

**DESIGN AND DEVELOPMENT OF MICROCONTROLLER BASED
AC MOTOR SPEED CONTROLLER**

Undergraduate Thesis
Submitted to the Faculty of the
College of Engineering and Information Technology
Cavite State University
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In partial fulfillment
of the requirements for the degree of
Bachelor of Science in Electrical Engineering
and Bachelor of Science in Computer Engineering

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ABSTRACT

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The study was conducted from June to August 2013 at Cavite State University, Brgy. Bancod, Indang, Cavite. Its general objective was to design and develop an AC motor speed controller device by means of microcontroller. Specifically, the study aimed to: 1) design and construct the speed controller drive circuit; 2) develop a program that will control the speed of the AC motor; 3) interface the microcontroller circuit to the AC motor; 4) construct a frame for the motor to be attached; 5) construct a tachometer attached in the controller; 6) test and evaluate the system's speed using tachometer; and 7) conduct cost computation.

The Construction of main circuitry was done using different components and programming in many possible ways for controlling, testing the controller's capabilities were done to gather the conclusive data.

Using the motor controller circuit and the help of the microcontroller arduino, the project were able to give the expected output of varying the speed using a ½ horse power (hp) motor as the test subject with almost 2 percent error per range only. The speed rate of the motor was varied according to the program using time delays of on and off state.

The total cost of the study was Php5,375.00.