**APPROVAL SHEET**

The special project attached hereto, entitled “Smart Energy Monitoring and Control System for Residential Application” prepared and submitted by **Karl Martin A. Aldueso**, **John Mark V. Batabat**, **Eli Joshua T. Maravillas**, and **Gil Michael E. Regalado** in partial fulfillment for the degree of BACHELOR OF SCIENCE IN ELECTRICAL ENGINEERING and BACHELOR OF SCIENCE IN ELECTRONICS AND COMMUNICATIONS ENGINEERING, is hereby recommended for approval:

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This thesis is accepted and approved in partial fulfillment of the requirements for the Degree of Bachelor of Science in Electrical Engineering and Bachelor of Science in Electronics and Communications Engineering.

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**ABSTRACT**

This paper evaluates the importance of improving the traditional method of electrical energy consumption data acquisition by creating a system composed of several devices that monitors energy consumption in Kilowatt-hour (single-phase) in digital. The system is composed of a data acquisition unit, a wireless communication network and a user interface. The data acquisition unit is driven by a microcontroller that is interfaced to an integrated chip capable of acquiring power consumption. The data gathered from different nodes is logged to the central database through wireless transmission. The central server automatically generates the assessment of the consumer’s bill and transmits them through Global System for Mobile (GSM). Through the internet, the user is able to access the monthly bill in reference with their power consumption. Several tests were done to evaluate the accuracy of the system’s power meter in reference to the ones available in the market. The result from the tests conducted was able to comply with the acceptable percentage error range of 0 to 5 percent.

**Dedicated to all the people who enjoy dealing with complexity**

**rather than simplicity**

**and**

**to our ever loving Almighty Father.**

**ACKNOWLEDGEMENT**

We would like to thank everyone who extended a hand in the completion of this undergraduate thesis. Without their kind help, understanding, encouragement and support, things would have been harder.

To our parents for their extension in both encouragement and financial support during the duration of our research, we are very grateful for them. Their constant follow up and reminder has helped us finish this thesis.

To the many people who we have talked to and discussed with in real life and from the internet and whose help, views and insight have been very important to the development and completion of our study. To name a few, Sir Noel Estoperez, Sir Salaan, Sir Jimenez and Sir Zamayla of the EE Department for all the help and our classmate Noel George Paqueo.

To our thesis adviser, Prof Marven Jabian for encouraging us to proceed with this thesis and for giving us insights during the development of the project, his input and support has been instrumental in the completion of this thesis.

And above all, to the Almighty God who has given us strength and wisdom in pursuing this research study despite the several challenges, limitations and obstructions that abound during its course, thank you very much.