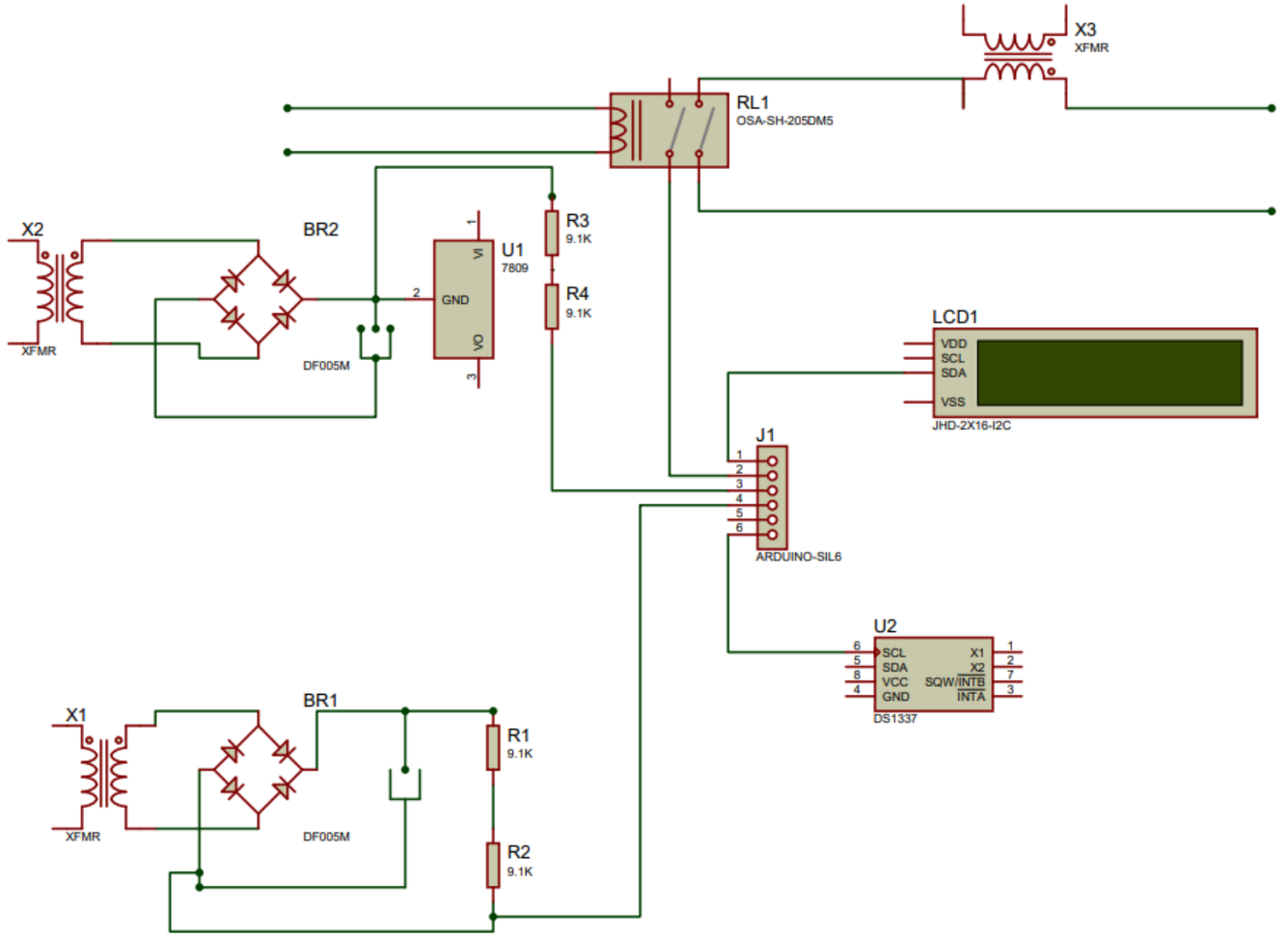
SEQUENCE DIAGRAM



SYSTEM ARCHITECTURAL DIAGRAM

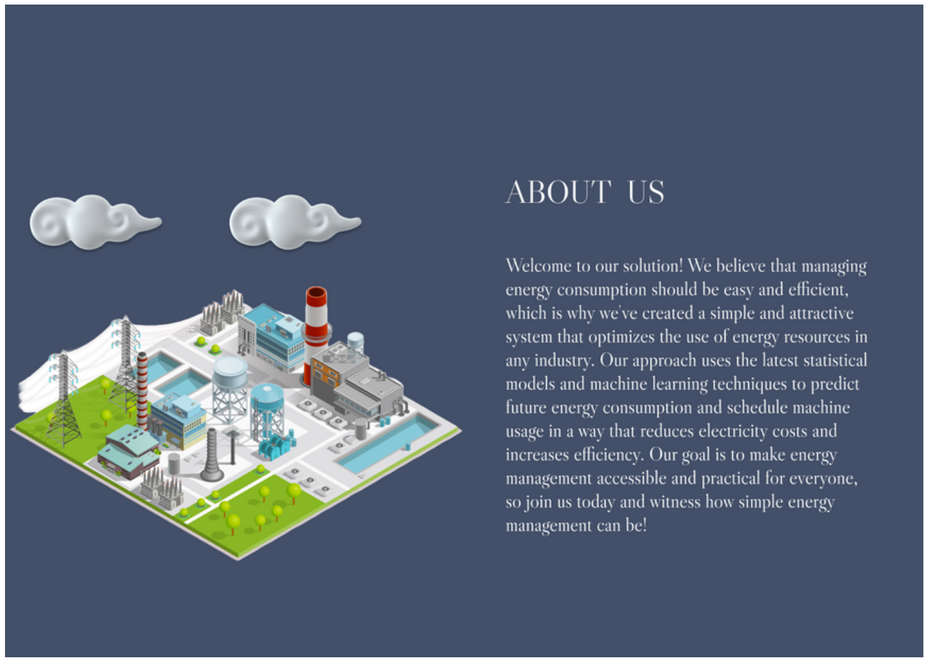


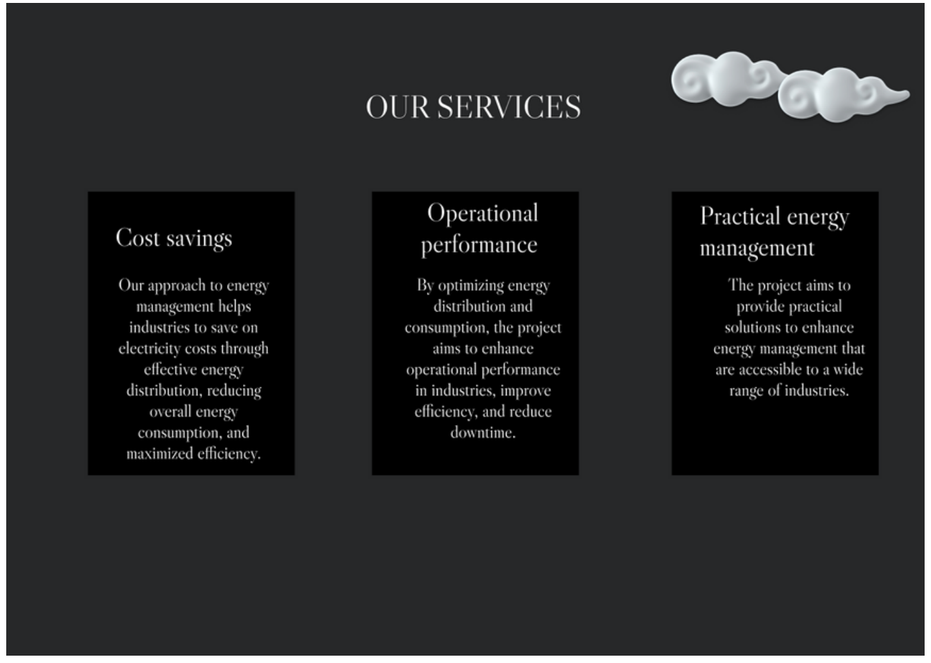
Circuit Diagram

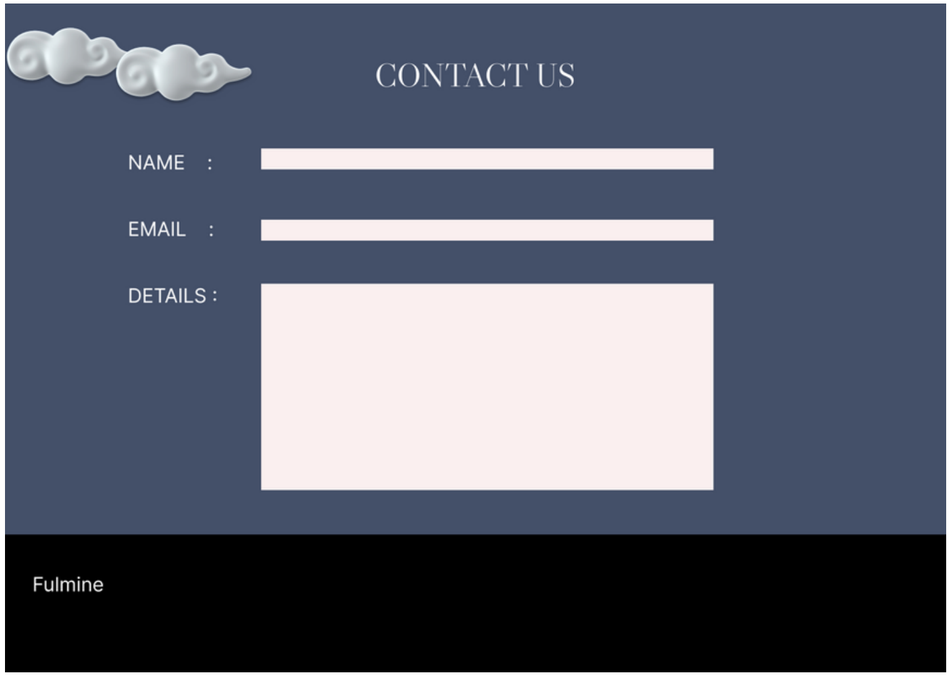


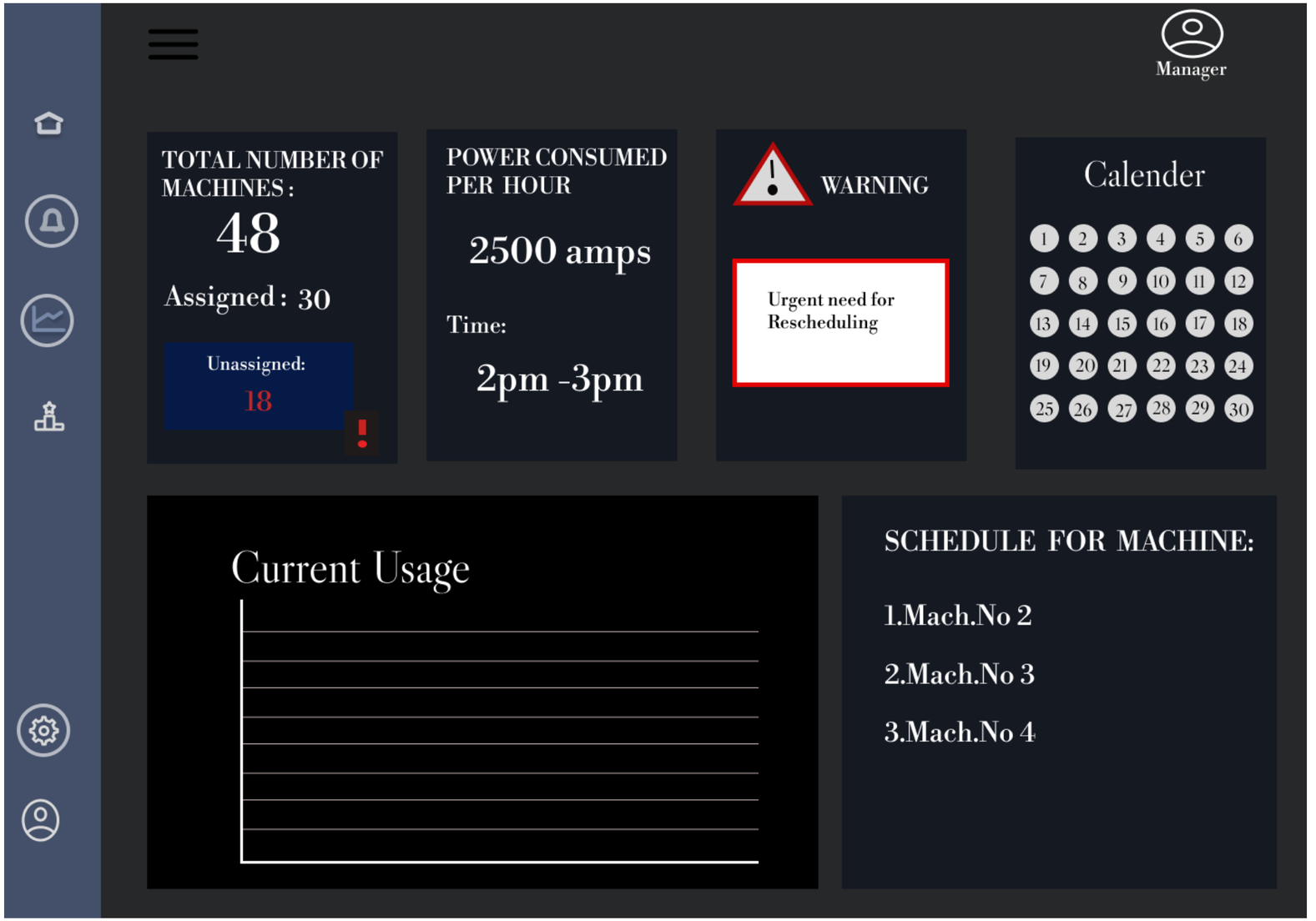
UI - DESIGN


Home
About us
Contact us
Signup/Lo
Efficient energy, profitable operations!
Join us


ABOUT US
Welcome to our solution! We believe that managing energy consumption should be easy and efficient, which is why we've created a simple and attractive system