

INSTALLATION FOR MULTIPLE FOG HORNS

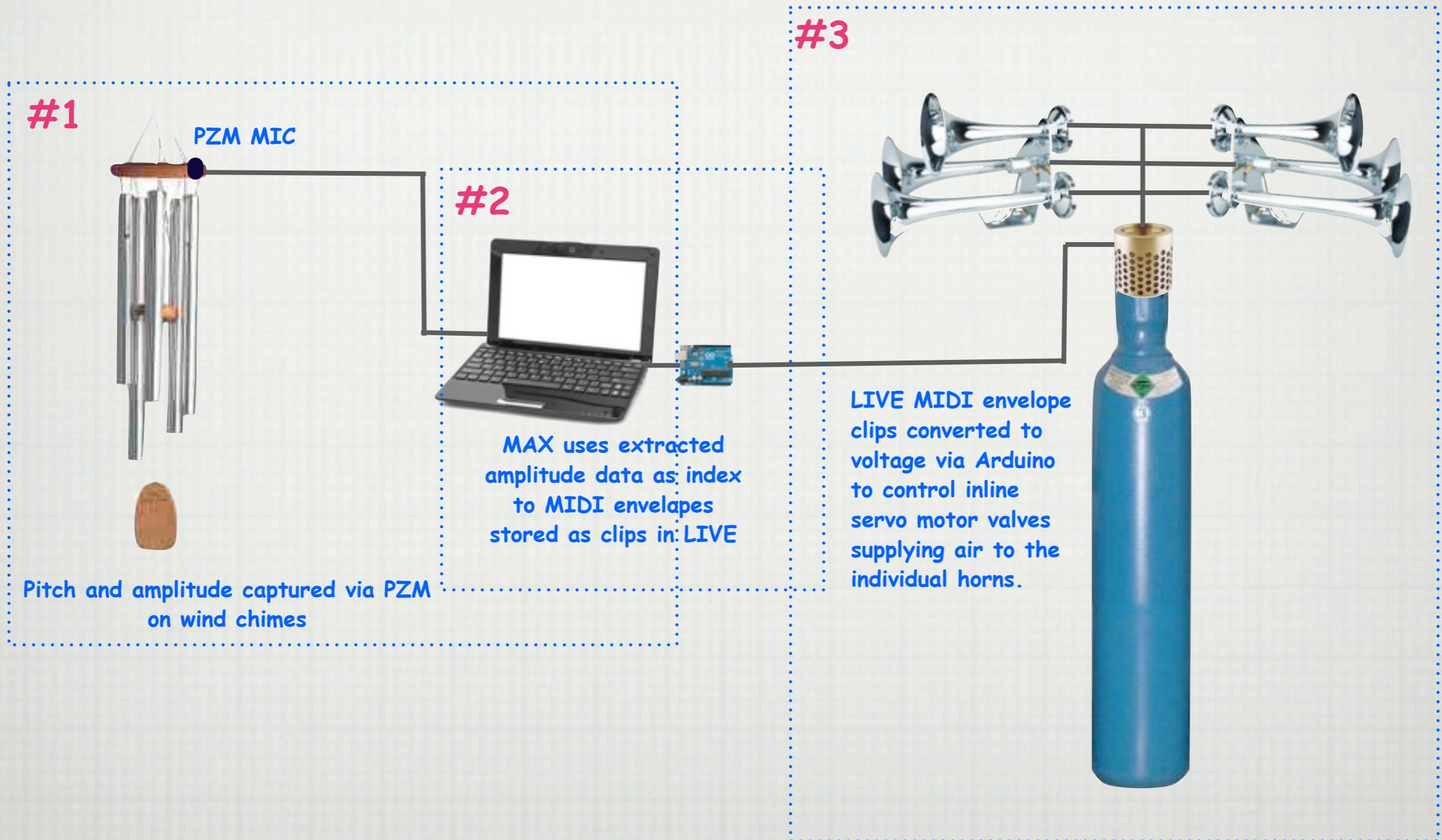


CONCEPT:

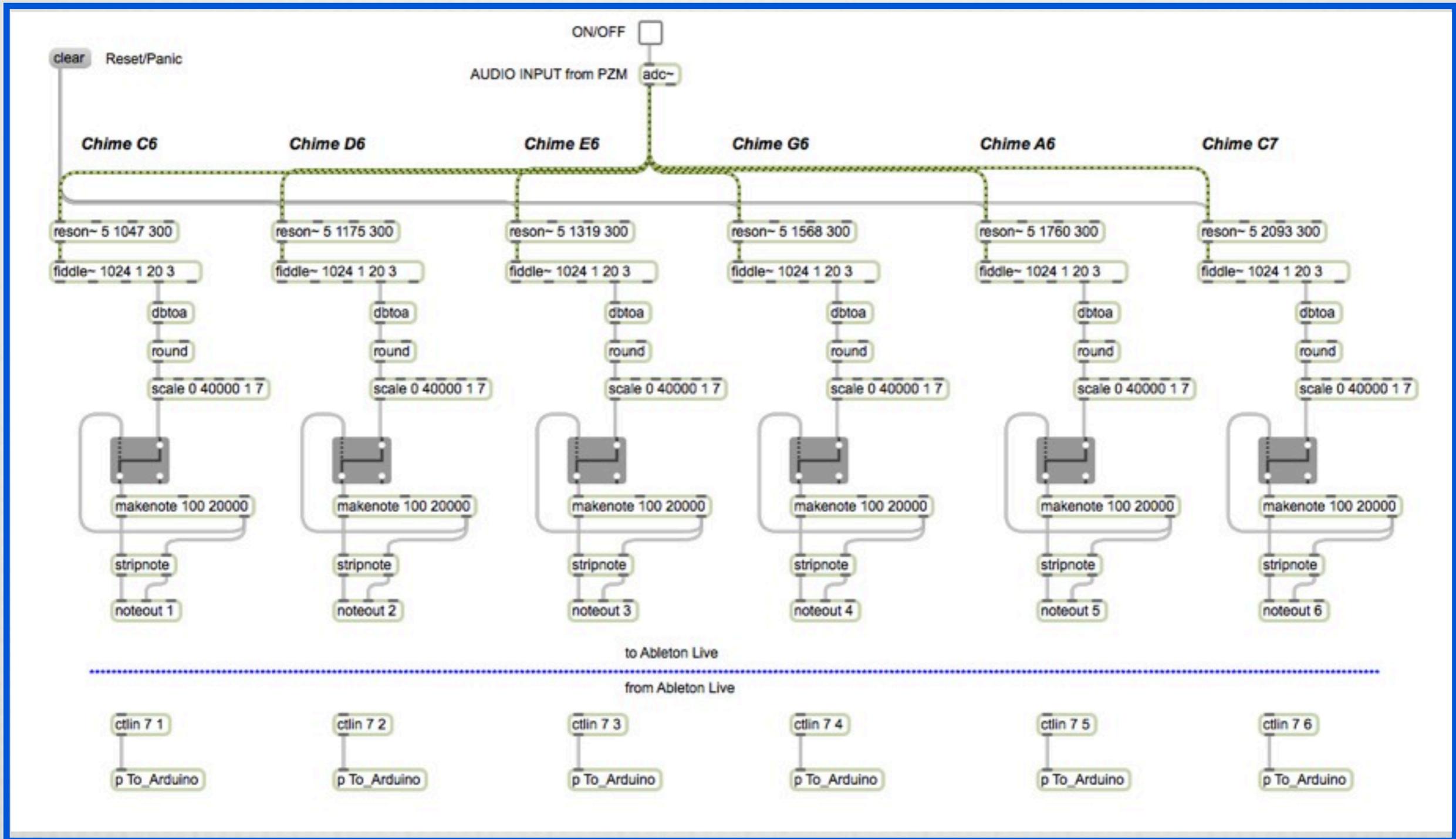
The Installation for Multiple Fog Horns is a large spatial sound design. The Installation consists of 30 distributed computer-controlled Fog Horns, and is designed for implementation on five islands off the coast of Bar Harbor on Mount Desert Island in Maine. The general circumference of the installation is approx. five miles in distance.

