The interface for the Fluke TiS20 thermal imaging camera - continuation.

Mgr inż. Krystian Rosłon (roslon@jinr.ru) – Warsaw University of Technology, Veksler and Baldin Laboratory of High Energy Physics.

1. Motivation

An interface is a shared boundary across which two or more separate components of a computer system exchange information. The exchange can be between software, computer hardware, peripheral devices, humans and combinations of these. Some computer hardware devices, such as a touchscreen, can both send and receive data through the interface, while others such as a mouse or microphone may only provide an interface to send data to a given system

Hardware interfaces exist in many of the components, such as the various buses, storage devices, other I/O devices, etc. A hardware interface is described by the mechanical, electrical and logical signals at the interface and the protocol for sequencing them (sometimes called signaling)

Software interfaces provide access to computer resources (such as memory, CPU, storage, etc.) of the underlying computer system; direct access (i.e. not through well designed interfaces) to such resources by software can have major ramifications—sometimes disastrous ones—for functionality and stability.

The Fluke Ti20 Imager (hereafter, "the Imager") is a state-of-the-art, lightweight, pistol- grip style thermal imaging unit. Using the Imager, you can obtain instant and accurate thermal images and radiometric readings from distant targets. The Imager is ergonomically designed for right-hand or left-hand use, and captures thermal images and data with a simple trigger press. The Imager can store up to 50 images that can be downloaded to your personal computer for storage, analysis, and report preparation.

The InsideIR companion software application, lets you display, examine, and analyze your images and data to determine qualitative and quantitative trends associated with the target equipment. You can also use InsideIR to define maintenance databases based on your equipment conditions, monitoring, and asset management needs.
The Imager provides high performance thermal imaging and is designed for industrial use. The Ti20:
- Uses new detection technology to provide a clear thermal image with accurate temperature measurements up to 350 °C (662 °F).
- Is protected against dust and moisture (IP54 rated) for use in harsh industrial environments.
- Provides a minimum of 3 hours of continuous battery life.

2. Tasks

Student will work with the LabView on his own device. The main tasks are:
1) Assembly of the system in a block and its setup
2) Configuration of the Fluke Ti20 Imager
3) Setup of the Fluke Ti20 Imager to his computer
4) Developing of software for data acquisition using LabVIEW 2016,
5) Developing of software for data visualizations and monitoring,
6) Performance of application tests,
7) Preparation of documentation.

3. Requirements

a. Computer with Windows operating system,
b. Programming skills in LabView,
c. Basic English skills.

4. Recommended literature

a) www.jinr.ru – JINR's website,
b) http://nica.jinr.ru – NICA's website,
c) http://labview.pl – LabView website,
d) http://nica.fizyka.pw.edu.pl/ - Twiki of SCS group.

5. The number of project participants: 1-2