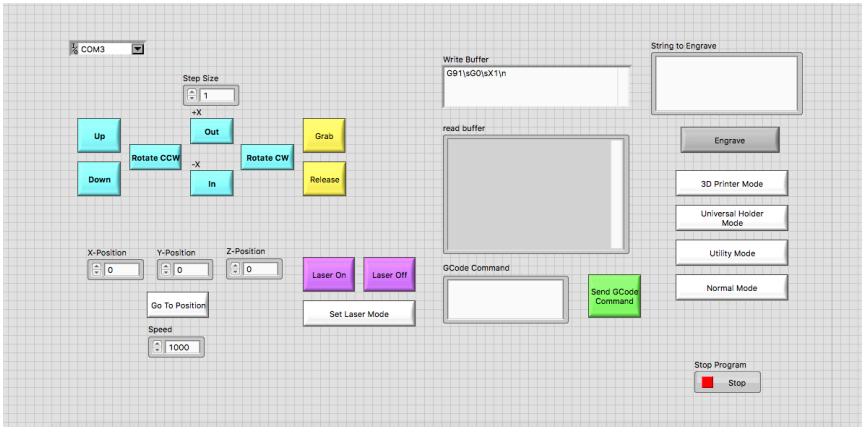
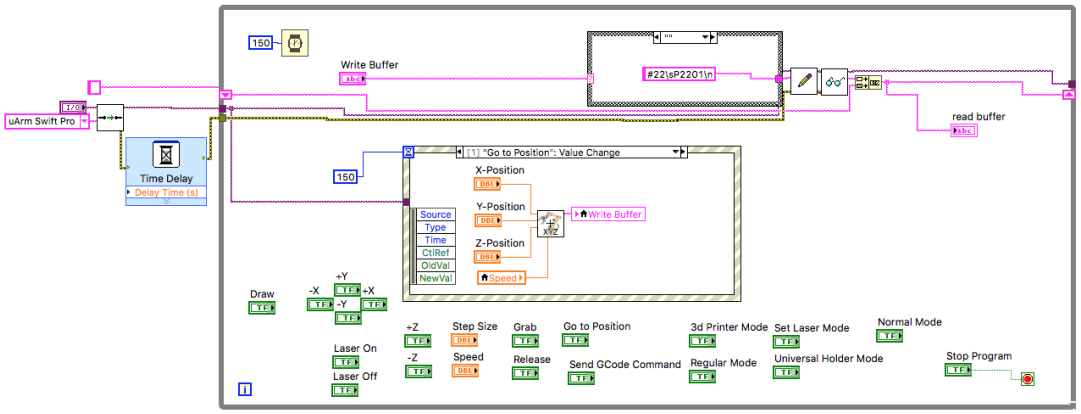
uArm Swift Pro Control Interface

The uArm Swift Pro Control Interface allows users to control their uArm from one LabVIEW front panel.

Controls include:

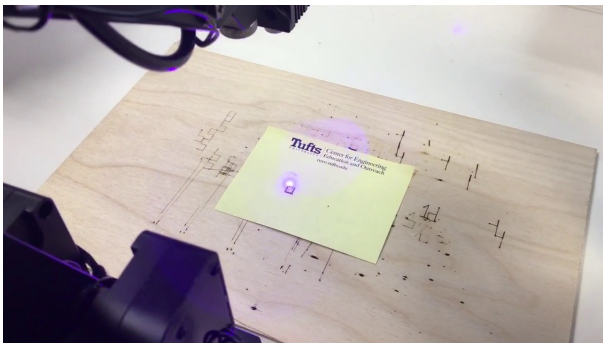
- Changing modes (normal, utility, universal holder, 3D printer, laser)
- Jogging
- Laser on/off
- Suction on/off
- Move to a desired position
- Engrave/draw text
- Send typed in G-Code command





