Intro to the Web Audio API

Kevin Heis

Web Audio API

- W3C-standard real-time audio API built directly into the browser playing, synthesizing, and analyzing audio for music, games, and other audio applications.

Web Audio API - WD

Global 77.89%

unprefixed: 65.3%

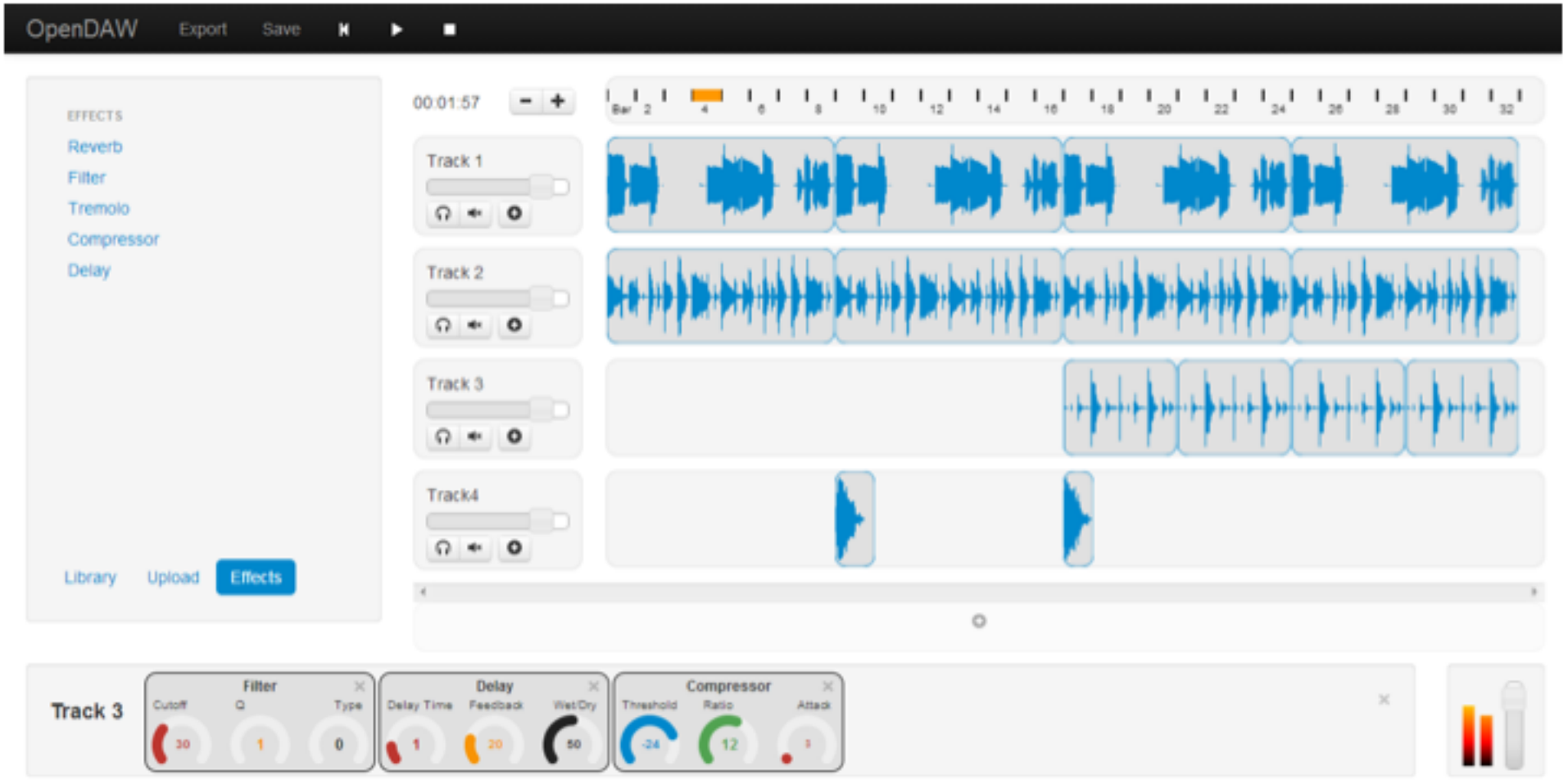
High-level JavaScript API for processing and synthesizing audio