that optimizes the use of energy resources in any industry. Our approach uses the latest statistical models and machine learning techniques to predict future energy consumption and schedule machine usage in a way that reduces electricity costs and increases efficiency. Our goal is to make energy management accessible and practical for everyone, so join us today and witness how simple energy management can be!


OUR SERVICES
Cost savings
Our approach to energy management helps industries to save on electricity costs through effective energy distribution, reducing overall energy consumption, and maximized efficiency.
Operational performance
By optimizing energy distribution and consumption, the project aims to enhance operational performance in industries, improve efficiency, and reduce downtime.
Practical energy management
The project aims to provide practical solutions to enhance energy management that are accessible to a wide range of industries.


CONTACT US
NAME :
EMAIL :
DETAILS :
Fulmine


Manager
TOTAL NUMBER OF MACHINES :
48
Assigned : 30
Unassigned:
18
POWER CONSUMED PER HOUR
2500 amps
Time:
2pm -3pm
WARNING
Urgent need for Rescheduling
Calender
1 2 3 4 5 6
7 8 9 10 11 12
13 14 15 16 17 18
19 20 21 22 23 24
25 26 27 28 29 30
Current Usage
SCHEDULE FOR MACHINE:
1.Mach.No 2
2.Mach.No 3
3.Mach.No 4

MODERN TOOLS

- GitHub:https://github.com/TANIY-A/Fulmine

- Trello: :
  https://trello.com/invite/b/ptcJduBr/ATTIfb8859e834b03907ceea6dcba976eb524B7FFFF9/project-management

- Figma: :
  https://www.figma.com/file/1TxBRINyr6Hfsirn1wBXoD/Untitled?type=design&node-id=38%3A3&mode=design&t=aPwiIsCPzrdYOsAs-1