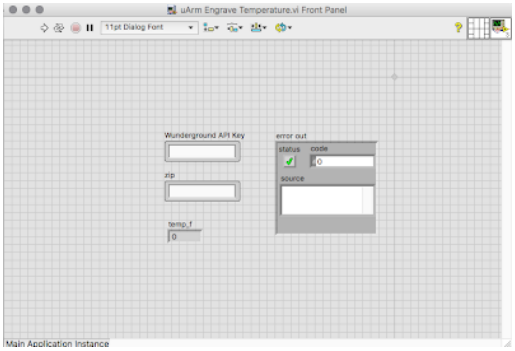
Engrave Current Temperature on Sticky Note

This example shows how a physical representation of useful data can be fabricated using the Machine Control Toolkit. The temperature in a specified zipcode was read from Weather Underground. The temperature was then converted into a G-Code file that was then sent to the uArm Swift Pro to be engraved on a sticky note.

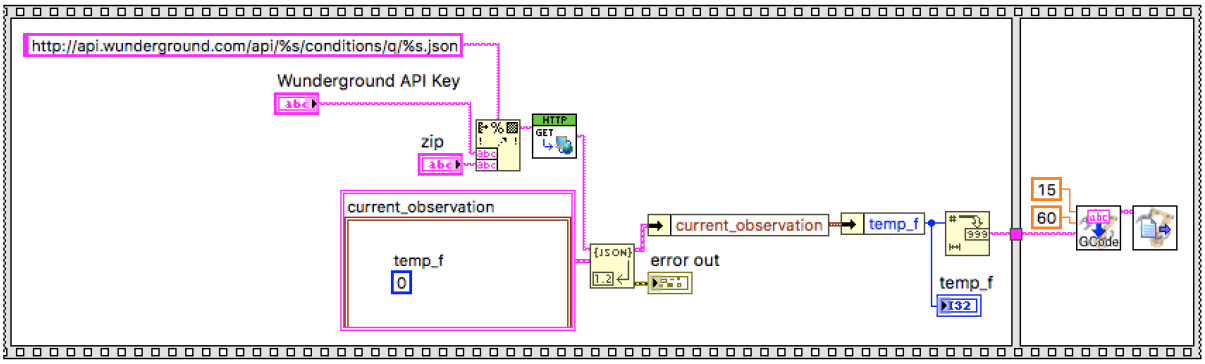


LabVIEW Code Screenshots:

Front Panel:



Block Diagram:

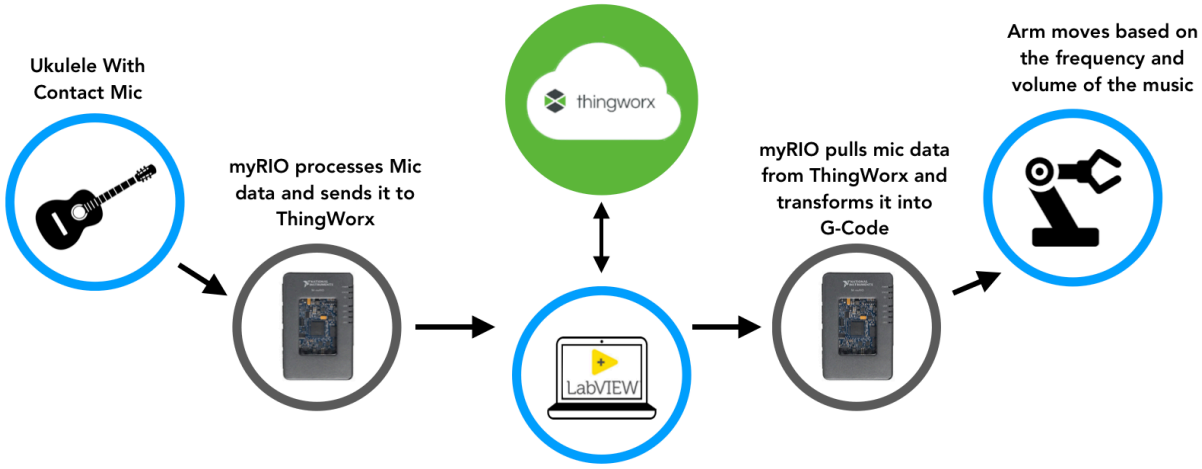


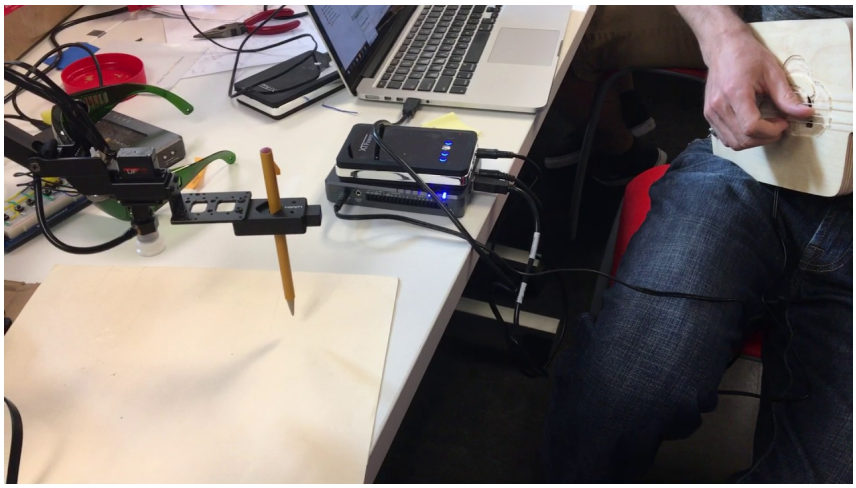
LEGO WeDo Remote Control

This example uses LEGO WeDo as a controller for the uArm. The tilt sensor, distance sensor, and button values of the WeDo are sent to ThingWorx and then read back down and formatted into G-Code commands that actuate the uArm.

Cloudelele Drawings

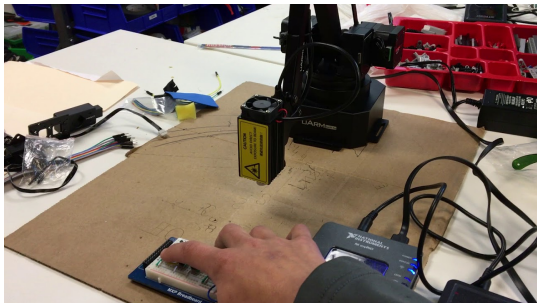
This example uses a Cloudelele, which is a ukulele with an embedded contact microphone, to control the uArm. Two myRIOs are used, one as a means to process the sound data from the cloudelele and send it to the cloud, and one to read the sound data, format it into G-Code commands, and send those commands to the uArm.





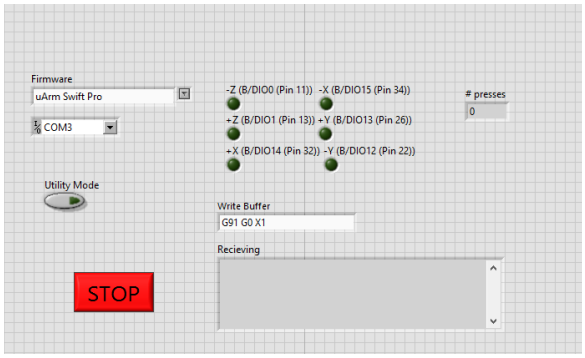
myRIO uArm Remote Control

In this example, the myRIO is used as a controller for the uArm Swift Pro. A set of 7 pushbutton switches control the motion and gripper status of the arm. This example requires the myRIO to be plugged into the uArm for the controller to work. However, using thingWorx, we could easily create a virtual version of this so that users could control their arm from anywhere!



LabVIEW Code Screenshots:
The myRIO uArm remote control is set up as a state machine. When the buttons are pressed on the breadboard, the digital line changes from low to hi, which triggers the appropriate G-Code command.

Front Panel:



Block Diagram: