

Python based Graphical User Interface application for Data Acquisition System

Abstract

The objective of this project is to develop a Python-based graphical user interface (GUI) application for an indigenously developed FPGA (Field Programmable Gate Array)-based multi-channel data acquisition system. The data acquisition system is equipped with a single-board computer (SBC) running a Linux operating system

The Python-based front-end GUI will provide control and status commands to the hardware, which consists of on-board components such as the ADC (Analog to Digital Converter), DAC (Digital to Analog Converter), FPGA, RAM (Random Access Memory), and the single-board computer on the PC-104 bus.

The project involves development and implementation of Python GUI using open source libraries for communication between the SBC and the PC/104-based hardware, hardware-software functional testing, data plotting and data archiving in an appropriate file format for server-based storage.

Academic Project Requirements:

1) Required No. of student(s) for academic project: 2

2) Name of course with branch/discipline: B.E./B.Tech. Electronics and Instrumentation Engineering

3) Academic Project duration:

(a) Total academic project duration: 14 Weeks

(b) Student's presence at IPR for academic project work: 4 Full working Days per week

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