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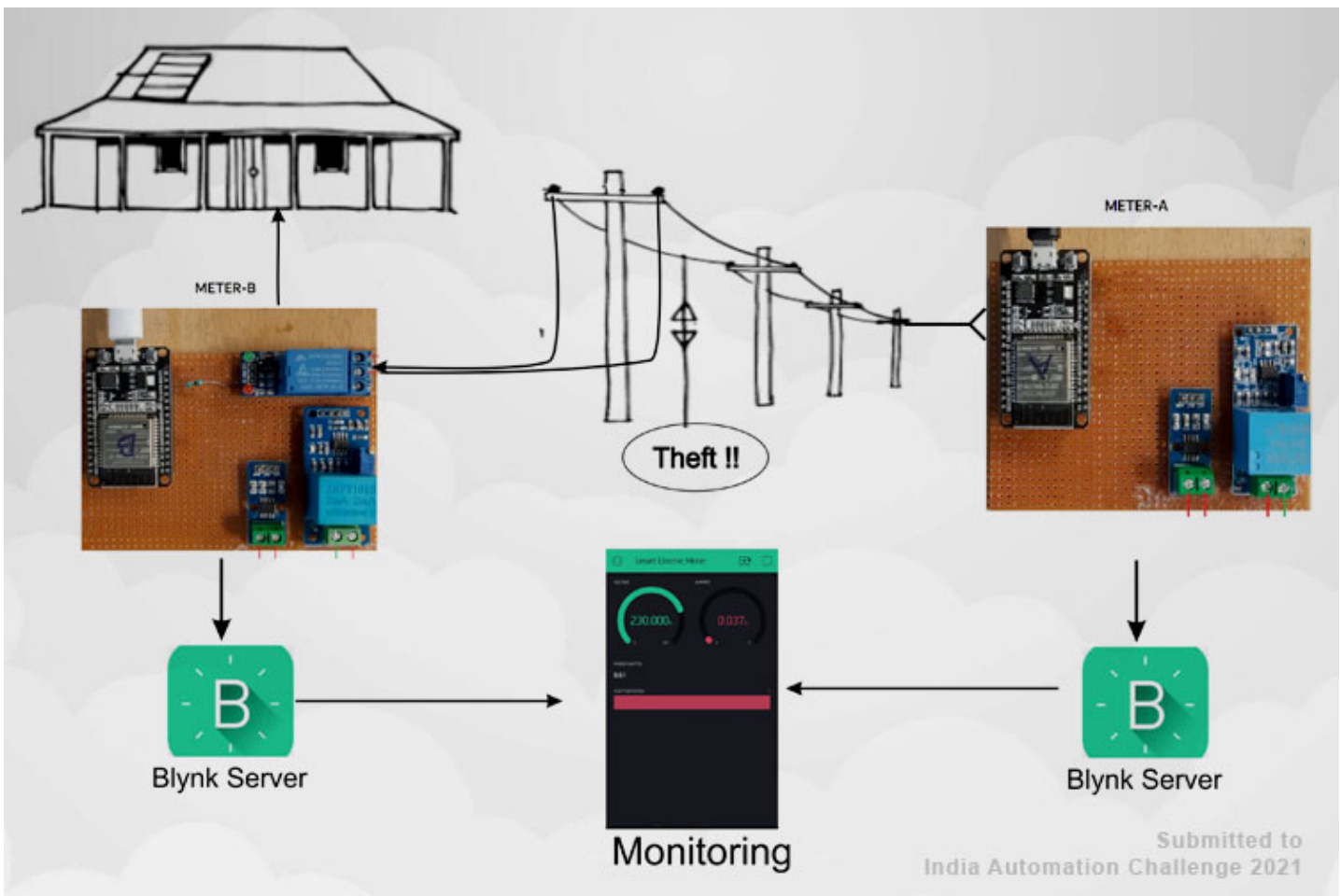


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Abhijeet Kumar

## Smart Electricity Meter with Energy Monitoring and Feedback System for Theft Detection

The project is basically to detect the theft from the energy meter used in households as well as in...

