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RS Based SCADA System for Longer Distance Powered Devices

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Abstract : This project aims at building an efficient and automatic power monitoring SCADA system, which is capable of monitoring the electrical parameters of high voltage powered devices in real time for example RMS voltage and current, frequency, energy consumed, power factor etc. The system uses RS-485 serial communication interface to transfer data over longer distances. Embedded C programming is the platform used to develop two hardware modules namely: RTU and Master Station modules, which both use the CC2540 BLE 4.0 microcontroller configured in slave / master mode. The Si8900 galvanic ally isolated microchip is used to perform ADC externally. The hardware communicates via UART port and sends data to the user PC using the USB port. Labview software is used to design a user interface to display current state of the power loads being monitored as well as logs data to excel spreadsheet file. An understanding of the Si8900’s auto baud rate process is key to successful implementation of this project.

Keywords : SCADA, RS485, CC2540, labview, Si8900
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