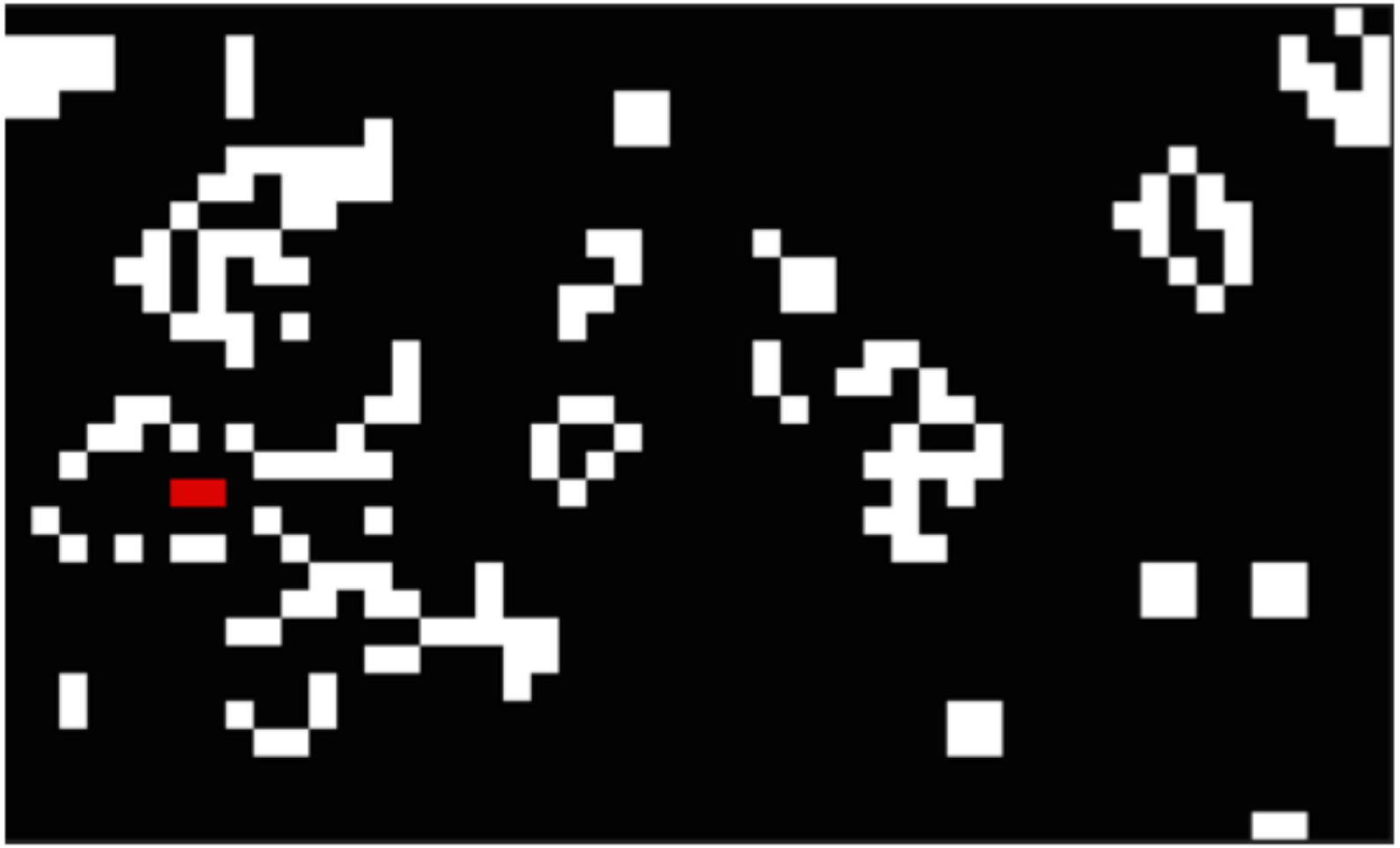
Current aligned | Usage relative | Date relative | Show all

