AC Instrument 2018-01

December 12 2018

GENERAL NOTES:

I'm aiming to create an extremely simple and user friendly hybrid instrument that brings the unique sounds of a classic synth into the modern domain.

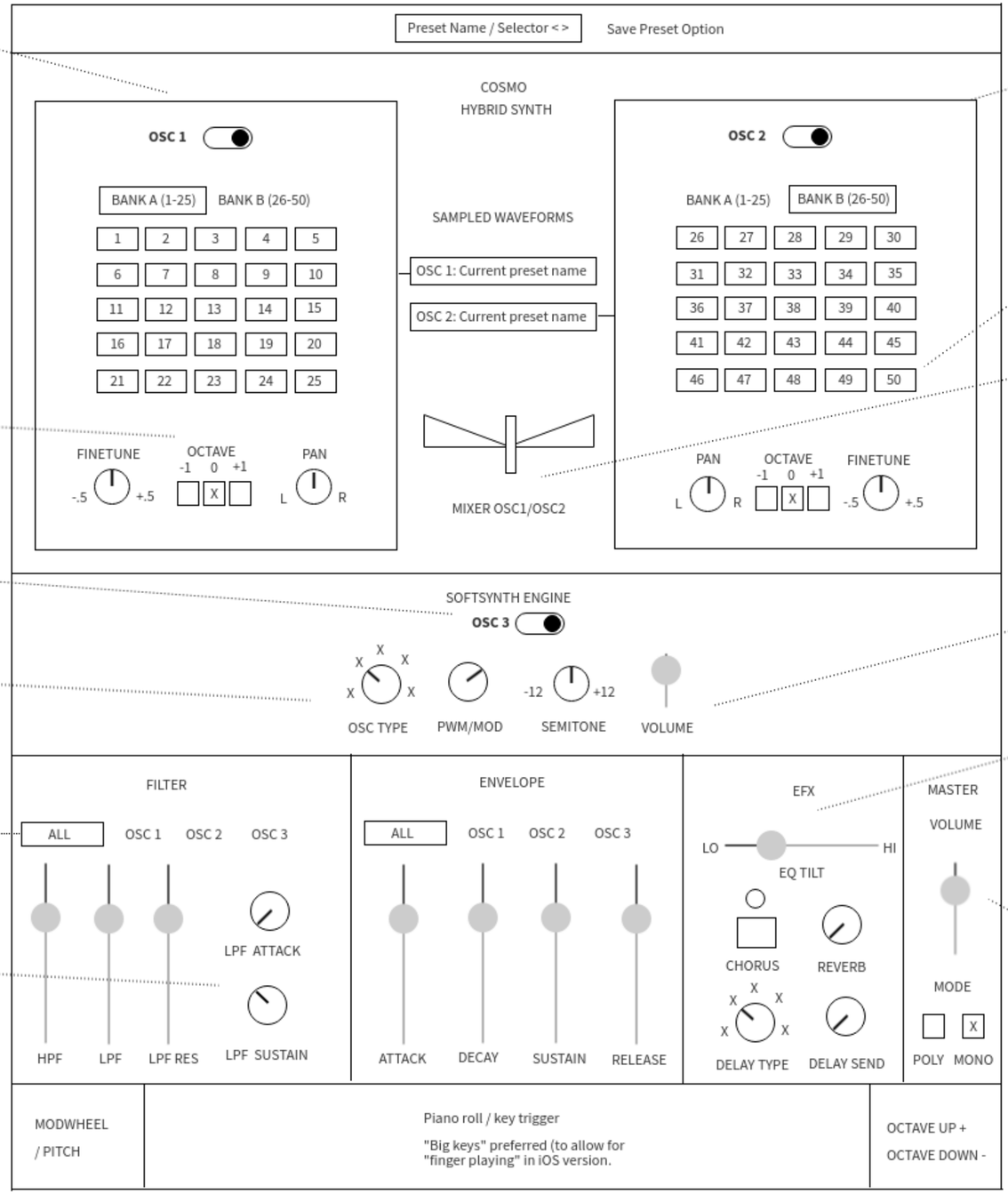
I'm looking for a framework that I can use for multiple products, where the samples and presets in OSC 1 and OSC 2 change, along with the GUI, but the rest of the architecture remains the same.

FUNCTIONALITY:

This instrument is essentially 50 multi-sampled presets/raw waves from a vintage synth. The presets/multisamples are loaded by selecting the buttons under OSC 1 and OSC 2. There are two banks available, each consisting of 25 sounds. Both OSCs have access to either of the two banks at the same time.

Two multi-sampled presets can be layered (OSC 1 + OSC 2) - and one additional Oscillator (OSC 3) can be added to the mix as well. OSC 3 is generated through the sampler's internal synth engine.

My hope is for the build to work as a DAW plugin and an iOS App without too much porting necessary. As such, the layout mimics the dimensions of an iPad, and there's a piano roll at the bottom of the GUI for triggering the notes automatically from within the app.



NOTE: Left and right OSC can be selected to play either "BANK A" or "BANK B". Program numbers below change accordingly.

NOTE: OPTIONAL. Sound 49 is sound effects from the synth and sound 50 are one shot drum hits from the synth's built in drum machine.

If possible, it would be great if selecting either sound 49 or 50 automatically killed the sound of the other oscillator. (This is because mixing drum / sfx sounds with synth sounds makes no sense. If this is a big thing to make, then don't worry about it and people can just shut off the other oscillator manually.

NOTE: Total output volume from OSC 1 + OSC 2 should always be consistent. This crossfader decides how much of that volume comes from which OSC. At middle position they share the output level 50/50. At full left or right position, the respective OSC has the entire output level. Moving the crossfader will allow the user to get the perfect blend between the OSCs, but not change the actual output level.

NOTE: Semitone removed for simplicity reasons.

NOTE: Looking for feedback on this feature from developer. (Need to find balance between simplicity and functionality.)

NOTE: At maximum volume the softsynth's output is equal to that of OSC 1 + OSC 2.

NOTE: I got rid of the fine tune feature here for simplicity. I still need to know what OSC types are possible with Hise (Saw, Sine, Square etc) and if there's a PWM function that can be controlled with just one knob (PWM/MOD).

EQ tilt controls a low shelf and a high shelf gain simultaneously. Moving left adds gain to low shelf EQ whilst reducing gain from the high shelf EQ - - and vice versa. High shelf set at 7500 hz and low shelf set at 220 hz.

Chorus inspired by Juno 106 with simple on/off.

Reverb is a simple one button send (let's work together on finding the best reverb to send to).

Delay is a selector between different types: 1/8 straight, 1/8 dotted. 1/4 straight, 1/16 straight and 1/32 straight. The send knob goes to a 50/50 at vertical position and a higher delay value beyond vertical (turning down the main volume to create a relative higher delay effect).

NOTE: Set to process all sound together as standard, but can be switched to process each OSC individually as well by clicking.

NOTE: I simplified the filter envelope to only give users control of attack and sustain. Decay and Release will be set to fixed parameters. (If I can play around with the sampler I can tell you what parameters I'd prefer these to be set to.

NOTE: Is it possible to have a gentle built in limiter (invisible) to allow the output to be somewhat consistent whether or not the softsynth OSC is engaged -- and to protect against clipping? Not a big problem if not, we just have to be mindful of levels generally.