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SCHOOL OF ENGINEERING

THE REAL-TIME SYSTEM FOR MEASURING WIND CHARACTERISTICS

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Abstracts

The real-time system for measuring wind characteristics is presented in this final report. The function of the project is to measure the wind characteristics such as wind speed and wind direction. In this project, the sensors that are used to measure the wind characteristics will be built by substituting the ready-to-use sensors in the market. In this system, two sensors are used. They are Ratiometric Linear Hall Effect sensor and 1490 digital compass. And, the reasons of choosing these sensors will be explained in this report. The signals of the digital compass sensor can be send to the I/O pin of the microcontroller. However, the signals of the Hall-Effect Sensor are not able to do this. This is because the signals of it are too small. Therefore an op-amp is needed to amplify the signals before the signals are gone to the microcontroller. Finally, the LCD display will display the data according to the program in the system.

In addition, the theory of operation for the system is contained in this report. After the theory, the steps to build the hardware of the wind characteristics also included. And, the circuit theory of the project also can not be ignored because it is explaining how the circuit works. There are some mathematical equations are shown in the section of the theory of operation and circuit. This is for further understanding of the readers and also to strengthen the theory of the circuit.