Xoid

An XORing synth to make great digital sounds and noise!

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            ==== Diagram of the Xoid Voice ====

  ----------------------
 | Oscillator Section | --> envelope --> Gain --> AutoWah --> [output]
  ----------------------
          ^
          |
          |
      Vibrato


          ==== Diagram of the Oscillator Section ====

                      pair0
                     -------
      Osc 1 ---->   |       |              -------
                    | XOR   |    ---->     |       |
      Osc 2 ---->   |       |              |       |
                     -------               |       |
                                           | XOR   |    --->  [output]
                     -------               |       |
      Osc 3 ---->   |       |              |       |
                    | XOR   |    ---->     |       |
      Osc 4 ---->   |       |              -------
                     -------                combo
                      pair1
```
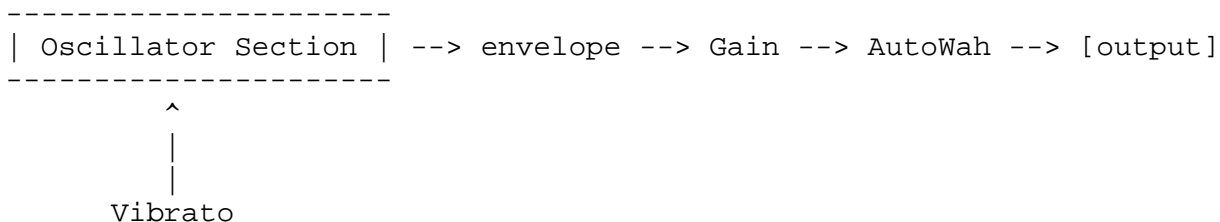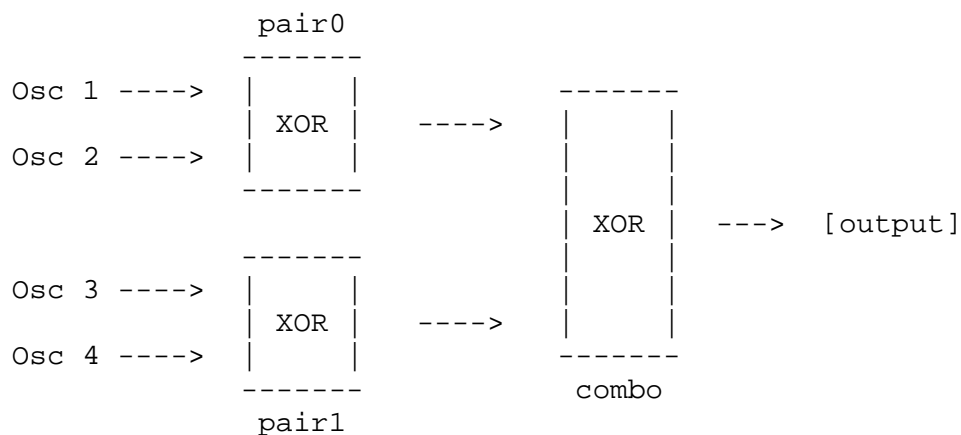
How to use:

-------- Presets --------

There are lots of way cool presets!

Load preset sounds by *double-tapping* the right button and then
pressing any "white" key.

Play with these presets, and you can make lots of great digital sound
and noise!

---- After loading a preset, you can mess with the sound! ----

Try *pressing* and *tap-pressing* the buttons and twiddling the pots, and
see what kind of crazy sounds and noise you can get!

If you want to get really good at Xoid, it takes practice.

Xoid has a lot of combinations. What follows is an explanation:

Each LED can be in one of 3 states : OFF - ON - BLINKING

The LEDs indicate what parameters the pots control:

Red LED	Blue LED	top POT	bot POT
OFF	OFF	combo XOR mix	combo freq ratio
ON	OFF	pair0 XOR mix	pair0 freq ratio
BLINK	OFF	pair1 XOR mix	pair1 freq ratio
OFF	ON	env ATTACK	env DECAY
ON	ON	env SUSTAIN	env RELEASE
BLINK	ON	vibrato FREQ	vibrato DEPTH
OFF	BLINK	autowah FREQ	autowah DEPTH
ON	BLINK	autowah ON/OFF	autowah CUTOFF
BLINK	BLINK	gain	portamento

To bump the Red LED state: *press* left button
To bump the Blue LED state: *press* right button

When the Blue LED is off the Red LED also indicates what happens when
you *tap-press* a button (a "tap-press" is a double tap with the 2nd tap
being of longer duration):

Red LED	Blue LED	.... *tap-press*: .... left BUTTON	right BUTTON
OFF	OFF	combo XOR on/off	bump combo freq spectrum
ON	OFF	pair0 XOR on/off	bump pair0 freq spectrum
BLINK	OFF	pair1 XOR on/off	bump pair1 freq spectrum

Note 1: Toggling an XOR function on and off dramatically effects
        the sound.
Note 2: Bumping the freq spectrum changes the frequency sweep for
        bottom pot.

For more info on XOR objects and their User Interface (U/I) see
example sketches numbered in the 40s.

To raise keyboard by an octave, *tap* right button once.
To lower keyboard by an octave, *tap* left button once.

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Types of button presses:

Tap: quickly tap a button
Press: long-press a button
Double-Tap: quickly double-tap a button
Tap-Press: think of this as a *Double-Tap* but with the second tap being of a longer
                 duration.