

Hands-On Workshop on LabVIEW for Robotics (Conducted by National Instruments)

Resource Person: National Instruments staff

Venue: AMMACHI Labs, Amrita Vishwavidyapeetham, Amritapuri

Date: 06-12-2014

Attendees: Staff and students from M. Tech (RAU) and AMMACHI Labs

National Instruments conducted a one-day, hands-on workshop on "LabVIEW for Robotics" for M. Tech (RAU) and AMMACHI Labs. Participants gained real-time experience on how to implement Virtual Instrumentation using LabVIEW. Basic concepts of graphical programming in LabVIEW were explained and demonstrated and highlights the features and techniques used in LabVIEW to create Virtual Instruments (VIs). Using the technique of modular programming, the book teaches how to make a VI as a subVI. Arrays, clusters, structures, and strings in LabVIEW are covered in detail.

Further, participants also gained hands-on experience on how to interface sensors for external applications involving Controls, Robotics, Mechatronics, and Embedded systems.

Topic of discussion

- Introduction to Graphical System Design
- Virtual Instrumentation
- LabVIEW
- LabVIEW for Robotics
- Implementing VIs
- Interfacing with Sensors
- Sense, Think, Act process for Robotics
- LabVIEW for CROME applications
- CROME = Controls, Robotics, Mechatronics, Embedded systems

Hands-on Session

- Introduction to LabVIEW
- DAQ Analysis with Measurement analysis
- Hands-On session in ELVIS KIT
- Hands-On session in LABVIEW based on sensors

- Programmable FPGA
- Introducing NI-MyRIO
- Introduction to control and OP Amps
- Hands-On session {Sensors}
- DAQ Analysis with sensors
- Integration of vision, motion with robotics
- Path Planning Algorithms- I
- Path Planning Algorithms- II

The students were fully involved and they had raised a few interesting questions that gave space for an open discussion on how to implement Lab view software for real-time robotics.



1st year and 2nd-year Mtech robotics students with faculties and NI Staff

After the session, the staff has invited the students to join an online seminar. This has 12 technical sessions divided over 6 tracks that bring the latest in LabVIEW in the field of Data Acquisition, Embedded Control and Monitoring, Automated Test, and RF and Wireless domain.