



Maestría en Gestión e Innovación Tecnológica

Title

**Technological vigilance in platforms data  
acquisition applied to virtual instrumentation**

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# Technological vigilance in platforms data acquisition applied to virtual instrumentation

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## 1. Introduction

The article describes a methodology for a technological vigilance in data acquisition platforms which are used in virtual instrumentation environments such as LabVIEW. This also presents ISE- LabVIEW, the developed platform that allow programmers to have a low-cost option with similar functionality to DAQmx systems. Data acquisition of a temperature sensor is reported as a preliminary result of this research

## 2. Objectives

### 2.1. General objective

Manage the development of a palette of functions(call ISE-LabVIEW) for embedded systems using LabVIEW programming.

### 2.2. Specifics objectives

- Apply technology vigilance in data acquisition platforms in national and international databases.
- Design and implement a graphical user interface for obtaining data from a temperature sensor.

## 3. Method

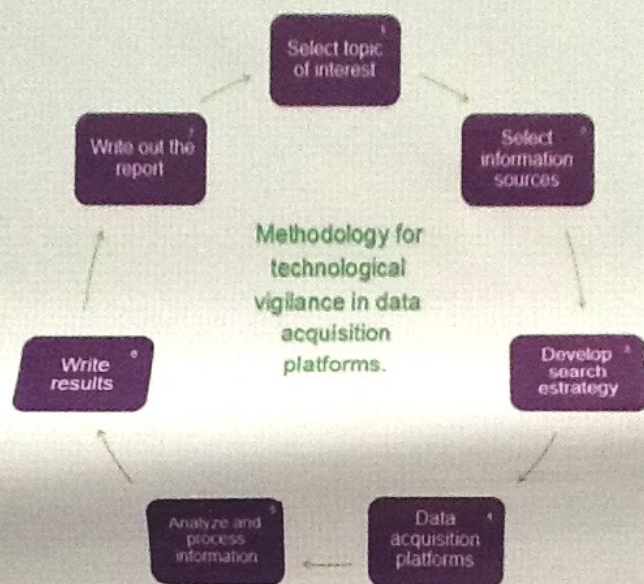


Figure 1. Methodology utilized in this research

## 3.1 Select the topics of interest

The topic of interest in this research is described with the terms data acquisition platforms.

## 3.2 Select the information resources

In the Table 1 shows the names of the databases that were query to apply technological vigilance, note that there were not retrieved records but using the search terms "DAQ", "National Instruments" and "arduino" was easy find more patents.

## 4. Results

DATABASE	COUNTRY
IMPI	México
USPTO	United States
Espacenet,	Latin-American
PATENTSCOPE (WIPO)	International
DEPATISnet	Germany
PAJ	Japan
Lens patent	Worldwide
SIPO	China
CIPO	Canadian

Table 1. Shows the names of the databases that we queried to apply technological vigilance.

DATABASES	CLASS OF EXPEDIENT	No. EXPEDIENT
IMPI	Trademark	1112932
USPTO	Trademark	No disponible
CIPO	No disponible	1285655
Espacenet	International	ES19870303122T 19870409
Lens	Trademark	087-449-383-313-094

Table 2. Results of the consulting databases with related patents.



The Table 2 shows the icons of the databases that have information about patents using the words National Instruments, DAQ and Arduino, note that JKI VI Package Manager, is an example of a patent.

Arduino Compatible Compiler for LabVIEW 1.0.0.21	NI LabVIEW Tools Network	Medyne-TS/ber's
LabVIEW Interface for Arduino 2.2.0.79	NI LabVIEW Tools Network	National Instruments
NI CompactRIO Waveform Library 4.1.0.9	NI LabVIEW Tools Network	National Instruments

Figure 3. Results of search a database of software in data acquisition

The Figure 4 shows the classification about the data acquisition platforms with respect to the search in the JKI VI Package Manager.

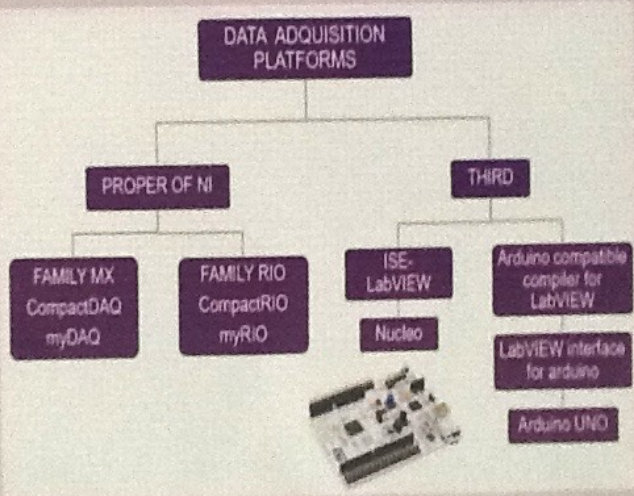


Figure 4. Classification of data acquisition platforms in virtual instrumentation.

The Table 3 is a comparison in the different results of the search, to included functions and icons in each one. In the Figure 5 is showed the user interface designed for the programming in the nucleo card call ISE-LabVIEW.

Comparative table of existing platforms about functions

Arduino Compatible Compiler for LabVIEW	LabVIEW interface for Arduino	ISE-LabVIEW
Structures	Init	DAQNucleo Configurante
Array	----	DAQNucleo Start
Numeric	----	DAQNucleo Read
String	----	DAQNucleo Write
Analog/ Digital	----	DAQNucleo Clear
Serial	Close	DAQNucleo Stop
SPI	Low Level	----
Interrupts	Sensors	----
Tones	Utility	----
I2C_LCD	Examples	----
Compilation	----	----

---- Don't include

Table 3. Comparison in platforms of Aledyne-TSX experts followed in the second column by National Instruments and concluding with has been developed

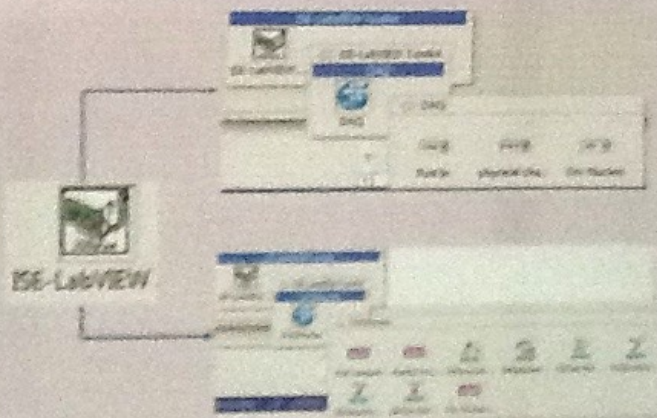


Figure 5. Platform user interface ISE-LabVIEW

## 5. Conclusion

At present the company National Instruments has the patent of the data acquisition in worldwide because to Hayles Tim and Gupta Vivek G were the creators of this process in 1998. As a result of technological vigilance, we have designed the ISE-LabVIEW palette as an alternative solution for data acquisition.

## Acknowledgements

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## References

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- Del Río J, S. S. (2013). *LabVIEW: Programación para sistemas de instrumentación*. México, D.F: Alfaomega.



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