

INTELLIGENT POWER METER

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ABSTRACT

Nowadays, people consume electricity every day. But electricity mostly is produced from coal which is limited on earth. The huge amount of producing coal causes deep damage on environment. Some people still does not have the awareness of saving electricity. Besides this, the common power meter is not able to display the amount of electric bill. Therefore, this project is designed to help electricity consumer directly understand how much the electricity cost them. The waste in residence is not only electricity but also the consumers' money.

This project consists of two parts: 60% hardware implementation and 40% software programming. The main focus of this project is to measure the power consumption from devices.

The measurement system is designed to measure voltage and current from AC line. Then the value of them will be stepped down or amplified as the input of PIC microcontroller. PIC16F877A is used as the control system of this project. With the aid of this microcontroller, the program can be performed to calculate the real power consumption simply multiplying two inputs (voltage and current) together from measurement system. And according to the local tariff, the amount of electric bill will be carried out based on power consumption during certain time period.

The result from the calculation will be displayed on LCD display module in order to notice the users how much power they consume and how much it will cost them. After one month, the power consumption and amount of electric bill will be reset.

This Intelligent Power Meter is successfully built to meet the specifications and aims. This project provides a great opportunity to improve designer's practical skills on hardware and software.