

Development of weather station for wind direction, wind speed and temperature measurements

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This work was aimed to study program for control an anemometer, wind vane, and thermometer sensor with dsPIC33 microcontroller. This prototype was developed for basic measuring, storing and monitoring weather data by personal computer. There are 3 parts of measurements. The first, wind direction was measured by wind vane. The structure of the sensor is a variable resistor. Voltage divider circuit was applied to the sensor. Second, wind speed was measured by anemometer. The structure of the sensor is cylindrical spindle. Frequency signals sent from it was detected by capture command on microcontroller. Wind direction and wind speed were calibrated by wind simulation and compared with standard tools. The last, temperature was detected by digital DS18B20 thermometer sensor. It interfaced a 1-wire bus to communicate one port pin of microcontroller. Serial data signals are communicated between the personal computer and the sensor. In this research, the authors have successfully demonstrated a prototype and monitored weather at Ubon Ratchathani University station. It was able to convert these signals to acceptable values.

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