DEVELOPMENT OF A LOW-COST WIRELESS WEATHER MONITORING SYSTEM

THESIS

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May 2014

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Undergraduate Thesis
Submitted to the Faculty of the
College of Engineering and Information Technology
Cavite State University
Indang, Cavite

In partial fulfillment
of the requirements for the degree
Bachelor of Science in Computer Engineering

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May 2014

ABSTRACT

FESTIN, MARY ANN F. and LAYUGAN, ROSS ERWIN A., Development of a Low-Cost Wireless Weather Monitoring System. Undergraduate Design Project. Bachelor of Science in Computer Engineering. Cavite State University, Indang, Cavite. May 2014. Adviser: Mrs Emeline C. Guevarra.

The main objective of the project was to develop a low-cost wireless weather monitoring system. Specifically, it aimed to design and construct the wireless monitoring of the Wind Speed and Wind Direction Module, Temperature and Relative Humidity Module, Air Pressure and Light Intensity Module, and Rainfall Intensity Module circuit. The interfacing of Wind Speed and Wind Direction Module, Temperature and Relative Humidity Module, Air Pressure and Light Intensity Module, and Rainfall Intensity Module such as to the LED Display, was successfully done through the use of the microcontroller and a PC module. The test and evaluation of the design project was done by the execution and comparison with the existing system in that has been developed. The cost computation of the study was also conducted.

The wireless weather monitoring system was consisted of GizDuino Atmega328 microcontroller as the processing unit. The microcontroller is mainly responsible for the entire operation of the system. Moreover, it is not only more affordable compared to other microcontrollers, but also more reliable in handling multiple inputs and outputs.

The testing and evaluation of the project was done at the Agromet Research Station, PAG-ASA CvSU by comparing the reading of the device to the existing system to determine the accuracy of the designed project. The adviser, technical critic, and staff of Agromet Research Station, PAG-ASA CvSU tested the functionality of the device. Based on the results of the evaluation, the design project was acceptable to use as a weather monitoring device.

The total cost of the design project was PhP 18, 725.00.

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[1]An undergraduate thesis outline submitted to the faculty of the Department of Computer and Electronics Engineering, College of Engineering and Information Technology, Cavite State University, Indang, Cavite in partial fulfillment of the requirements for the degree of Bachelor of Science in Computer Engineering. Contribution No. CEIT-2013-14-132-S. Prepared under the supervision of Ms. Emeline C.Guevarra.

INTRODUCTION

Weather monitoring is a periodic or continuous surveillance and analysis of the state of the atmosphere particularly weather and climate, including variables such as temperature, wind speed and direction, relative humidity, barometric pressure and rainfall. Now a day, different weather monitoring system exists, it is in different kinds and types and scope.

Sallas and Reyes (2006) have developed a microcontroller based electronic billboard for weather condition with sensors for environmental climate that was placed in the entrance of the College of Engineering and Information Technology main building. The existing device measures the temperature relative humidity, wind speed, the rainfall amount, and the barometric pressure. It also displays the date and time of the day for easy monitoring.