IE	Edge *	Firefox	Chrome	Safari	Opera	iOS Safari *	Opera Mini *	Android Browser *	Chrome for Android
			49			9.3		4.4	
			55			10.2		4.4.4	
		51	56	10					
11	14	52	57	10.1	44	10.3	all	56	57
	15	53	58	TP	45				
		54	59		46				
		55	60						

History of Browser Audio

- Flash, Java, Proprietary Systems
- HTML5 <audio>
- Mozilla's Audio Data API (~2008-2012)
- Chrome's Web Audio API (~2010-2013)
- Standard Spec (~2014+)


OpenDAW
Export
Save
EFFECTS
Reverb
Filter
Tremolo
Compressor
Delay
Library
Upload
Effects
00:01:57
Track 1
Track 2
Track 3
Track4
Track 3
Filter
Cutoff
Q
Type
30
1
0
Delay
Delay Time
Feedback
Wet/Dry
1
20
50
Compressor
Threshold
Ratio
Attack
-24
12
3



http://www.cappel-nord.de/webaudio/conways-melodies/

Plan

- Play a sample
- Make a drum machine
- Play an oscillator
- Make a basic synth
- Make a track

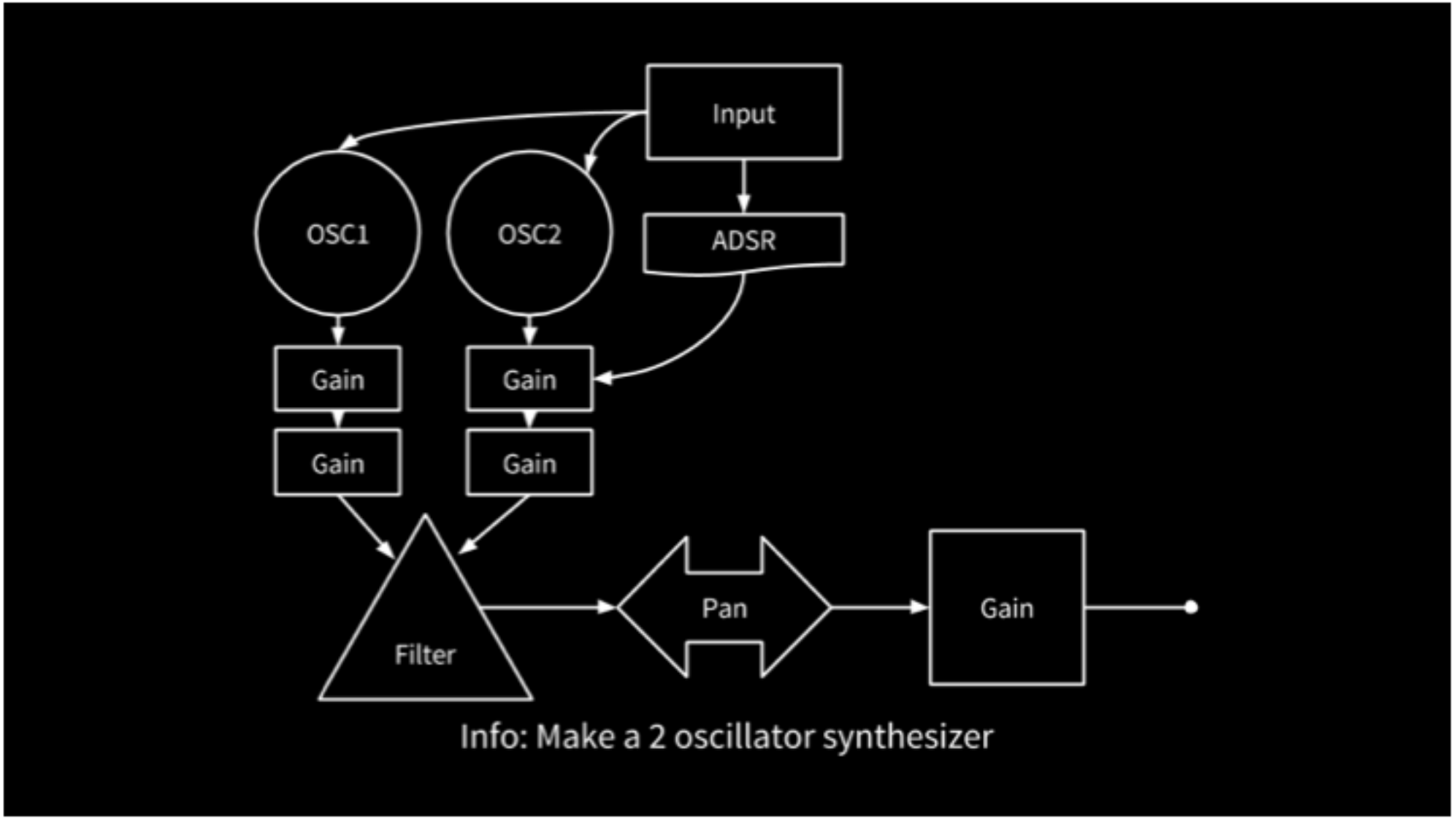
To Play a Sample

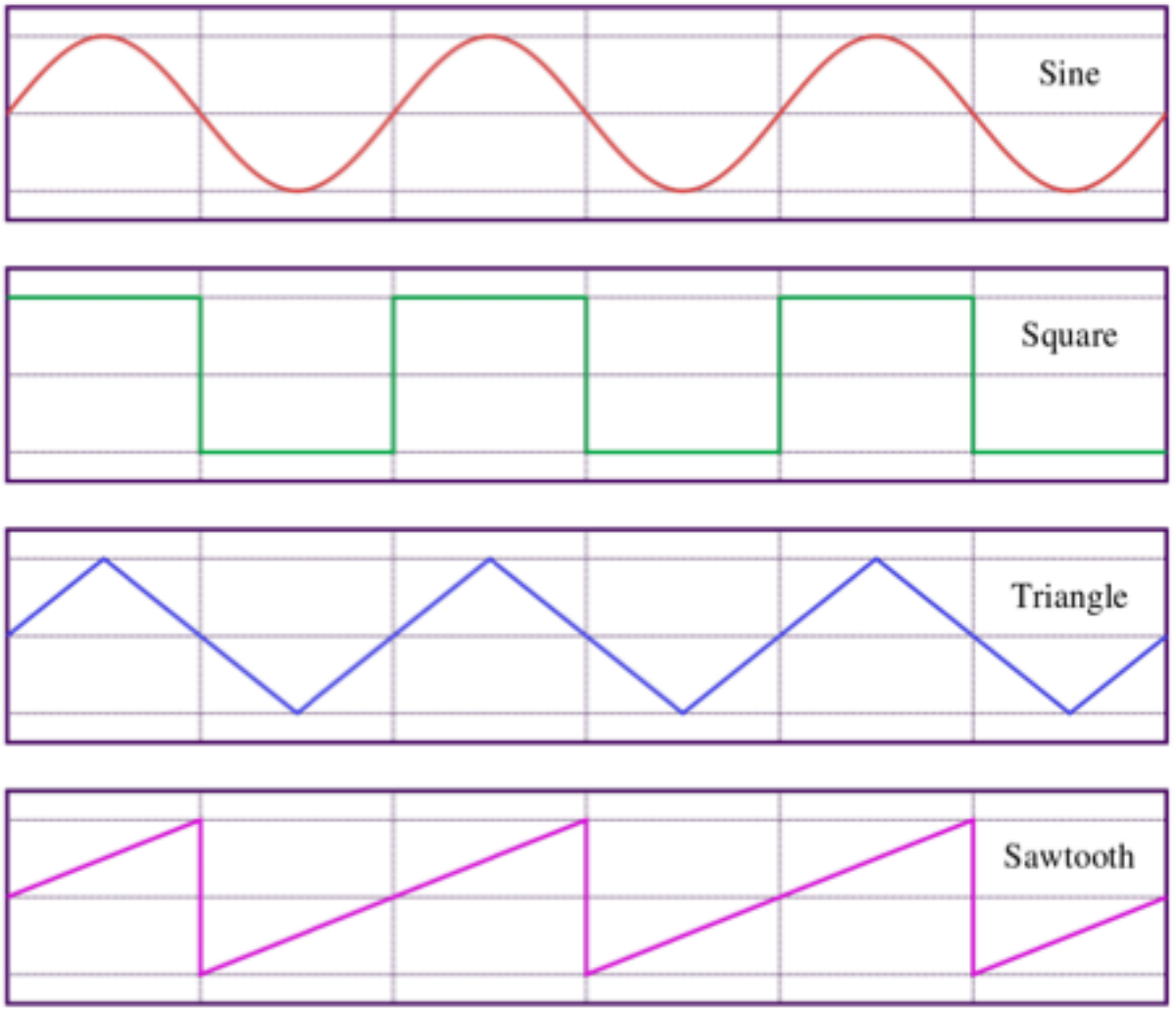
- Ajax
- Buffer
- Trigger

