# ABSTRACT

*Energy management is one of the strategic steps in dealing with the energy crisis for the long term. Smart Metering is a system that provides information on the measurement of energy use and could provide action or recommendation of decision-making based on information obtained. Along as raising IoT development, more and more devices that could connect and communicate, an efficient communication protocol is needed. This final project built prototype smart metering application using MQTT and WebSocket as a protocol that connects data communications between AC current sensors SCT-013-000V AC with HTTP web-based graphical interface. MQTT and WebSocket could alleviate network traffic and are compatible with various devices that support HTTP. Testing is done by observing the acquisition of sensors and capturing the network traffic when the system is run from the client and server side. The results show the average consumption of MQTT bandwidth 244 bit/s, delay 1.587ms, and a light overhead protocol, which is 27.27%. In addition, testing of data delivery time response from MQTT through WebSocket has an average of 6.26ms. In last, the results of this research conclude that electric smart metering could be built using MQTT and WebSocket protocols for web application development. The tests in this study represent light-weight protocols provided by MQTT for the development of Internet of Things in a limited environment.*

***Key Words*****:** *Internet of Things, Smart Metering,* MQTT, *WebSocket, Energy Monitoring*