S3_Smart_Sampling_Synthesiser

Central Repository of the S3 (Hopefully a vst soon) Smart Sampling Synthesiser

An additive synthesiser that generates wavetable from an input sample by using linear regression to find weights of harmonics. Currently being developed in Python (Pyo, PyQt5, wxpython). In Future JUCE C++ or Rust looks a good option

Collaborators

- Kaushal Patil AU1841040
- Dhruvil Dave AU1841003
- Prachee Javiya AU1841032
- Dhir Oza

To run the code

```
python3 S3SynthMain.py
```

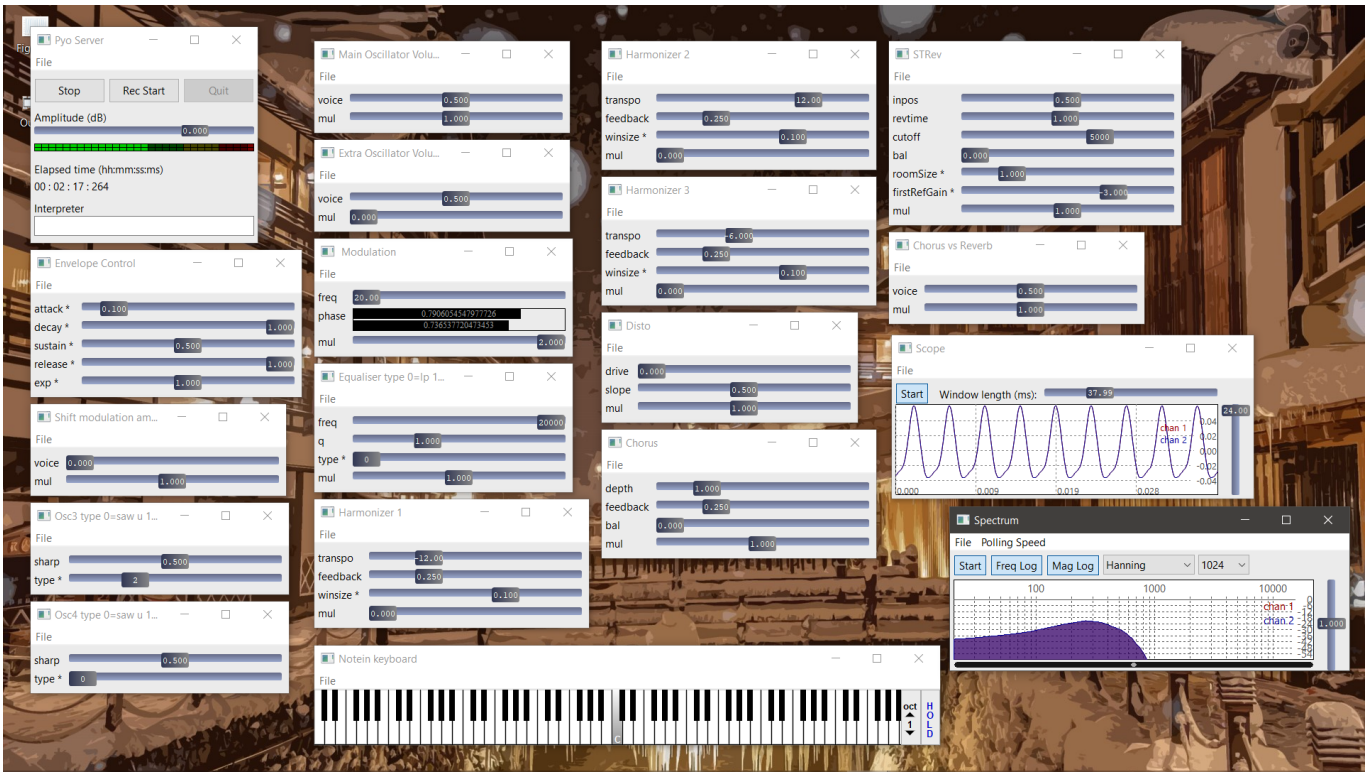
how to use:

1. Enter the name of the file from which you want to load wave profile.
2. Select the samples for which you want to train the file.
3. input a frequency that matches the pitch by selecting frequency from the output of program
4. upon entering frequency, the synthesiser will start.
5. start the server(make sure you have pyo installed), custommise parameter of envelope, oscillators, filter, and other effects.
6. play notes using the gui keyboard which pops up, you can also use computer keyboard to play once you have selected the keyboard window.(Make sure you have wxpython installed.use conda for easy installation)
7. change sound using synthesiser interface according to your needs.