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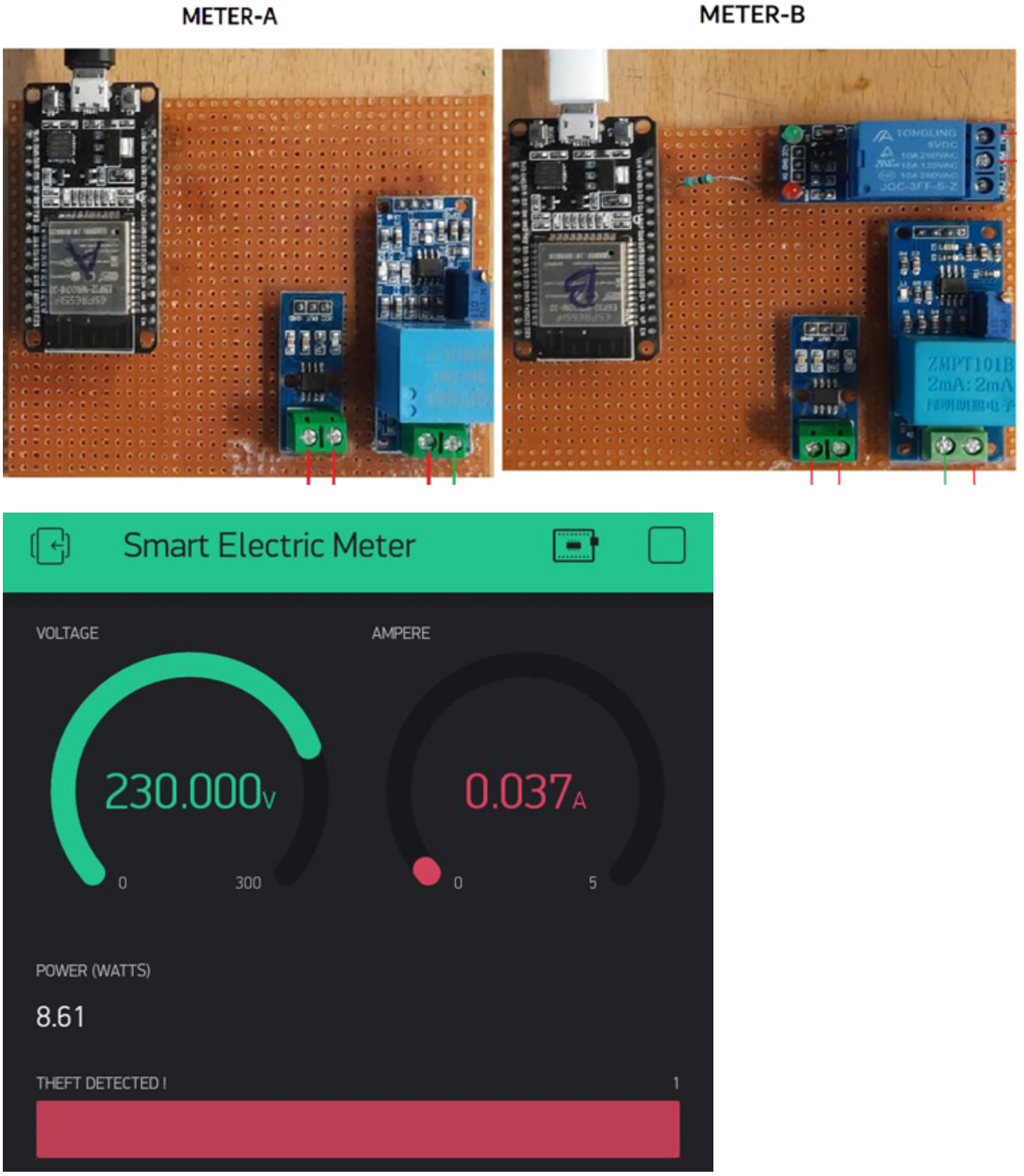
### Description:-