Make a Drum Machine

Basic Params of Sound

- Volume
- Pitch
- Duration
- Color
- Space

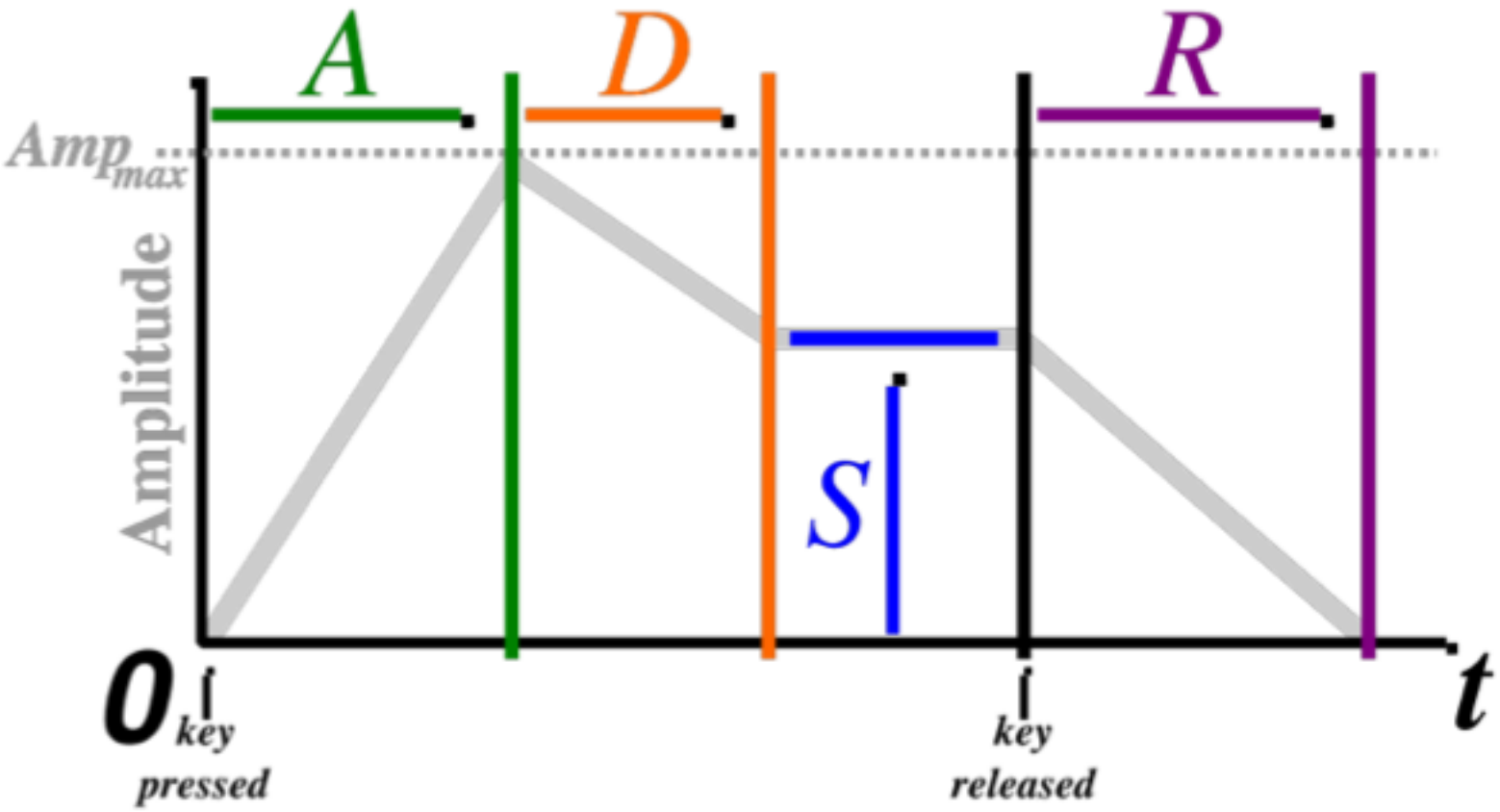

Input
OSC1
OSC2
ADSR
Gain
Gain
Gain
Gain
Filter
Pan
Gain
Info: Make a 2 oscillator synthesizer



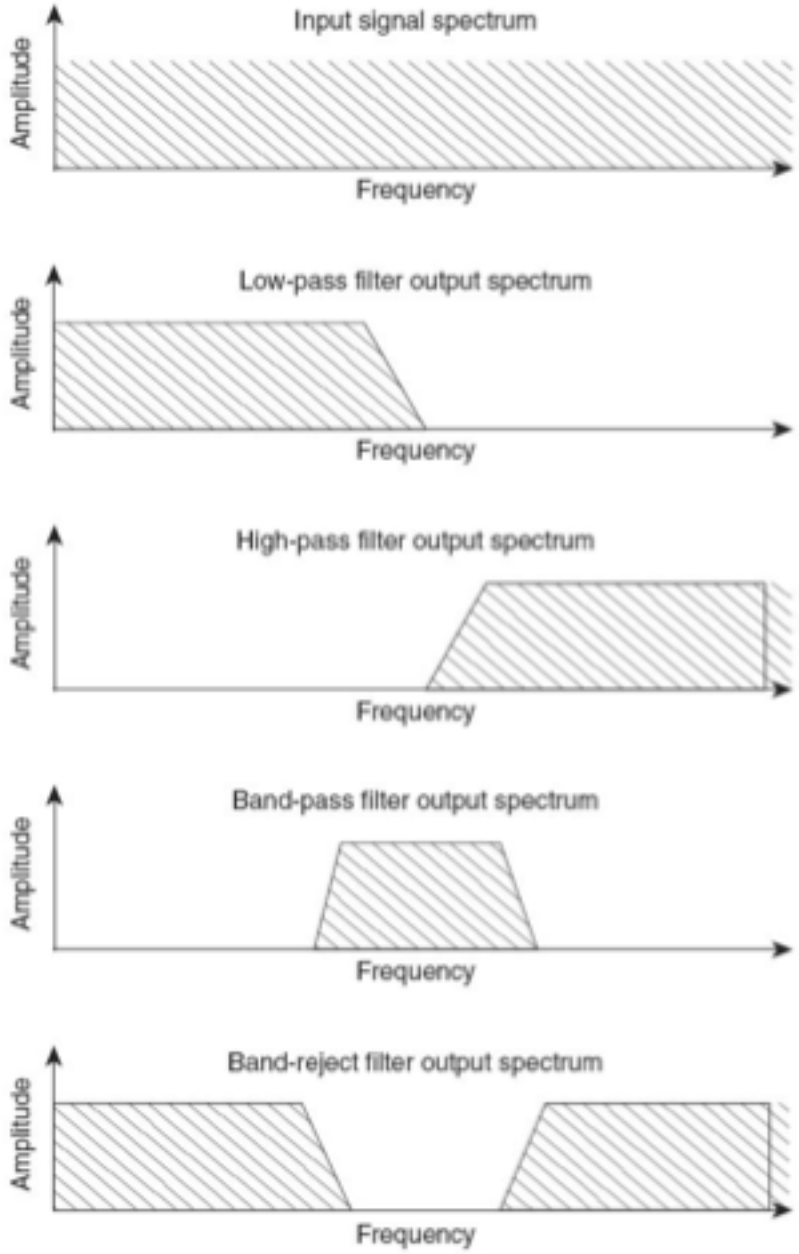
http://en.wikipedia.org/wiki/Non-sinusoidal_waveform

