

ABSTRACT

Each building should have a monitoring tool for electricity usage to find out the pattern of electricity consumption in the building. The process of monitoring electricity in building usually still uses the manual method, namely by checking the value read on the KWH Meter. The monitoring system in building also needs development so that the monitoring process is easier, namely by utilizing the Internet of Things (IoT) replacing the manual method. Therefore, in this study a 3-phase electricity usage website monitoring was developed in buildings with the aim of facilitation monitoring of electricity consumption. The components measured are current, voltage, power, energy, and power factor. This research uses the Power Meter ZM194-D9Y as an electrical measuring instrument and also the RS485 module for serial communication. The microcontroller used is NodeMCU which is equipped with a wifi module as a tool for sending data to the database received from the Power Meter via RS485 serial communication. From this research, a 3-phase electricity usage website monitoring has been created in buildings with features, namely data and graphs of current, voltage, power, energy, and power factor. The website also features a location for the installation of monitoring tools and features for accessing past measurement data. An error was also obtained from the ZM194-D9Y Power Meter, namely at a current of 2,5%, a voltage of 0,5%, and a power of 3,7%. The success of sending data was 96,7%. The efficiency of electricity used really depends on the power factor value of the electrical component used. The variation of loading is used so that the power factor value can approach the value of 1 so as to increase the efficiency of electricity used.

Keyword: 3-phase electricity, Power Meter, NodeMCU, RS485, Website, Power factor.