



SMART ENERGY GUARDIAN: FOR OPTIMIZED ENERGY CONSUPTION

TITLE	: Developing an AI-powered energy management system for industrial commercial facilities to optimize energy consumption.
TEAM NAME	: MILLIVOLT
THEME	: SMART AUTOMATION
AISHE	: C-37065
INSTITUTE NAME	: Kongu Engineering College

Problems in the Industry



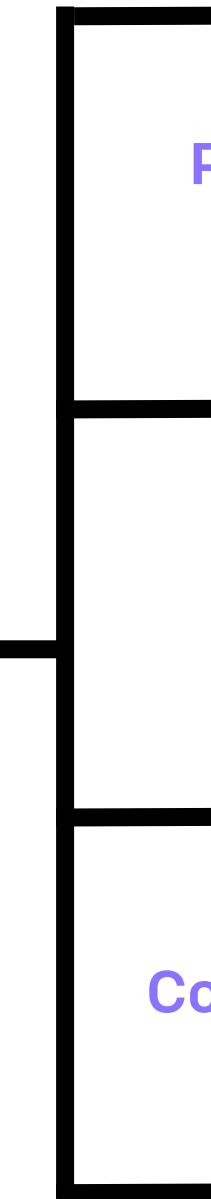
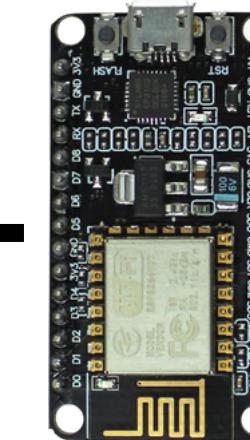
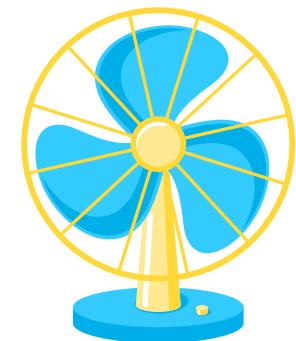
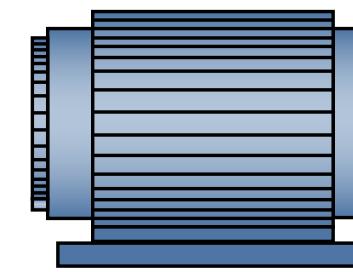
1. Lack of Knowledge on Energy Usage Patterns
2. Change over of Renewable Energy
3. Inaccurate Readings
4. No Peak Hour Prediction
5. No Safety Measures
6. Comparison Between Different Energy Source
7. No Real time Data

OUR SOLUTION

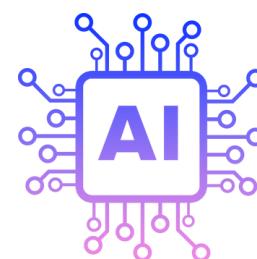
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- 1. Real-Time energy Monitoring**
 - 2. Intelligent price analysis**
 - 3. Forecasts power usage pattern**
 - 4. Recommends efficient energy usage practices**
 - 5. Updates on Shut-Downs and power-cuts**
 - 6. Electricity Payment Reminders**
 - 7. High Voltage or Current Alert**
 - 8. Peak Hour Prediction**
 - 9. Accurate Readings**
 - 10. Control Over Machines**
 - 11. Carbon Footprint Reduction**
 - 12. Control Over HVAC Appliances**

HOW IT WORKS?

