Abstract

Electrical energy is the energy needed in the last electrical equipment to move the motor, lighting, etc. so the system can run in it. In fact, electrical energy in Indonesia has been governed by the PLN (National Electricity Company) so that each home have electricity distribution evenly. Some houses have almost 2200 watts of power for a variety of media to use electricity. Kostan student rented house or a house is one of the customers who get a ration of electricity. And, one of the difficulties encountered is the determination of tariff fees payable by each resident boarding. However, sometimes the cost to be paid does not match the power consumption of each occupant kostan. Therefore, in this Final Project created " Design and Implementation of Electrical Usage Fee Recording Device for Use in Power 2200 Watt based on Microcontroller ".

This device consists of a block I / O blocks consisting of a power supply, sensor block, and blocks of the microcontroller. Sensor block consists of aru sensor, voltage sensor and a phase detector (zero crossing detector). The working principle of this device when no load is attached, the sensor detects the flow of electric current flow and voltage sensors will detect the voltage of electricity grid at any time. Output current and voltage sensor respectively into the internal microcontroller ADC. In addition, these quantities are also entered into a phase detector circuit to obtain nilasi cos φ (phase difference) it. Real Time Clock (RTC) is used as a timer in real time. After that, the quantities will be calculated on the microcontroller, sehinggan obtained his real power. Of power, the Electricity Ennergi obtained in accordance with the equation W = Pt = VICos φ.t. to determine the amount of fees to be paid, then the value is multiplied by the cost of electricity per kilowatt-hour tariff calculated value is stored in EEPROM kemudan so when the power goes out, then the value is not lost. And as a viewer fees to be paid, used LCD.

Current and voltage berbading straight, sehinggan output current and voltage of the sensor which can be linear and can be released is proportional to the change in the input side. XOR output waveform can detect changes in the phase between voltage and current. Rated power, Kwh, and usage fees can be determined from calculations sestem happens to block the microcontroller. Thus, the cost to be paid by the residents of boarding in accordance with the power used by each.

Keywords: ***Electrical Energy, Flow Sensors, Sensor voltage, phase detector, and Microcontrolle****r*