

6.111 Project Checklist

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Sheldon Trotman

Virtual Piano

Visual Gesture Detection (Sheldon) – This module detects fingers by tracking fingers. A note is said to have been played when it breaks a horizontal line.

Goals:

- track 4 fingers (show on display where the fingers are identified to be)
- quantify how quickly a key is hit (show this number on the screen or on the labkit)
- be able to hit any of 8 separate notes

If time allows:

- track more than 4 fingers
- add more keys to the piano

Audio (Lisa) – Given a note, this module will play a piano sound which reflects the speed at which the note was hit.

Goals:

- Play notes from one octave of the C major scale
- Notes should have attack, volume, and decay that could be expected from hitting a piano key. (sound should last for as long as the note is held. If we don't have attack information from visual detection, we can use labkit switches to set attack and observe volume and attack changes)

If time allows:

- Have a library of sounds (be able to switch from one instrument to another)
- Add a piano pedal feature (a pedal to make sound quieter and have quicker decay, and another pedal to make sound louder and have slower decay)

Display (Lisa) – The display should show what notes are being played and a history of the most recent notes played. A metronome will count how long each note lasts. After the note is over, we will display the note on a bar staff.

Goals:

- display the last 8 notes played
- display current note being pressed

If time allows:

- show rests, measures, notes that are slurred across measures, redraw eighth notes with a bar if there are two in a row

Additional Features (Lisa, if time allows)

- add a record and replay feature, which stores notes played and replays them