INPUTS



Real Time Monitoring



AI Predictions



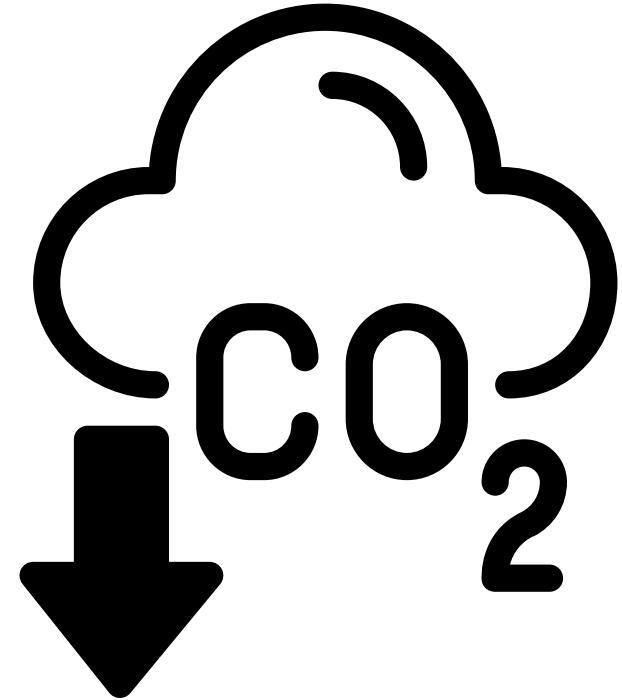
Control Of HVAC Appliances



Cost Calculator

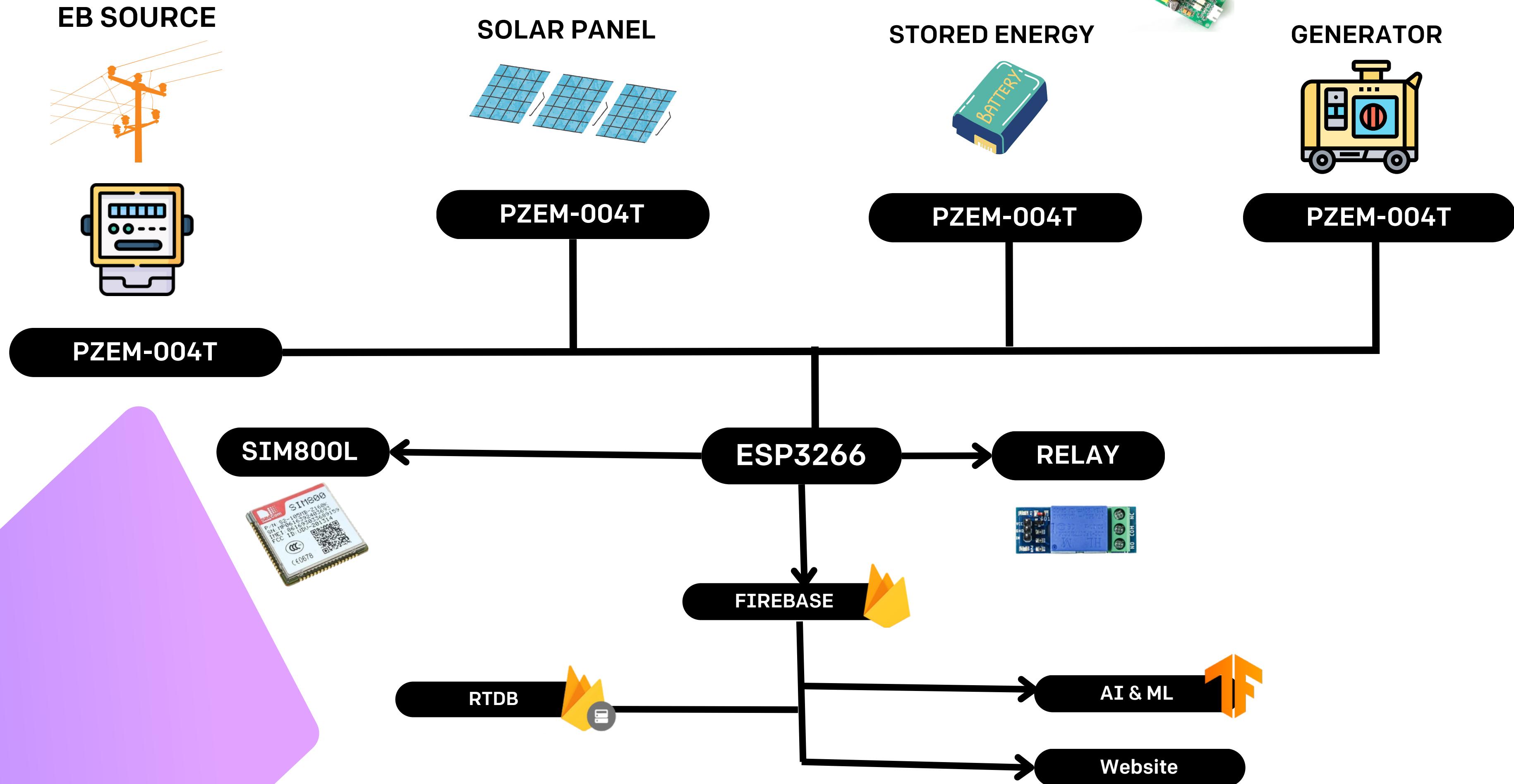
OUTPUTS

CARBON FOOT PRINT

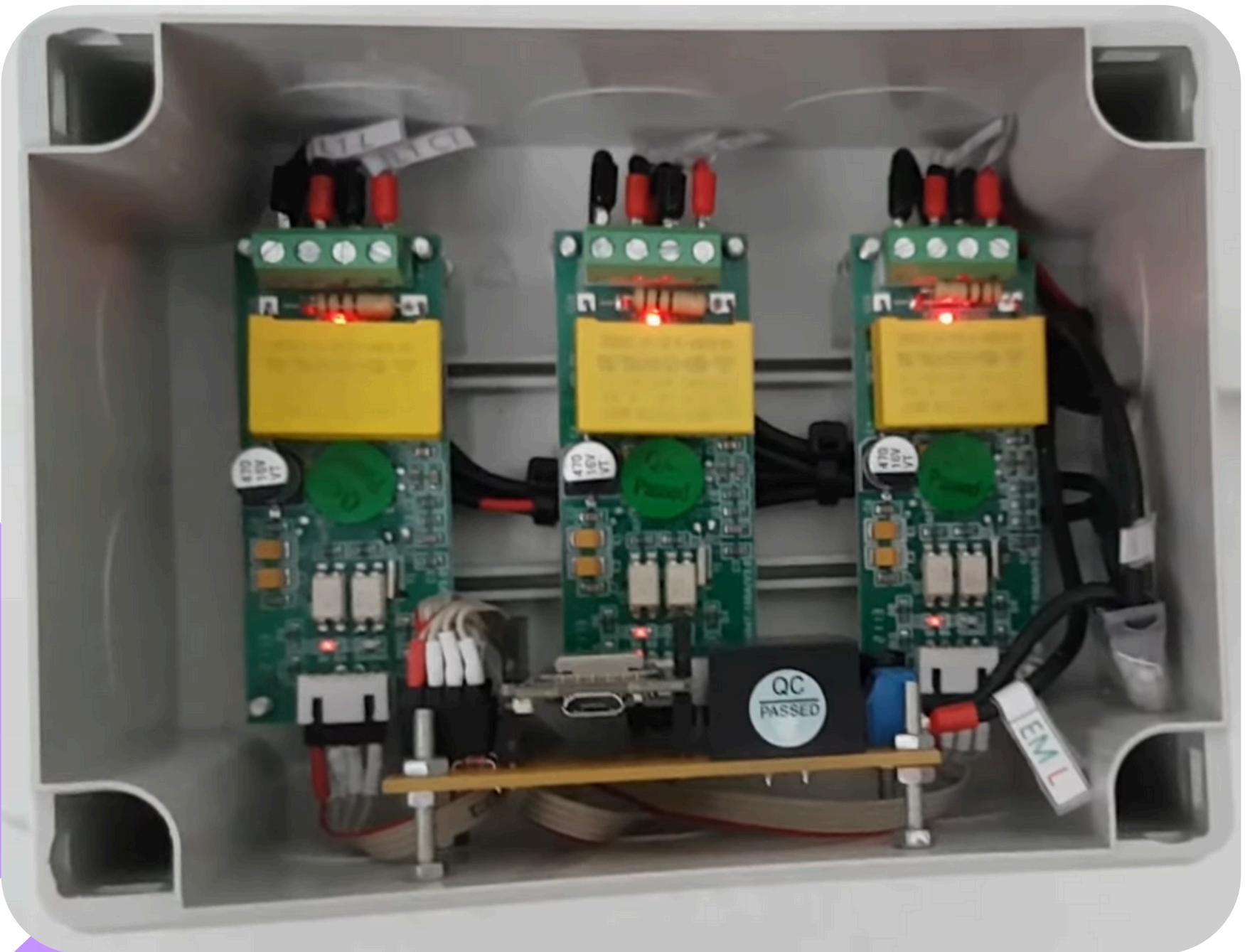


- 1. Measure All the Green House Gases in the industry**
- 2. Calculate the amount of co2 Reduced With AI**
- 3. Energy Efficient Practices For Reducing Carbon Foot Print**
- 4. Helps in Identifying the harmful gases**
- 5. Realtime Data of the atmosphere**
- 6. Carbon Free Zone**