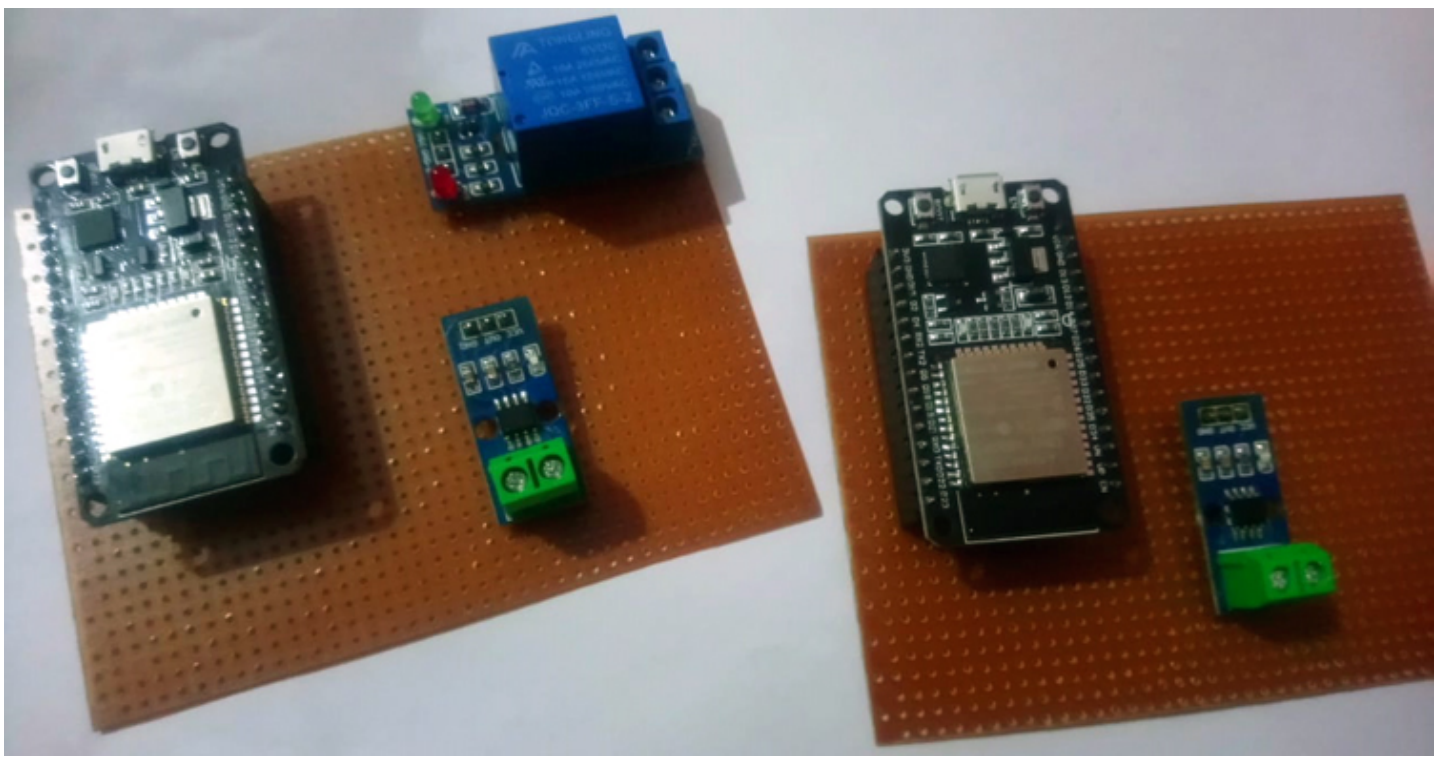
The project is basically to detect the theft from the energy meter used in households as well as in the commercial sector. There is two based meter one for distribution line and one for the consumer side. Whenever the distribution line load reading does not match the consumer side reading; that means there is some kind of power leakage in between distribution and consumer line, leads to deference in energy readings, and theft will be detected. When the theft will occur, a notification

the Blynk Application Dashboard and display's the voltage, Current, Power & total unit consumed in kWh with theft detection alert.




