Color Mixer

Group 7: LemonJuice

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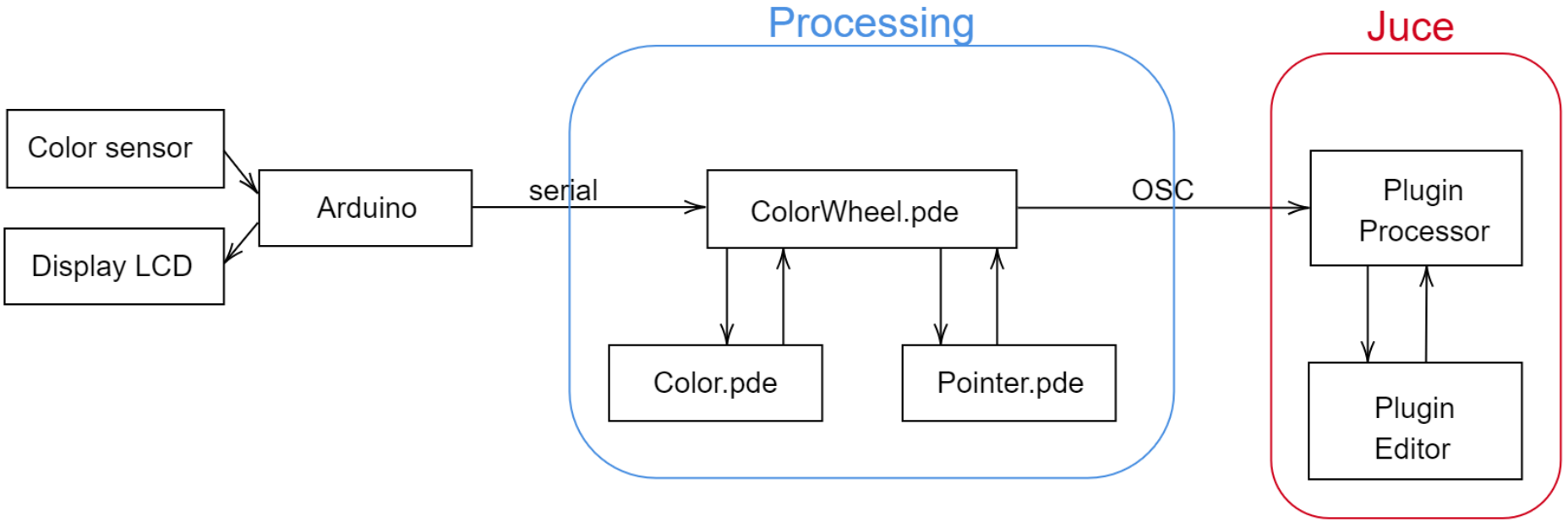
Introduction

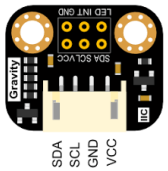
ColorMixer:
JUCE, Processing, and Arduino.

Mixes the multitracks of a song depending on the color detected using a sensor.

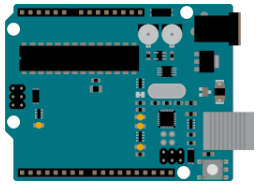


Main functions

- **getRGBC()**
- **setRGB()**
- **lcd.print()**



Color Sensor



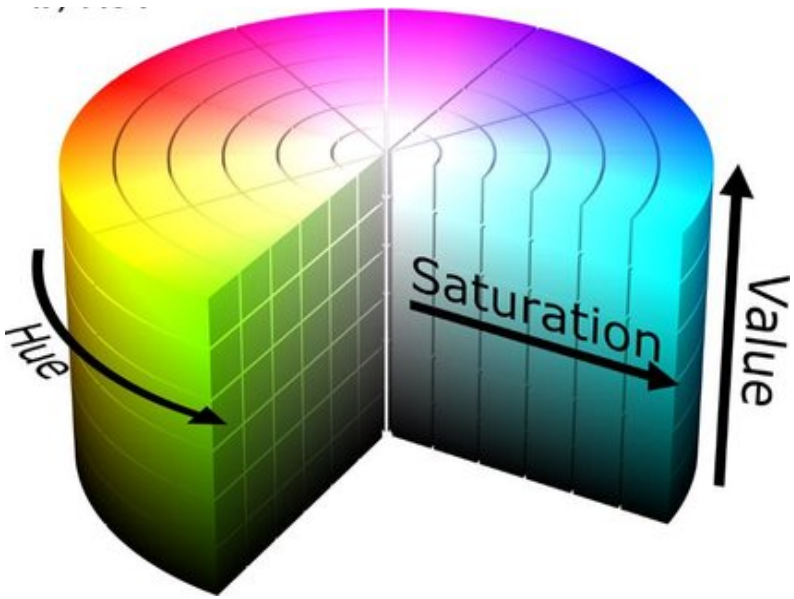
Arduino UNO R3

Display LCD

Distances and volumes in Processing

Track levels computed as distances

HSV



Distance from reference points

↓

Normalization:
Nearest track: 1;
Farthest track: 0;