Gain

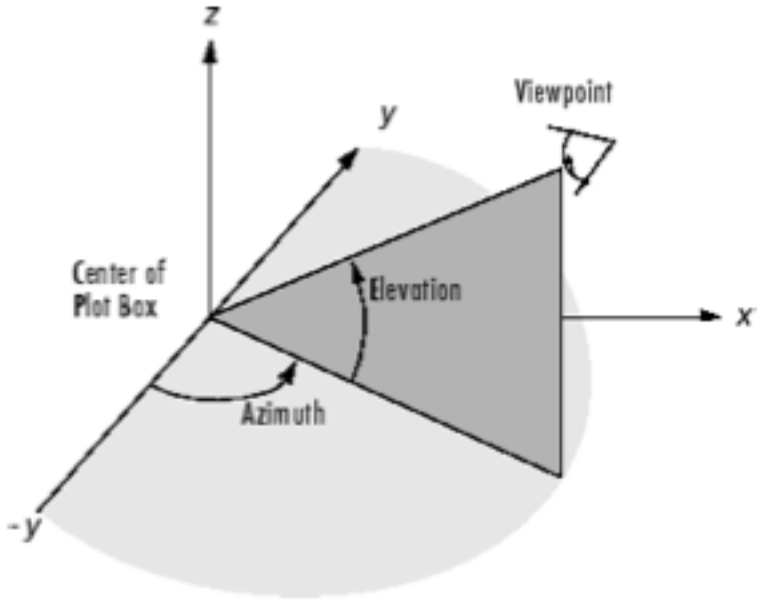
http://wallpaperstock.net/volume-knob-wallpapers_17585_1920x1440.jpg