**Project Used Hardware**

ESP32, ACS712 current sensor module, ZMPT101B voltage sensor module, Relay module, Connection Wires



**Project Used Software**

Arduino, Blynk IoT platform

I need to select the current sensor as well as the voltage sensor so that the current & voltage can be measured and thus I can know about the power consumption & total power consumed for theft detection with the help of ESP32 and IoT Blynk platform.

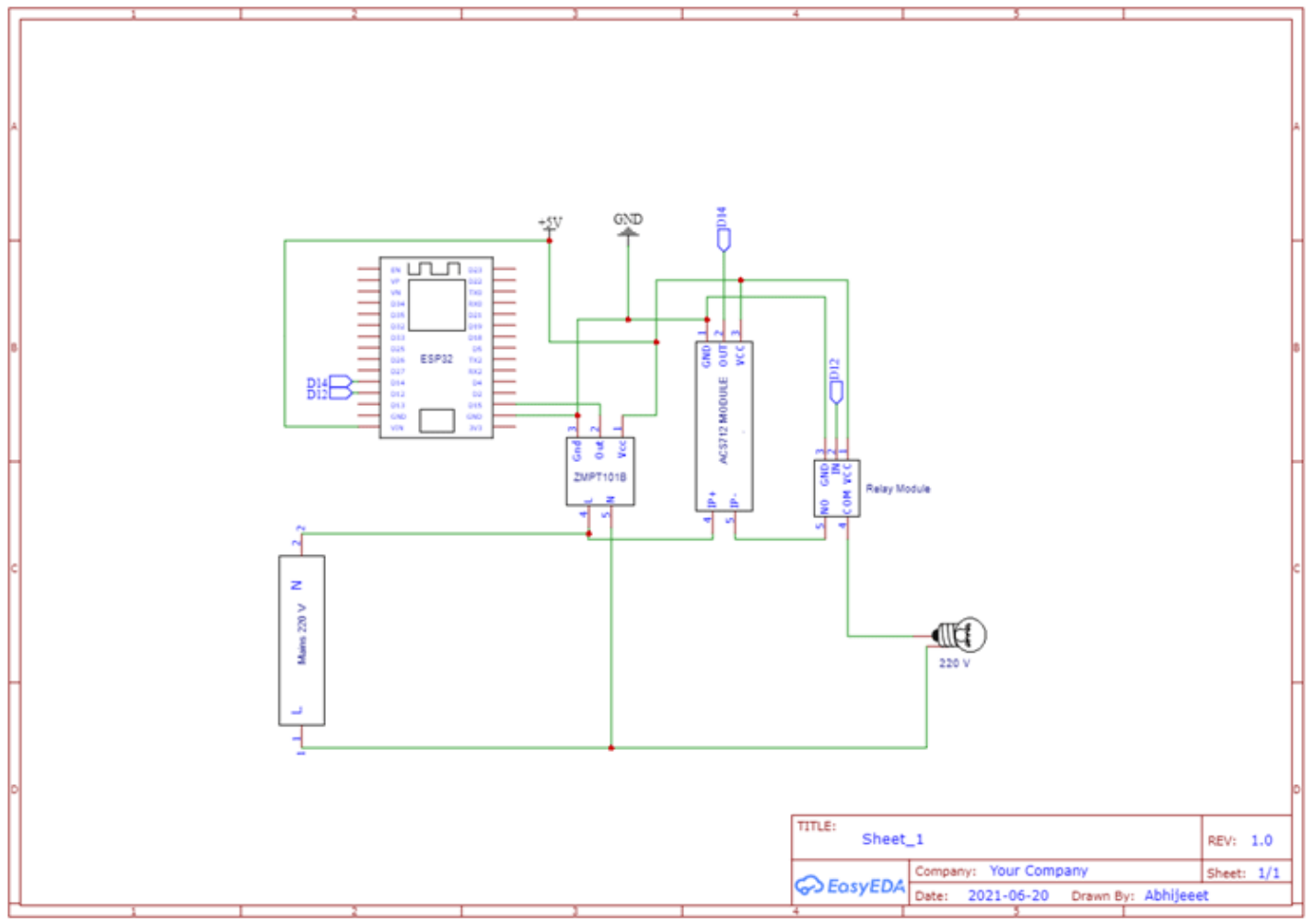
**ESP32:** ESP32 microcontroller module offers a built-in Wi-Fi feature which is ideal for IoT projects since the project is based on the same.

