Project summary

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Main Objective

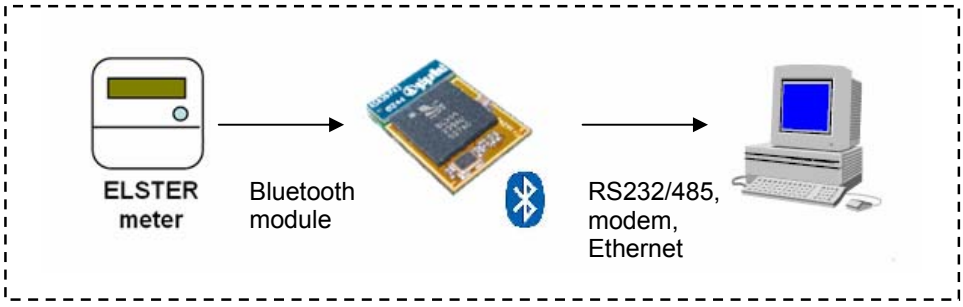
The development of a Bluetooth communication interface that can simplify the access to the Elster meter's data.

Sub-Objectives

To make students become more familiar with the major stages in development process;
To study different alternatives for PIC MCUs usage;
To become familiar with communication protocols (Bluetooth, RS232)
To design a system based on Elster meters, a Bluetooth module and an end-user device (PC, Pocket PC)
To prepare a comprehensive report on the design.

Abstract

Elster's meters offer the advantage of leading edge electronic metering technology, enabling accuracy class 0.2S, anti-tamper and security data as standard. DCD (Data Collector Devices) are used to record all The data provided by meters in an AMR (Automatic Metering System). The Bluetooth module will be used to facilitate the reading of the meter's data by the AMR, and will be developed as an optional communication method, besides existing ones (IRDA). The EasyPic development board can be use to simulate the communication with the AMR device. The picture below represents a principle schematic of the design. The meter wills me linked to the end-user device using a Bluetooth module. A specific communication protocol will be used.



Development Tools

Bluetooth module
Elster Meter
EasyPIC4 Development Board (Mikroelektronika)
Extension Boards (AD Converter, IrDA interface, RS485 interface, RTC)
PICmikroC Compiler (Mikroelektronika)
PIC MCU (Microchip)
Oscilloscope, Signal Generator, Digital Counter
Testing boards, electronic components
PC, Documentation.

Skills and Requirements

The student should have good knowledge of data acquisition systems, microcontroller's architecture, C programming (intermediate), communication protocols, analog and digital circuits, and electronic instrumentation. English is compulsory.

Elster Rometrics
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