Conceptually, the installation is a large wind chime. The process is achieved by detecting the pitch and volume of acoustic wind chimes and then mapping the data to the distributed fog horns. The precise dynamic and rhythmic control of the fog horns is achieved with computer controlled amplitude envelopes applied to the fog horns via servo motor valves. The Installation is sustainable, using wind as its driver and complemented by the indigenous sonic signature of coastal Maine the fog horn.

OVERVIEW OF INSTALLATION DESIGN



PZM AUDIO AMPLITUDE EXTRACTION

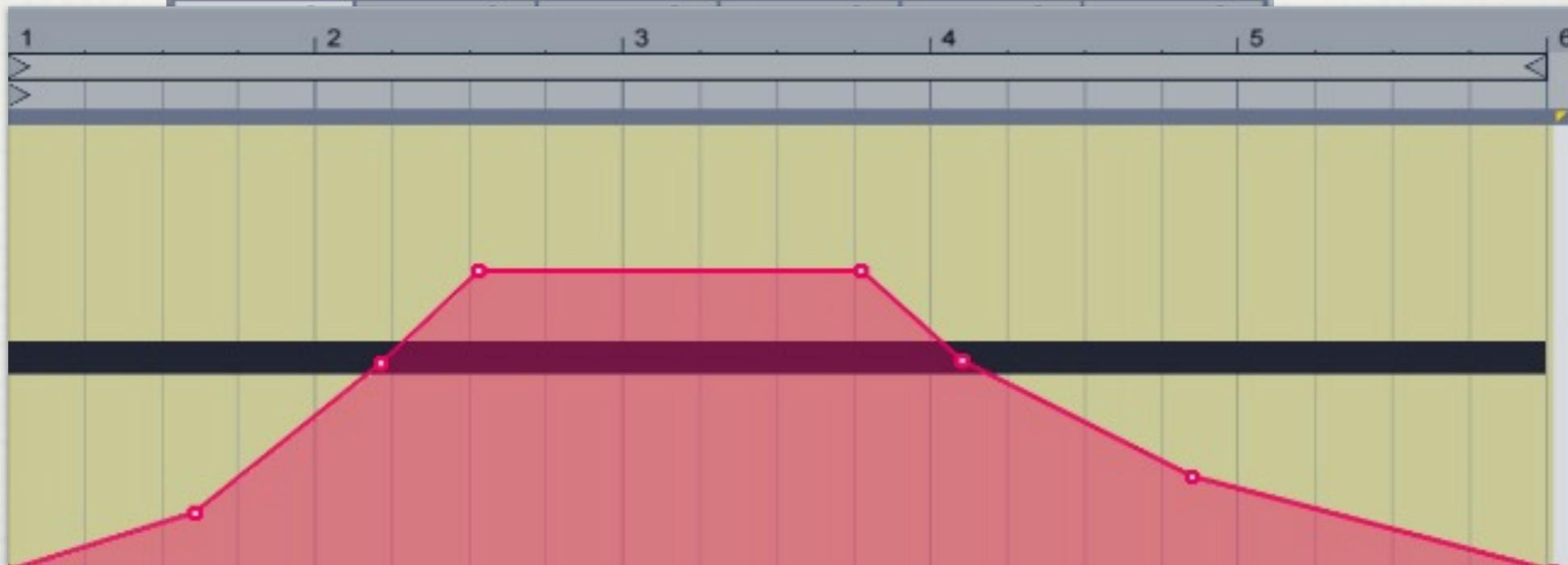


LIVE receives “envelope clip index value” from MAX derived from the pitch and volume of the chimes

