COLLEGE OF COMMUNICATION AND INFORMATION TECHNOLOGY

PORTABLE CHARGER USING VIBRATION ENERGY

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COLLEGE OF COMMUNICATION AND INFORMATION TECHNOLOGY

CERTIFICATION

This project design entitled **"PORTABLE CHARGER USING VIBRATION ENERGY"**, prepared and submitted by Jay Elixir M. Lapeña, Ivan D. Nunokawa and Rafael D. Dequiña Jr. in partial fulfillment of the requirements for the degree **Bachelor of Science in Computer Engineering**, has been examined and recommended for Oral Examination.

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Abstract

The idea of capturing the energy surrounding an electronic system and converting it into usable electrical energy that could extend the lifetime of the power supply or provide an endless supply of energy has captivated many researchers and brought much attention to power harvesting. One method of obtaining the energy surrounding a system is to use piezoelectric materials. Piezoelectric materials have the unique ability to interchange electrical and mechanical energy. This property allows them to be uses to absorb the mechanical energy around a system, usually ambient vibration, and transform it into electrical energy that can be used to power other devices. However, the amount of energy generated by piezoelectric materials is far smaller than that needed by most electronic devices. Therefore, the methods of accumulating and storing the energy generated until sufficient power is captured must be developed. This paper quantifies the amount of power generated by a piezoelectric plate and investigates method of accumulating the energy produced. The use of capacitor, which has been a common method of accumulating the energy produced. The advantage of method are discussed and the device uses like a smartphone is found to be charged by using ambient vibration converted to electrical energy.