UNIVERSITI TEKNOLOGI MARA

DISCONNECTION SYSTEM FOR INCOMING SUPPLY USING RADIO FREQUENCY MODULE

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MSc

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AUTHOR'S DECLARATION

I declare that the work in this thesis was carried out in accordance with the regulations of Universiti Teknologi MARA. It is original and is the results of my own work, unless otherwise indicated or acknowledged as referenced work. This thesis has not been submitted to any other academic institution or non-academic institution for any degree or qualification.

I, hereby, acknowledge that I have been supplied with the Academic Rules and Regulations for Post Graduate, Universiti Teknologi MARA, regulating the conduct of my study and research.

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ABSTRACT

The Standard procedure of the Tenaga Nasional Berhad (TNB), after sending a one month warning letter and receiving no action from a customer with an unpaid electricity bill, is to take the fuse out from the breaker (or fuse) box. This procedure needs access to the breaker box. The breaker box is sometimes located in unreachable locations such as, placed too high, locked gate, or inside a locked box. The objective of this research is to develop a remote disconnecting system for the single phase fuse energy meter. The system is also capable of reconnecting the supply once payment has been settled. The module is designed to work with different Identification (IDs) number under varying obstruction conditions. In a preliminary study of wireless communication using GSM, most researchers focused on controlling energy meter through SMS. The Bluetooth is another wireless method of communication to control the device, but it transmission is limited to a short-range below 10 meters, and limitation up to eight devices communicate in a single network. Besides, Radio Frequency (RF) is also used as wireless communication. The range of RF maximum is 100 meters in an open airline of sight configuration without any interface. The module is based on Arduino Pro Mini, RF unit as wireless communication with a frequency of 433 MHz, and Solid State Relay as a switching device. The design for hardware included transmitter device and receiver device. The software design is based on C language. Arduino IDE is the editor used to write the program code. From the result obtained, for open space and wall blocking, the distance measure 12 meters and covered with box achieved 11 meters from the transmitter device. The result of the study also shows that a rechargeable battery is needed to make sure the system can operate in the case power trip from TNB. Nevertheless, the system has the potential to reduce non-payment issues in the future.

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TABLE OF CONTENTS