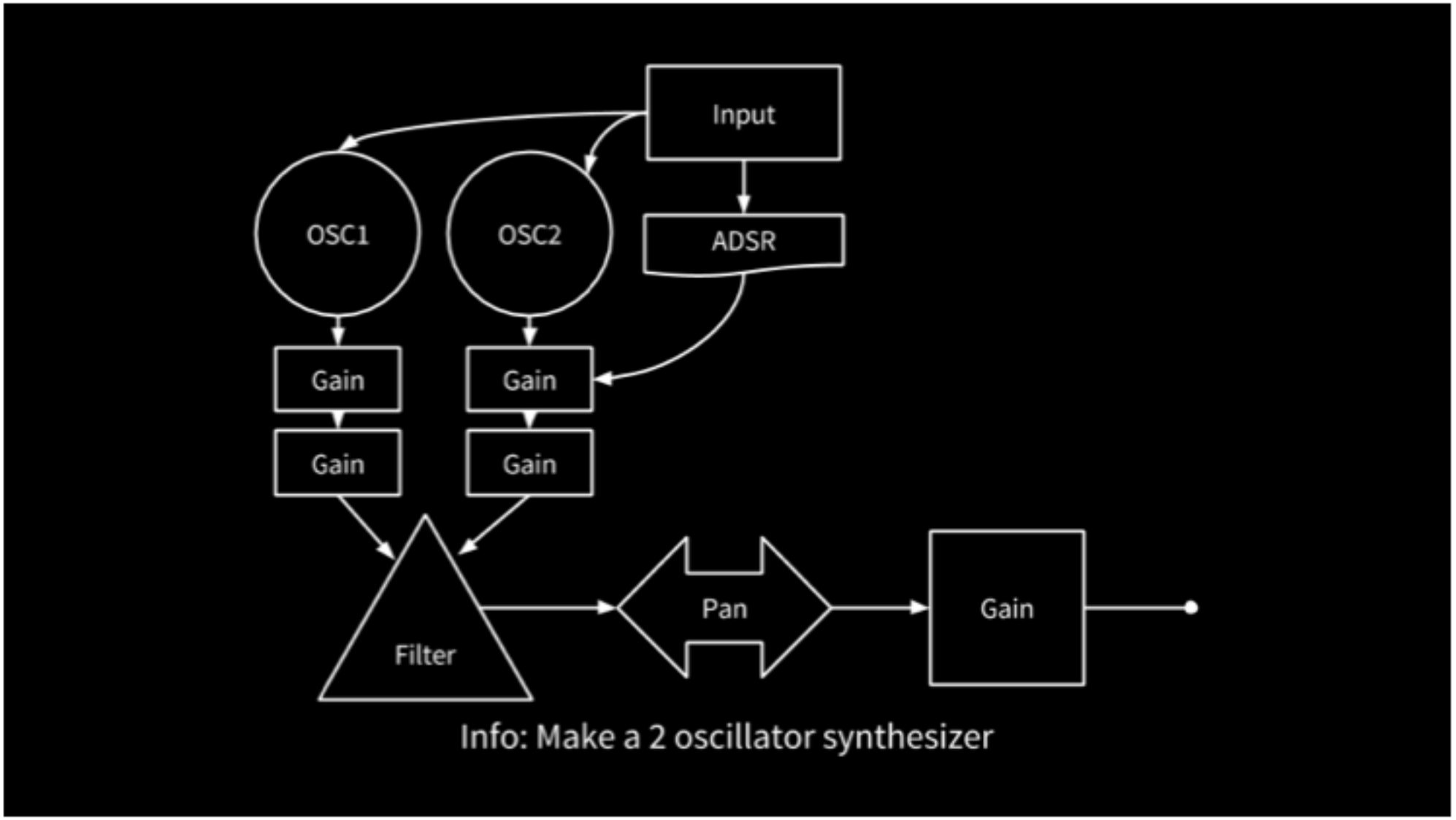
http://commons.wikimedia.org/wiki/File:ADSR_parameter.svg



http://www.embedded.com/print/4015871



http://148.204.81.206/matlab/visualize/chview3.gif


Input
OSC1
OSC2
ADSR
Gain
Gain
Gain
Gain
Filter
Pan
Gain
Info: Make a 2 oscillator synthesizer

Additional Ideas

- Adding effects: delay, reverb, distortion, compression
- Continuous Change and LFOs
- Audio Analysis
- MIDI
- Combine with other browser tech

https://developer.mozilla.org/en-US/docs/Web/API/Web_Audio_API

Thank you!