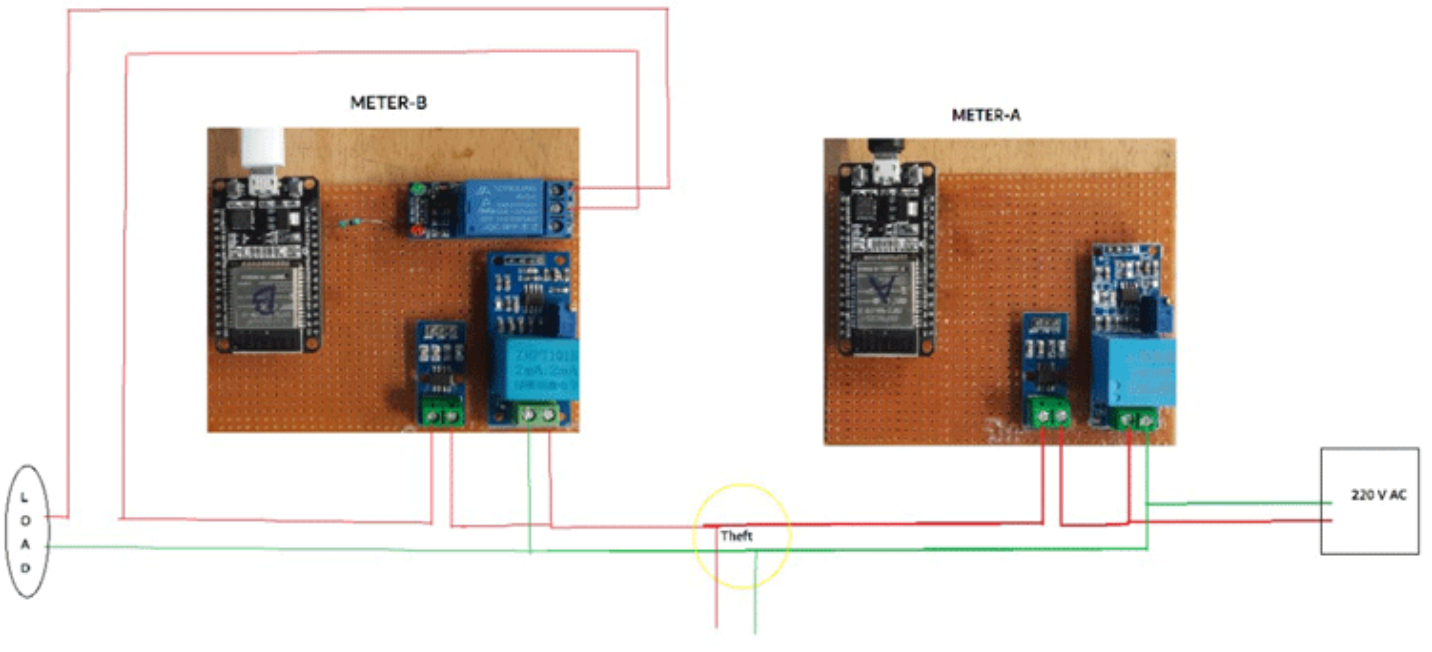
**ZMPT101B:** ZMPT101B is a high-precision voltage Transformer I use to measure the accurate AC voltage.

**ACS712:** ACS712 is a fully integrated, hall effect-based linear current sensor use to measure the alternating current in this project.

**Relay Module:** The relay module is used as a switch for the mains power line. It is controlled by ESP32, when theft is detected, the relay activates and cuts the mains power.

## Circuit Diagram




Consumer side meter Schematics same for the Distribution side except for Relay (only use on the consumer side). Current Sensor & ZMPT101B Voltage Sensor VCC is connected to Vin of ESP32 which is a 5V Supply. The GND pin of both the modules

Sensor and Current Sensor is connected to ESP 32. The voltage sensor is connected in parallel with mains and the Current Sensor in series, also the relay as a switch for the output.

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