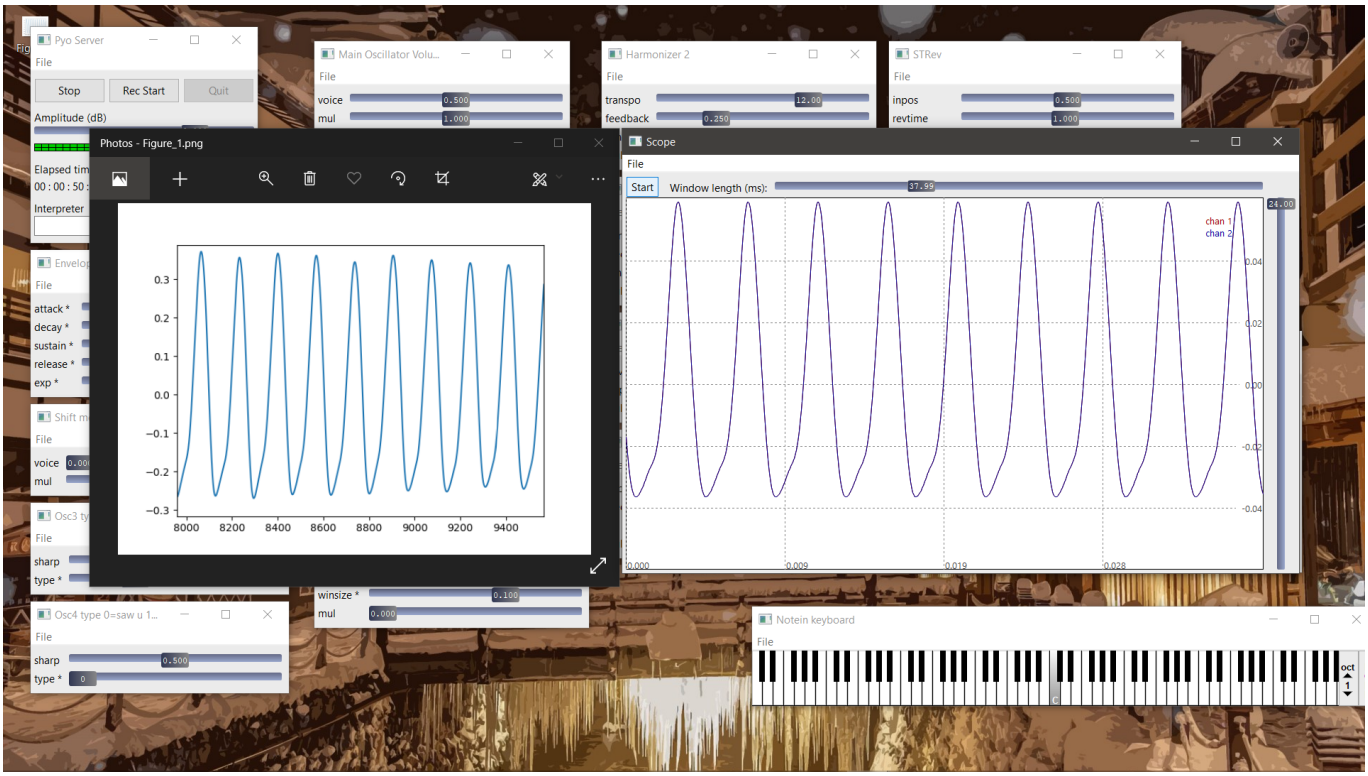
Note :

1. ***Help regarding fucntions and classes can be found in help.md/help.pdf***
2. ***theoritical information can be found in theory***

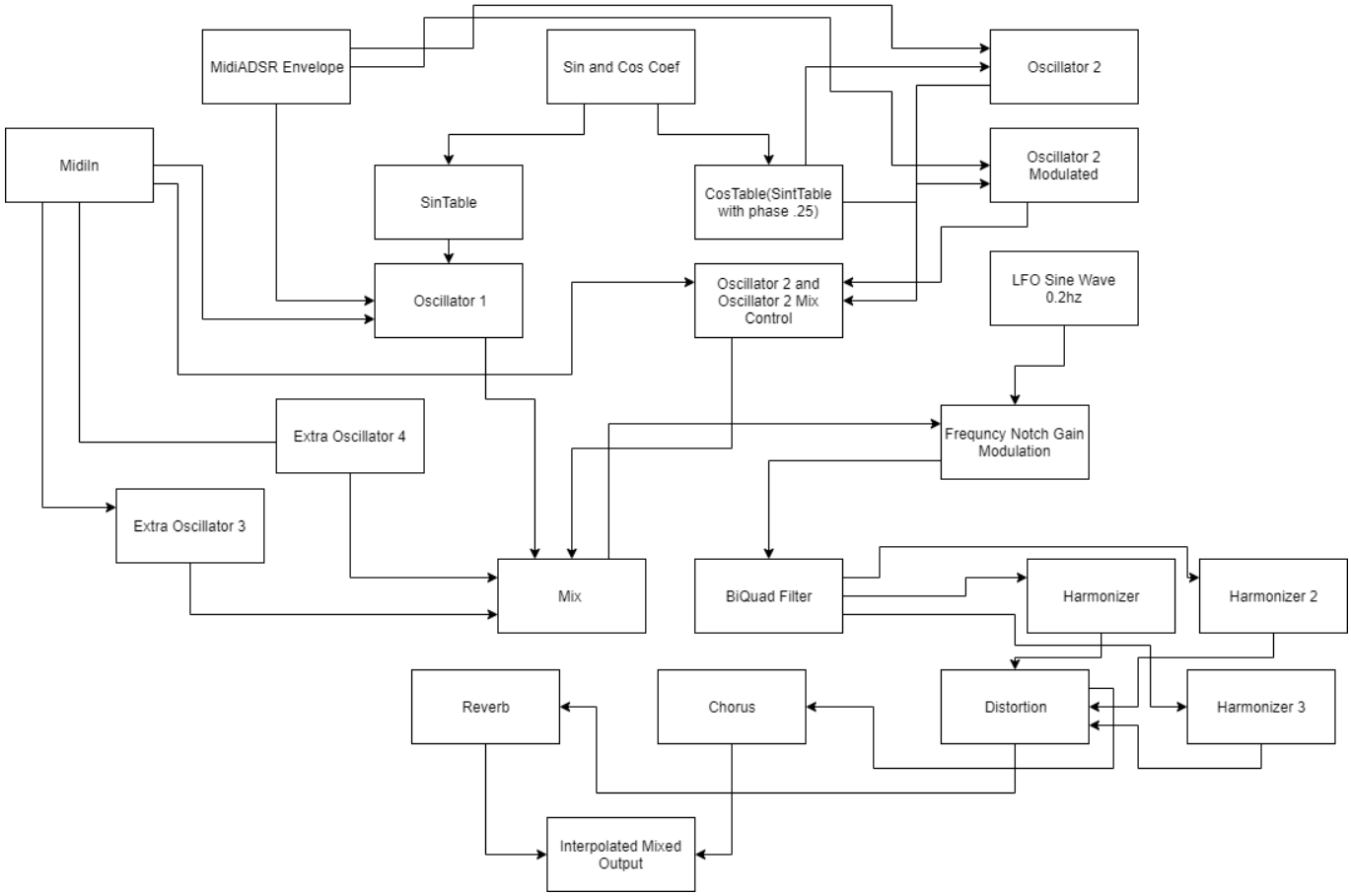
Interface



Results



Internal Routing


MidiADSR Envelope
Sin and Cos Coef
Oscillator 2
MidiIn
SinTable
CosTable(SintTable with phase .25)
Oscillator 2 Modulated
Oscillator 1
Oscillator 2 and Oscillator 2 Mix Control
LFO Sine Wave 0.2hz
Extra Oscillator 4
Frequncy Notch Gain Modulation
Extra Oscillator 3
Mix
BiQuad Filter
Harmonizer
Harmonizer 2
Reverb
Chorus
Distortion
Harmonizer 3
Interpolated Mixed Output