FLOW CHART

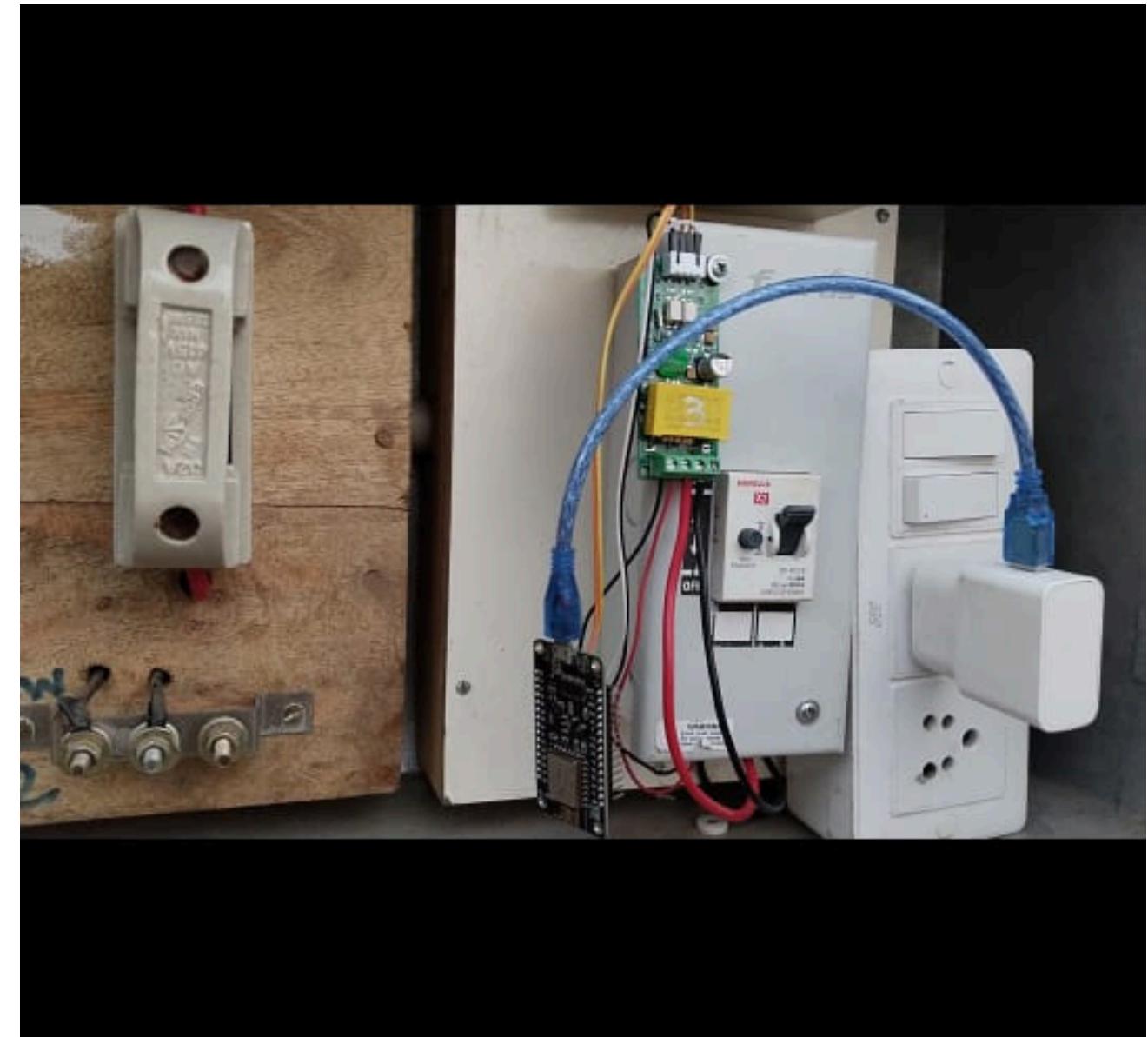
