

## ***ABSTRACT***

Kilo Watt Hour (kWh) meter is a device that records the electrical energy used by power user like home user and industrial user. It has been long time that postpaid kWh meter customer use electricity first and then pay according to usage of electrical energy. Along with the development of technology, now we know prepaid kWh meter which the customer must pay first for the electrical energy and then the kWh meter will store number of kWh which user can use electricity based on that nominal. However, for the user who have high mobility or rarely can stay at home will have a trouble when the value of kWh meter suddenly used up, this is the distrubing situation from prepaid kWh meter user.

In this final project will be design a one phase prepaid kWh meter based on USSD (Unstructured Supplementary Services Data) for payment and control. In other word beside for payment we can use USSD protocol for monitoring the amount of used electrical energy and we can controlling a relay which used to turn on or turn off electrical devices from far places. Futhermore, if the credit has benn used up this kWh meter will send SMS to the user for the notification.

In the system test, we can recharging kWh meter with transferring credit to modul GSM WAVECOM FASTRACK M1306B using USSD protocol and then ATmega16 as a microcontroler will show the amount of that credit. For controlling the relay using USSD we can transfer Rp2 for activate relay and transfer RP3 for terminate relay. For the notification kWh meter will send a SMS to user when the remaining credit to 1% from power limit. It takes 35,8 seconds when user can transferring credit to modul GSM, 7,8 seconds to user receive a notification from kWh, 31,8 seconds to monitoring kWh and 30,8 seconds to controlling relay.

Keywords:KWh Meter, USSD, Microcontroler