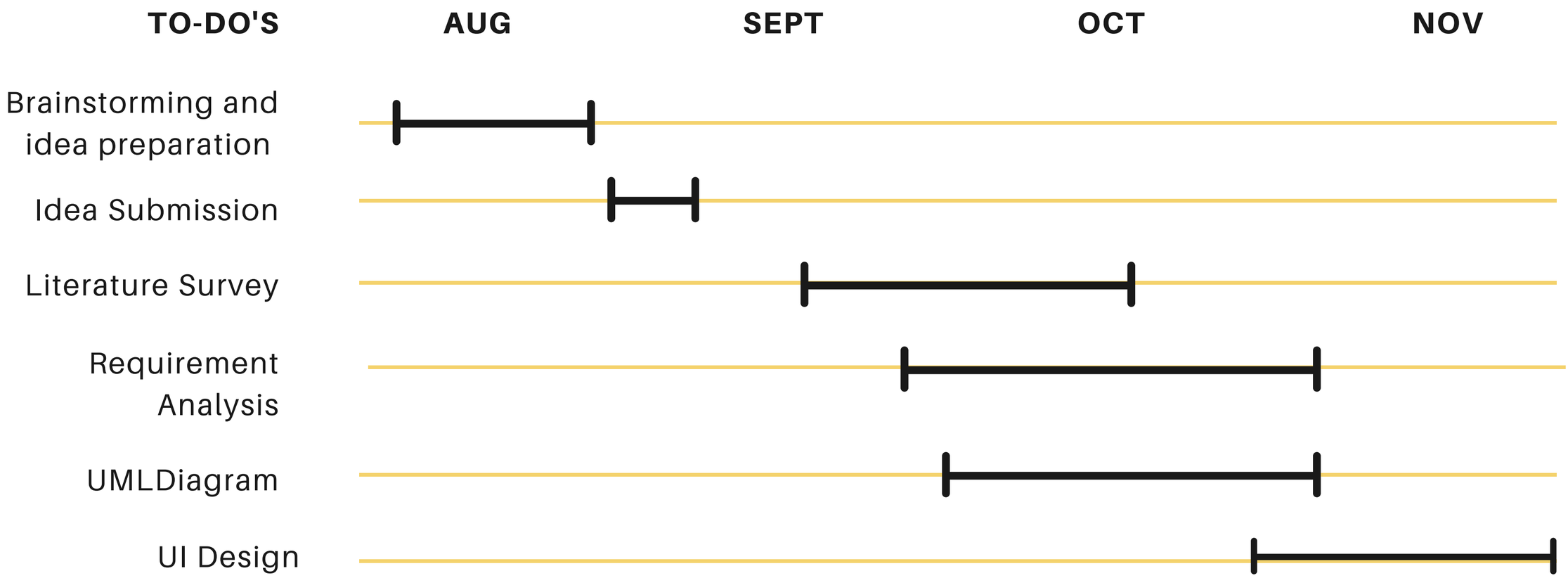
- Smart Draw

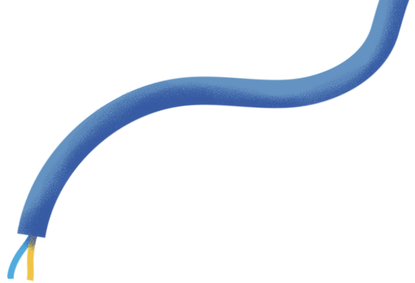
- Proteus

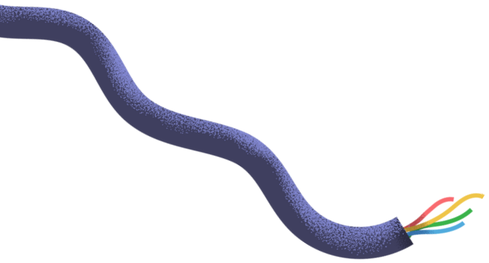
COST ESTIMATION

Items	**COST**
Components	500
Arduino	1000
Real Time clock	500
LCD	100
Program Control Bock	250
TOTAL	**2500**

GANTT CHART


TO-DO'S
AUG
SEPT
OCT
NOV
Brainstorming and idea preparation
Idea Submission
Literature Survey
Requirement Analysis
UMLDiagram
UI Design





THANK YOU