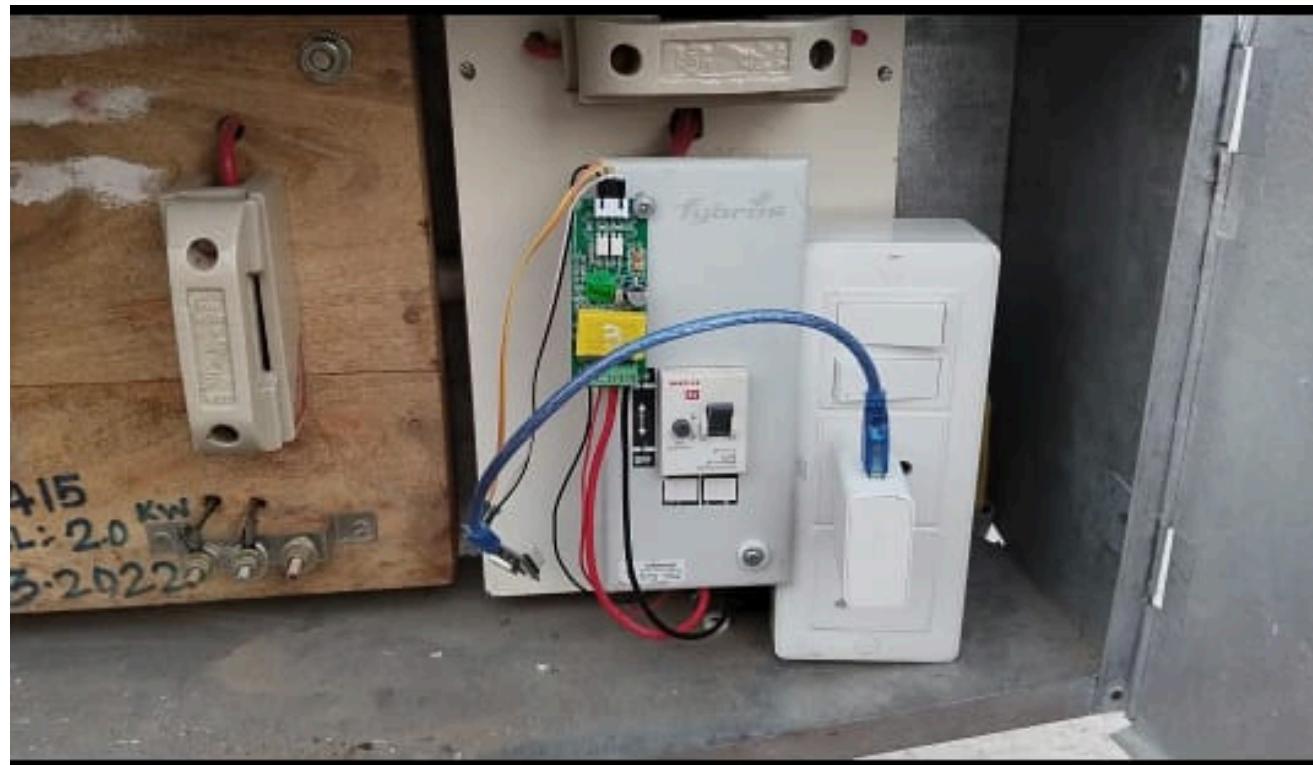


