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MEGR7222

NAME: ANYAEGBU SOMTOCHUKWU

TITLE: Mechatronics Project I: Basic IDE installation

TASKS:

1. Install the IDE for Labview myRIO (in the box with the myRIO hardware) and Arduino (obtained free from the Arduino web site) programming.

2. Write a program to output a voltage from the myRio DAC and read it in on the myRIO ADC. Transfer this data to a spreadsheet and plot the result.

3. Send me a movie of the myRIO operating this task, or another of your choosing.

PROCEDURE:

- Open a custom FPGA project in Labview.
- Generate a sine wave of unit amplitude and one Hertz frequency using a timed WHILE loop in the myRIO processor. There should be 100 points per cycle.
- Transfer the data to the DAC via an FPGA program.
- Use wires to connect the output from the DAC to an ADC on the myRIO and read this again using the FPGA.
- On the project explorer, create a new shared variable in the myRIO variable library.
- After sending a value to the DAC wait 1 milli second before reading the ADC from the FPGA in the myRIO processor VI.
- Create an array shared variable in the HOST library and use this to transfer the array of data to the host.
- Use the host program to read/write the data to a file.
- Drag the shared variable from the project explorer to the block diagrams on myRIO and HOST to enable data transfer.
- Write the data from the variable to a spreadsheet file for plotting.

PIN CONNECTION:

Mini System Port Connector C

Pin3(AGND) → Pin10(AI 1-)

Pin4(AO 0) → Pin9(AI 1+)

Pin6(AGND) → Pin10(AI 1-)

VIDEO RECORDING:

Time	**Task**
00: 22	Launch installed Arduino IDE
00: 49	Launch installed Labview myRIO
01:45	Launch HW1 project on NI LabVIEW 2019
02:10	Open VI written on myRIO device FPGA
02:45	Open VI written on myRIO device Processor
03:18	Open VI written on host computer
03:47	Simulate VI written on myRIO device Processor
04:20	Simulate VI written on host computer
05:09	Show data written to MS Excel file from VI on host computer
05:39	The End