

ABSTRACT

Telemetry is a process of measuring parameters of an object (i.e. a thing, space, or environmental condition) and transferring the output to other media through wired-data-transfer-mechanism or wireless communication. Then, it can be directly utilized or analyzed first for specific purposes. In this final project, telemetry system will be used to design a system that can measure room temperature. It is expected to enhance the, currently used, temperature control system. Nowadays, the means of controlling temperature is still done manually or by using remote control wherever the instrumentation is placed. With the telemetry system, temperature control can be done from afar.

In this final project, RF (YS1020-UA) module is used to build the design and implementation of telemetry-system-enhanced temperature measurement. Telemetry instrumentations consist of hardware and software, which is located in both receiver and transmitter. In the transmitter, there is a temperature sensor that is integrated with microcontroller ATmega8535 and transmitted using YS1020-UA module. The YS1020-UA module in receiver will accept the transmission and connects it to PC. Temperature controlling is done in receiver by transmitting minimum standard temperature to activate the fan.

The examination of telemetry system is done in power supply block, temperature sensor, fan motor driver, microcontroller, RF module, and application in PC. The result of the examination shows that system works well. The time average for one temperature data transmission is 0.148 seconds in indoor condition. Failing rate that happens in 128 times temperature data transmissions is 6.25% with the maximum distance of 70 meters.

Key words: telemetry, PWM, RF module, temperature sensor, microcontroller ATmega8535