SAFETY FACTOR OF HARDWARE

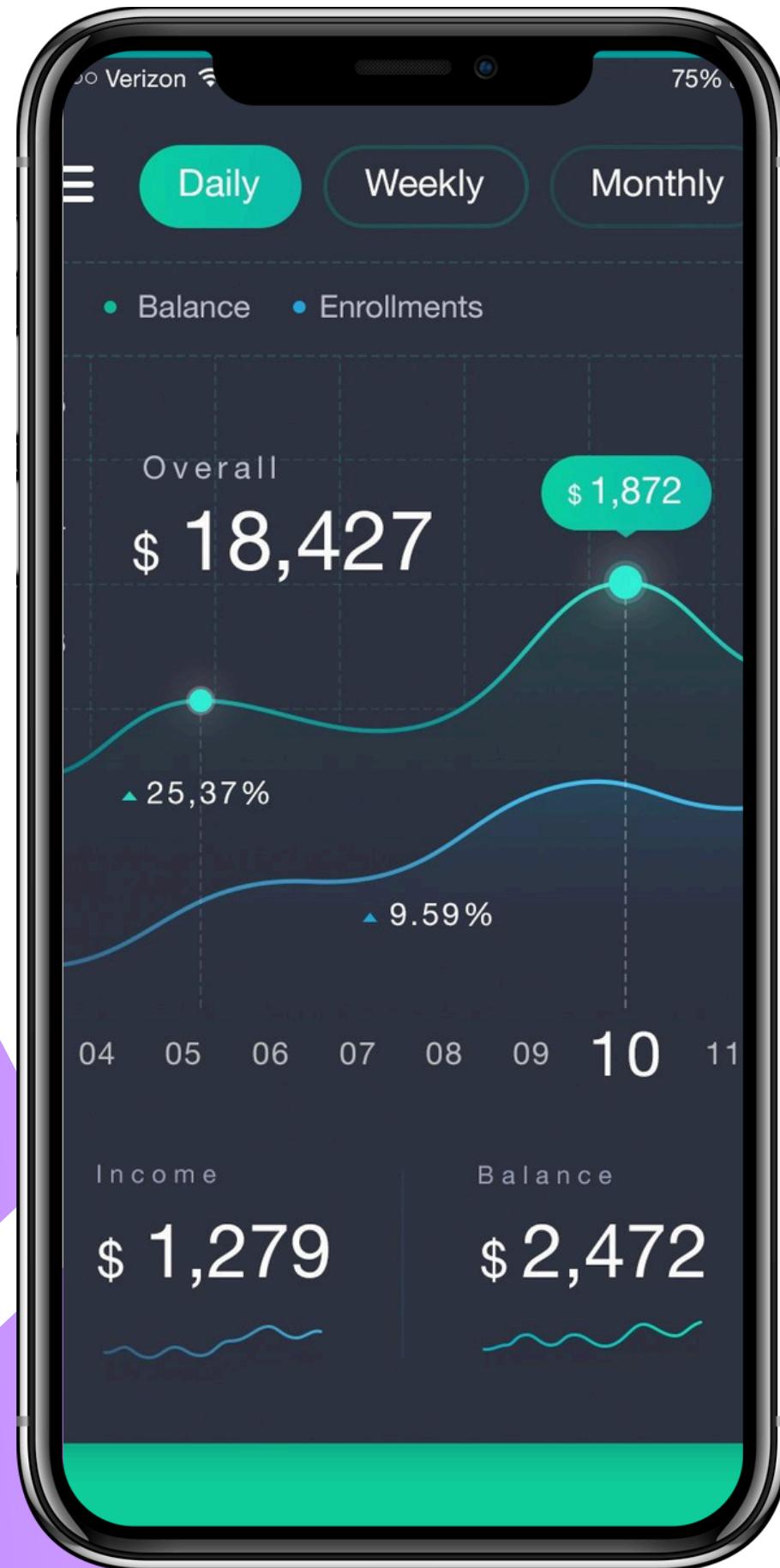


- 1.Operating Voltage: 80-260VAC**
- 2.Rated Current: 100A**
- 3.Rated power: 100A / 22000W**
- 4.Operating frequency: 45-65Hz**
- 5.Measurement accuracy: 1.0**
- 6.Testing voltage (VDC)80-260V (AC)**
- 7.Phase Count : 3**
- 8. Communication Protocol: MQTT**

PRODUCT PHOTOS



APP INTERFACE



1. Real-Time Monitoring

Provided With The Current Data To Analyze

2. AI-Predictions on Power Consumption

Plan The Energy consumption For Future Expansion

3. Control of Devices

Control Machines or Other Things With Mobile Application

4. Suggestions On Renewable Energy

Provide Analytical Information About renewable energy with implementation in the grid

5. Shareable Data

Can share the information to the respective person

6. Energy Usage Between Renewable And Energy Grid

Comparision Between Energy Usage Methods

Dependencies

- Mentor
- Industrial Experts
- Consumers

Software Dependencies

Design

- EasyEDA
- Fusion 360

Programming

- Android Studio
- Tensor Flow
- Arduino Embedded programming

Storage

- FireBase

Components

Quartzcomponents.com

TEAM MEMBERS

Team Leader : **Arul Vel AV** **Year - II**

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Team Member: **Dharanish G** **Year - II**

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Team Member: **Balakumar PC** **Year - II**

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Team Member: **Jothika P** **Year - II**

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Team Mentor : **Dr.Maheswari C** **Team Mentor :** **Dr.Praveen Kumar S**
MECHATRONICS DEPARTMENT **MECHATRONICS DEPARTMENT**