



Team ID: T012

Team Name : Ctrl Alt Elite

PS Number: PY088

PS Title: Smart energy meter for household consumption

Domain: Internet of Things(IOT)

Category: Hardware



Problem Statement:

- Smart energy meter tracks your home's electricity use in real-time and connects to a mobile app. It alerts you to high usage and gives tips to save energy, cut costs, and reduce environmental energy consumption .
- Our target audience is common people who consume more electricity . And this idea is to make their electricity usage low and reduce their bill amount .

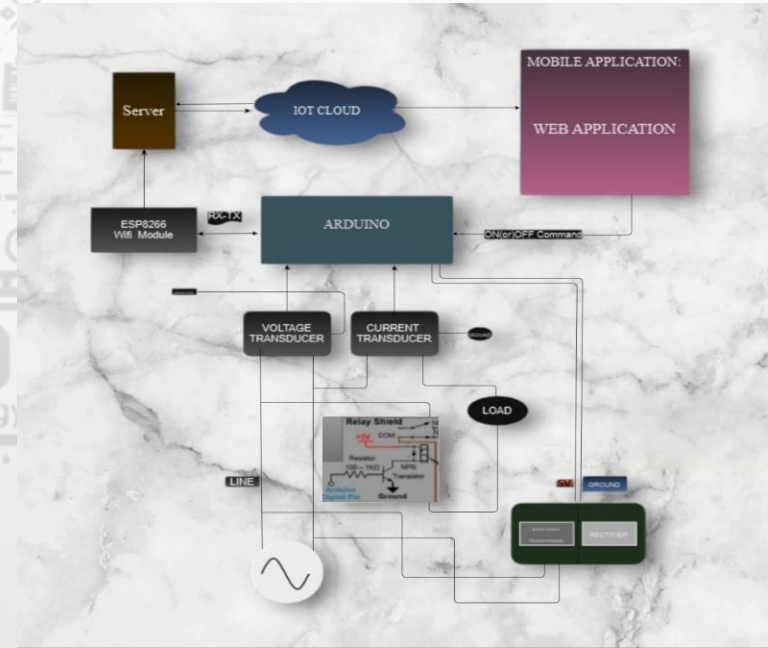


PYEXPO 2025

IPS TECH COMMUNITY

Proposed Solution:

- We use sensors to detect electricity. We use server to transfer the data.
- This app is efficient to conserve the electricity and notify the extra usage of electricity.
- Users can access and control their energy use statistics by cell phones or PCs. This allows them to control and alter their energy Consumption and resulting in energy savings.
- It programs smart devices to operate when electricity rates are low.
- Regularly review energy usage reports.
- Maintain appliances and devices to ensure optimal performance.



Architecture & Hardware-Software:

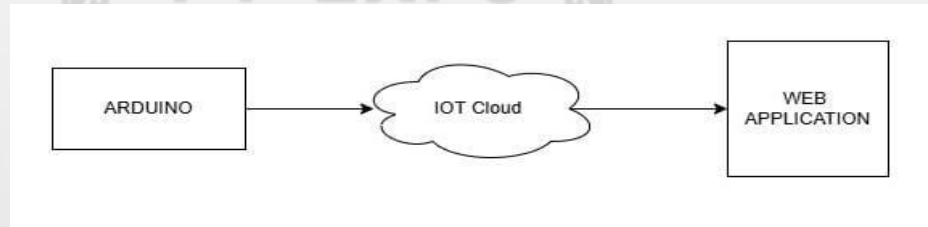
> SOFTWARE:

- Frontend – HTML , CSS , JS
- Backend – PYTHON,C
- Database – MySQL is used to store user data.
- File storage – Cloud storage to upload file.
- Frame work – React Js



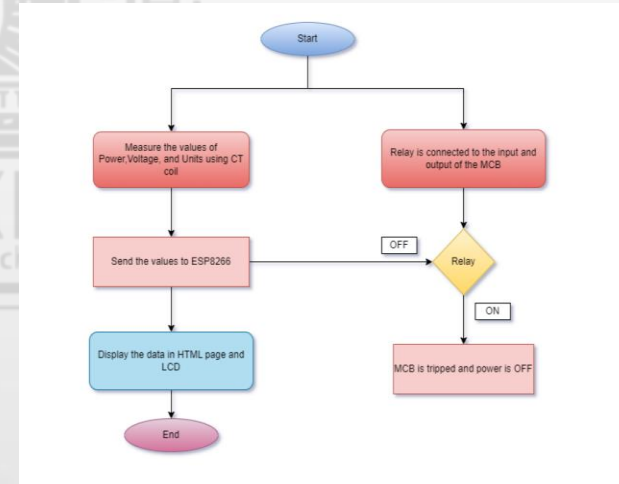
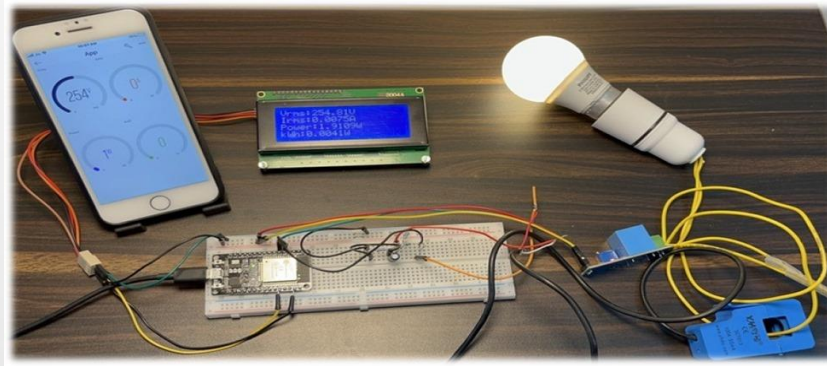
> HARDWARE:

- Arduino Uno R3
- Current Sensor
- Voltage sensor
- Server
- Microcontroller(ESP32S)



Feasibility and Viability :

- We can reduce current usage by applying this application.
- We can easily notify the current usage in the house through message.
- We can find the amount of voltage consumed, by this specific application.
- Humans can access this app anywhere in the world by using server/cloud.
- IOT ecosystems can integrate the meter with smart home platforms like Alexa , Google Home.
- Increasing consumer awareness on energy efficiency and sustainability.
- User friendly which can be accessed by all humans.
- It is easily applied in smart homes.



Impact and Future Scope:

- By using this application, users can reduce the wastage of current even though they are in the absent mindedness.
- By using this application in many areas, we can make our cities smart.
- This dashboard is for real time energy tracking.
- Helps utilities manage demand more efficiently, potentially leading to lower energy costs for consumers in the long run.
- This dashboard is for real time energy tracking.
- This is used to contribute to create a smart city.



Research and References:

<https://www.ijraset.com/research-paper/blynk-2-point-0-based-smart-electricity-monitoring-meter#references>
<https://youtu.be/FVGvR9qIEc8?feature=shared>



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THANK YOU !