↓

At low saturation
all the **volumes are set to 1**

Juce implementation

Playback Control

- isPlaying
- loopStart/End
- playHead

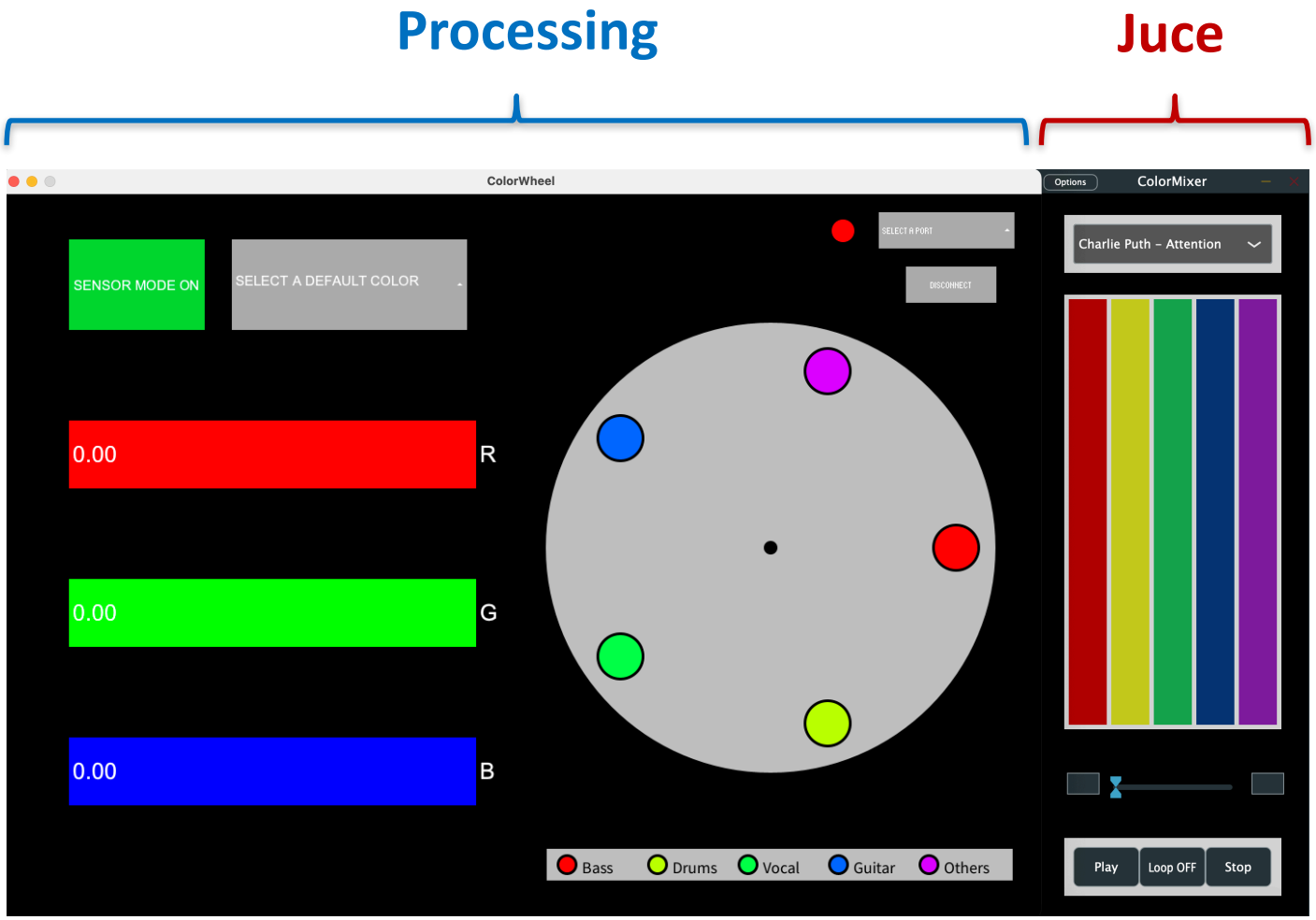
Audio Mixing

- **trackBuffers[]**
- **trackVolumes[]**

For n tracks:

```
leftChannel[sample] += trackVolumes[n]*trackBuffers[n] -> getSample(0, playhead);
rightChannel[sample] += trackVolumes[n]*trackBuffers[n] -> getSample(1, playhead);
```

Graphical User Interface



Conclusions

JUCE has proven to be a **comprehensive and stable framework for developing audio applications.** Being based on C++, it ensured **high performance**.

Main drawback:
lack of built-in serial communication functions

Solution:
intercept the serial communication using Processing and sent the information to JUCE through the OSC protocol.