Abstract

In this article, it is presented a data acquisition and transmission instrument with many applications. The core of the developed instrument implements an acquisition board with some non-usual functions, like a sink floating current source. The main new features implemented are: the development of a versatile programming environment in order to achieve three very simple user interfaces and to control and manage the right behaviour of the implemented acquisition board using three 18 family Microchip microcontrollers (PIC18F452 and PIC18F252). The implemented instrument has three modules: the first one is devoted to the data acquisition and generation (digital I/O, analog I/O, PWM outputs and current sources) and implements the RS-232 and USB communication. The second module acts like a web server, so it is possible to find out the instrument configuration in real time. The last module implements the user interface through a LCD panel. The third user interface implemented is a virtual instrument developed with LabVIEW via the RS232 and USB communication implemented in the main module.