

The setup of an integrated experimental board of sensors for the collection and processing of the various measurements

This diploma project is focused on the setup of an integrated experimental board consisting of various types of sensors with the ability to connect to the computer through an assisting low cost device of "National Instruments" called "NI myDAQ". This device is used to collect data from sensors and transfer them to the computer. The collection and processing of the various signals is made through software, called "LabVIEW".

The project began with a brief introduction to the sensors. Afterwards some basic definitions and terminologies associated with the sensors measurements were explained. After the categorization of the sensors and their characteristics (static and dynamic), a description was given for each sensor used on the platform with the required operation characteristics.

At a later stage, the "NI myDAQ" device was described and some examples were given on how the various data are collected, processed and displayed by using this device. Afterwards, a node was made to the software "LabVIEW" regarding the way it operates, its main tools, the way of collecting and processing data, etc.

When the theoretical part was done, the practical and most essential part of this diploma project was carried out. The practical part includes the application and connectivity of sensors on the platform, the creation of Virtual Instruments (VIs) in "LabVIEW" software, the use of the "NI myDAQ" device for the collection and transfer of data, the calibration curve for each sensor and final testing and verification of the system.