

## ABSTRACT

*In the distribution of electrical energy from the plant to the customer there is a lot of power shrinkage that occurs. At the time of sending energy from the plant then send it through the power transmission media and up to the Substation (GI). To find out the power that is distributed and reach the customer, an electrical energy monitoring system is needed that can be accessed in real time.*

*Smart Grid (SG) or can be referred to as Smart Electricity Network (JLP) is a system to streamline electrical energy that is integrated between electricity providers and its users. Utilizing the concept of the Internet of things has now been widely applied to everyday life. By utilizing the development of that technology, it will be very useful to design a monitoring system for the use of electricity, either from customers or electricity providers such as PLN. The device is made to bridge the recording of power consumption between KWh meters and delivered over an internet connection. Using Node MCU 8266 and connecting devices to the internet over the internet network will facilitate monitoring of the electrical power used in every home.*

*This study monitored the load in the R-1 /TR group house with a power limit of 900VA-RTM with usage cost / KWh is Rp.1,352.00. From the results of the research conducted it can be concluded that the design of smart KWh meter tools can read accuracy at current by 98.87% and accuracy at voltage of 99.64%. The design tool can measure electrical power and convert that data into electricity tariffs from the energy used and send the data to the firebase to be displayed in the real time database.*

*Keywords : Grid, Smart Grid, Internet of Things (IoT), Smart KWh Meter, Power Shrinkage, Energy Efficiency, Smart Home*