Goals of Presentation

• Give an overview of the capabilities of virtual instrumentation with LabVIEW.

• Show the basics of writing a LabVIEW virtual instrument.

• Things to be stressed.
  – Ease of use
  – Power
  – Flexibility
  – Ease of Development
Virtual Instrument

- A LabVIEW Program written in the graphical language G.

- LabVIEW = Laboratory Virtual Instrument Engineering Workbench

- Often models the appearance and function of a physical instrument.

- Can accomplish complex data acquisition or automation tasks.

- A Virtual Instrument is called a VI for short.
Front Panel

- The interactive user interface for a VI.
- Contains controls (inputs) and indicators (outputs).
Block Diagram

- Pictorial representation of the source code for the virtual instrument.
- Consists of executable **icons** and **subVIs** and other programming constructs such as loops, case statements, etc.
- Also consists of **terminals** associated with the front panel controls and indicators which are sources and sinks of data respectively.
- The terminals and nodes are interconnected on the block diagram by **wires** which carry data from one point to another.
Palettes

- **Tools** - Floating palette containing all the tools (different cursors) you need to build a VI.
- **Controls** - Available only when front panel is active. It is used to place controls and indicators on the front panel.
- **Functions** - Available only when block diagram is active. It is used to place subVIs, programming structures, constants, etc. on the block diagram.
Temperature Monitor VI

Tasks

- Measure and plot temperature reading at regular intervals of time.
- Determine hi, low, and mean temperatures.
- Save temperatures to a text file.
Introductory LabVIEW Texts

Robert H. Bishop

*Learning with LabVIEW*: (Addison-Wesley, 1999).

- Comes in two versions: one with a student version of LabVIEW 5.0 and one without the student version.
- Currently used in Physics 418 course at WKU and available in WKU Bookstore.

Lisa Wells and Jeffery Travis

Advanced LabVIEW Texts

Gary Johnson


Gary Johnson

Services we can provide at WKU

• Formal Classroom Instruction in LabVIEW
  – Physics 418 Course (next in Spring 2001).
  – Special course on a contractual basis.

• Consulting on LabVIEW Application Design

• Students trained in LabVIEW VI Development