Design and Implementation Wireless System by Using Microcontrollers.Application for Drive Acquisition System with Multiple Sensors

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Abstract : Design and implementation acquisition system using radio frequency (RF) ASK module and micro controllers PIC is proposed in this work. The paper includes hardware and software design. The design tools are divided into two units , namely the sender MCU and receiver.The system was designed to measure temperatures of two furnaces and pressure pneumatic process. The wireless transmitter unit use the 433.95 MHz band directly interfaced to micro controller PIC18F4620. The sender unit consists of temperatures-pressure sensors , conditioning circuits , keypad GLCD display and RF module.Signal conditioner converts the output of the sensors into an electric quantity suitable for operation of the display and recording system.The measurements circuits are connected directly to 10 bits multiplexed A/D converter.The graphic liquid crystal display (GLCD) is used . The receiver (RF) module connected to a second microcontroller ,receive the signal via RF receiver , decode the Address/data and reproduces the original data . The strategy adopted for establishing communication between the sender MCU and receiver uses the specific protocol "Header, Address and data".The communication protocol dealing with transmission and reception have been successfully implemented . Some experimental results are provided to demonstrate the effectiveness of the proposed wireless system. This embedded system track temperatures – pressure signal reasonably well with a small error.

Keywords : microcontrollers, sensors, graphic liquid cristal display, protocol, temperature, pressure

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