

IoT Smart WATT Meter using Blynk Application

<https://www.youtube.com/watch?v=K4poTUpCnG8>

The IoT Smart Watt Meter using NodeMCU, PZ004T Module, and Blynk Application is a smart energy monitoring and control system designed to measure and monitor electrical parameters such as voltage, current, power, energy consumption (kWh), and electricity bill estimation in real time. The PZ004T energy meter module continuously senses the electrical parameters of the connected load and sends the data to the NodeMCU microcontroller for processing.

The measured values are displayed locally on an LCD display and remotely on the Blynk mobile application through Wi-Fi connectivity. The system automatically calculates the total energy consumed in kilowatt-hours (kWh) and estimates the electricity bill based on the consumed energy units. In addition, a relay-controlled bulb/load can be switched ON or OFF remotely using the Blynk mobile application, providing users with convenient control of electrical appliances from anywhere.

This project offers a low-cost, accurate, and user-friendly solution for smart energy monitoring and remote load control in homes, offices, and industrial environments. By providing real-time energy data, bill estimation, and remote switching capabilities, the system helps users reduce energy wastage, manage electricity costs effectively, and improve overall energy efficiency.

Main Features:

- Real-time Voltage Monitoring
- Real-time Current Monitoring

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- Real-time Power (Watt) Monitoring
- Energy Consumption (kWh) Calculation
- Electricity Bill Estimation
- LCD Display for local parameter monitoring
- Blynk Mobile App for remote monitoring
- Wi-Fi Enabled IoT Connectivity
- Remote ON/OFF Control of bulb/load through Blynk App
- Relay-Based Load Switching
- Continuous Data Update and Logging
- User-Friendly and Low-Cost Design
- Suitable for Home, Office, and Industrial Energy Management
- Helps in Reducing Energy Wastage
- Supports Smart Energy Monitoring and Control Applications.

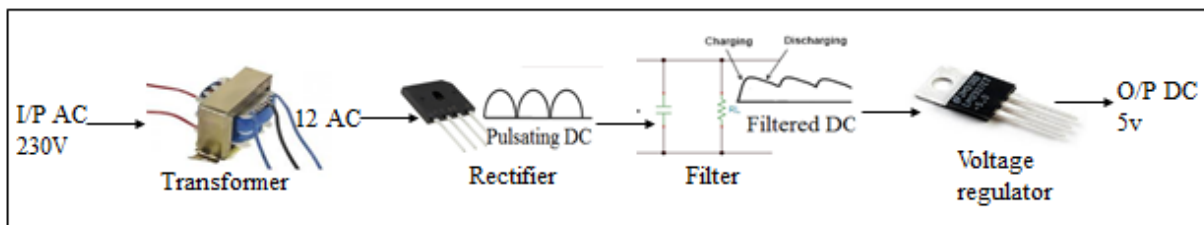
The main blocks of this project are:

1. Regulated Power Supply.
2. Three pin Socket.
3. Relay with Bulb.
4. LCD display.
5. PZ004t module

Software's used:

1. Embedded C for compiling and dumping code into NodeMCU by using Arduino IDE compiler.
2. Express SCH for Circuit design.
3. Blynk APP

Regulated power supply:



Block Diagram

