

21M.370 Digital Instrument Design

Lab assignment 4 - Feb 22

Goals:

1. Finish putting Nobby together
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Assignment description:

Our goal for this week is to get Nobby installed and ready to play. This lab makes the following assumptions:

1. You have 4 pots and 4 buttons mounted in an enclosure and connected to the 370 breakout like:
 1. Pots connected to inputs 0, 1, 2, &3
 2. Buttons connected to inputs 6, 7, 8, &9
 2. You have arduino installed and are able to load firmware onto the ESP32
 3. All buttons and pots are installed and verified working using the lab3_test.ino firmware.
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Steps:

All files are in NIME/instruments/Nobby.

The basic steps to run Nobby are:

1. Upload Nobby.ino to the ESP32 (only need to do once)
2. Run Nobby.py
3. Open the main.pd and NobbyCtrl.pd patches from the pd folder inside Nobby

Python file overview:

1. Nobby.py

1. Main script with boilerplate - not a lot you will want to change here
2. On line 17 you could change the defaultport to whatever portname your ESP32 shows up as - this will make connecting faster
3. On line 85 you can uncomment `client.send_message(address,value)` in order to monitor sensor values in PD

2. sensorInput.py

1. This is where sensor data is received by python, and given an OSC name. Addresses 0-3 are the potentiometers, and addresses 10-13 are the buttons. You can remap these to change what each pot and button do

3. oscMapping.py

1. This is where the action is! Here we map incoming signals to messages to PD. There are several sections:
 1. **Euclidian sequencer** generates the rhythm sequence for the drums
 2. **Incoming OSC** handles OSC messages coming from PD
 3. **Sensor Mappings** handles sensor data
 4. **Helper** functions are exactly what they say
2. In Sensor Mappings, the mapSensor function is called for every incoming OSC message with sensor data
 1. there is an if statement for every sensor

PD overview:

1. In NobbyCtrl there is a mixer in top left

1. You may need to change the levels for the drums so they are audible

2. You can click the toggle in the monitor section to monitor incoming messages in the PD window
3. You can set the tempo using the slider. The patch opens at a random tempo everytime it loads.