DIFFICULTY

Project summary

Cond.st.UPT. as.ing. Cora Iftode

Main Objective

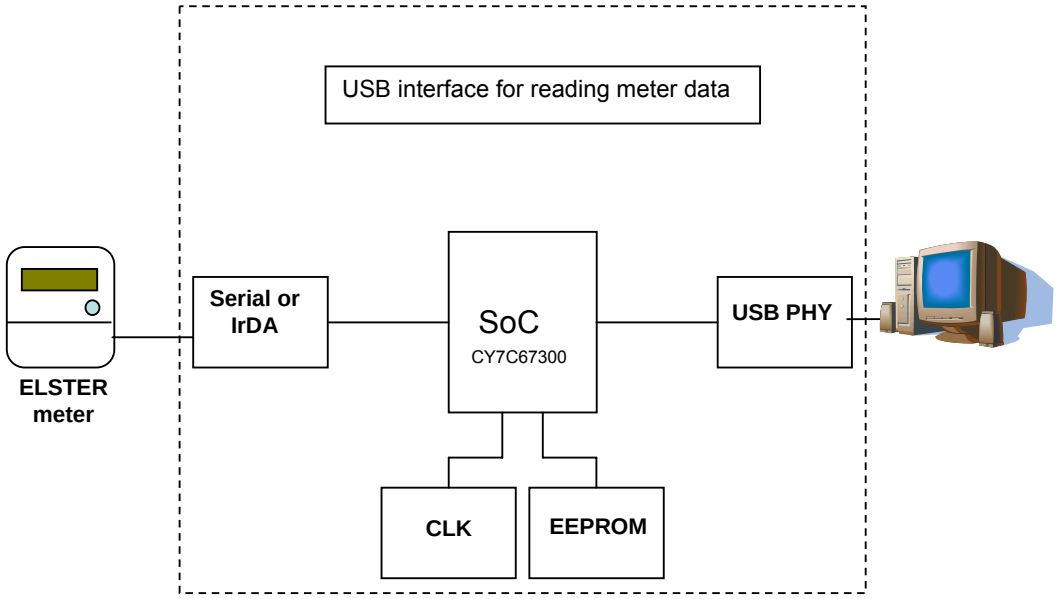
To design and establish a USB interface between an electricity meter and a PC, in compliance with the necessary standards of communication.

Sub-Objectives

To familiarize the student with the various stages comprising the development process;
To research and evaluate the optimal combination of PC software and hardware that produces the simplest, most cost effective and robust solution to address the project's objectives;
To gain experience working with a system-on-chip IC and adapt the interface to acquire metering data;
To prepare a comprehensive report on the design process.

Abstract

Elster's metering products are at the cutting edge of electronic metering technology as one of the pioneers to introduce Automatic Metering System (AMR) technology. This project will add USB interface capabilities to supplement a wide array of currently exiting interfaces by which metering data can be recorded. Sampling either the serial or IrDA data port of an Elster meter, the USB interface board will translate this data to adhere to the USB standard such that it can be directly fed to a PC's USB port after being properly isolated. Once the hardware interface has been implemented by programming a Cypress System-on-Chip (SoC) device, a USB communication driver needs to be developed for PC's operating system in order to read the metering data and save it locally for further processing. Below is attached a block diagram of the system to be implemented using the CY7C67300 SoC as its core:



Development Tools

Cypress CY3685 development kit or equivalent
Cypress Documentation (as needed)

Skills and Requirements

Computer peripherals and hardware; microcontroller's architecture, Embedded/C programming, analog and digital circuits and systems, electronic instrumentation, interfacing and data acquisition. English is compulsory.

Elster Rometrics
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