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DESIGN AND DEVELOPMENT OF A MICROCONTROLLER-
BASED REDIRECTIVE ANTENNA

THESIS

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**DESIGN AND DEVELOPMENT OF A MICROCONTROLLER-BASED
REDIRECTIVE ANTENNA**

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ABSTRACT

CAÑETE, MARK S. and JOEL V. DE GRANO. Design and Development of a Microcontroller-Based Redirective Antenna. Undergraduate Thesis. Bachelor of Science in Electronics and Communications Engineering, Cavite State University, Indang Cavite. June 2006. Adviser: Engr. Michael T. Costa.

Having been conducted in Alfonso, Cavite, this study generally aimed to design and to develop a microcontroller circuit that would control the rotation of indoor antenna.

The project was expected to provide convenience to the viewers by doing away with manual redirecting of antenna to catch better reception. The device was designed to be responsible for proper positioning of antenna, depending on the channel selected.

This project had the back-end software, having Assembly language as the medium and the front-end hardware, having PIC16F84 MCU as primary component, responsible for controlling the whole system. The L293D IC for stepper motor controller and LM339 Quad comparator IC for monitoring the signal strength from the AGC were among the other hardware components used to support the study.

The design project was presented to the design project adviser, technical critic, and members of the panel at the new Information Technology (IT) building. The whole system underwent a series of testing and evaluation in the first three floors of the same building.

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DESIGN AND DEVELOPMENT OF A MICROCONTROLLER-BASED REDIRECTIVE ANTENNA^{1/}

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INTRODUCTION

For the past few years, mankind sought ways on how to improve the quality of life and how to live a more comfortable lifestyle. This ambition was truly fulfilled when a burst of invention arose in the past years. These technological innovations continued to reign up to the present time. Nowadays, almost everything is possible. It is because of science, in connection with technology, invention, and innovation.

One of the top and maybe one of the most popular outputs of technological innovations is the television (TV). Television, having its numerous advantages, could not work without the so-called antenna.

Antenna, also referred to as an aerial, is a device used to radiate and receive radio waves through the air or through space. Antenna is used to send radio waves to distant sites and to receive radio waves from distant sources. Many wireless communications