ZIgbee Techonology based SMART METER

The main objective of the project is to develop an energy meter to communicate exact billing that each load is going to consume with wireless technology.

An electronic energy meter that delivers unit based pulses is connected to an Opto-coupler that counts the pulses every time the led glows. Depending upon the consumption it gives required interrupt signal to a programmable micro controller of the 8051 family.

The microcontroller takes the reading from the energy meter via an Opto-isolator and displays the reading on the LCD duly interfaced to the microcontroller. The reading of the energy meter is sent wirelessly to the PC user by a serial data transfer through an 2.4 GHz XBee module connected to the microcontroller.

The power supply consists of a step-down transformer 230/12V, which steps down the mains voltage to 12V AC. This is converted to DC using a bridge rectifier and it is then regulated to +5V using a voltage regulator 7805, which is required for the operation of the microcontroller and other components.
Block Diagram:

Transformer → Rectifier → Regulator

~230v

MAX 232 → 555 TIMER → 2.4GHz TRANSRECEIVER

PC