envelope clips

Chime C6	Chime D6	Chime E6	Chime G6	Chime A6	Chime C7
▶ C envelope #1	▶ D envelope #1	▶ E envelope #1	▶ G envelope #1	▶ A envelope #1	▶ C envelope #1
▶ C envelope #2	▶ D envelope #2	▶ E envelope #2	▶ G envelope #2	▶ A envelope #2	▶ C envelope #2
▶ C envelope #3	▶ D envelope #3	▶ E envelope #3	▶ G envelope #3	▶ A envelope #3	▶ C envelope #3
▶ C envelope #4	▶ D envelope #4	▶ E envelope #4	▶ G envelope #4	▶ A envelope #4	▶ C envelope #4
▶ C envelope #5	▶ D envelope #5	▶ E envelope #5	▶ G envelope #5	▶ A envelope #5	▶ C envelope #5
▶ C envelope #6	▶ D envelope #6	▶ E envelope #6	▶ G envelope #6	▶ A envelope #6	▶ C envelope #6
▶ C envelope #7	▶ D envelope #7	▶ E envelope #7	▶ G envelope #7	▶ A envelope #7	▶ C envelope #7
<input type="checkbox"/>					
from Max 1					
Ch. 1	Ch. 2	Ch. 3	Ch. 4	Ch. 5	Ch. 6
In Auto Off					
to Max 1					
Ch. 1	Ch. 2	Ch. 3	Ch. 4	Ch. 5	Ch. 6

envelope example



MIDI envelope converted to voltage by the Arduino



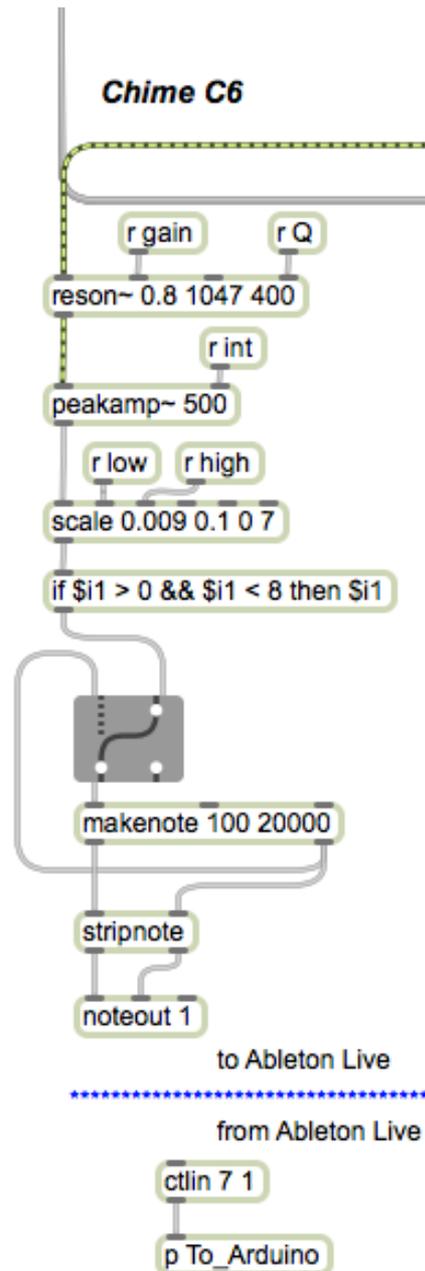
Voltage envelopes control servo valves and air delivery to the fog horns



INSTALLATION FOR MULTIPLE FOG HORNS



/Documentation



/Audio in from mic

/reson~ functions as a bandpass filter, theoretically letting only the C6 (1047Hz) pass due to the steep Q setting which controls filter roll-off

/detect amplitude peak of incoming audio every 500ms.....determines how 'hard' the chime was struck

/the amplitude range is scaled to 1-7.... The resulting number will be used as a 'note' number to index 7 preset envelopes in Ableton LIVE

/debounces numbers outside the acceptable range

/a number from 1-7 is used as a note number. The duration of 20000 MS was chosen as a suitable amount of time before allowing the makenote to be retriggered

/a noteon event between 1-7 is sent to Ableton Live to trigger a Clip containing a preset envelope. The number 1 represents a 'soft' envelope and 7 a 'loud' envelope.

/a stream of MIDI controller 7 values is returned from Ableton LIVE and sent to an Arduino to mechanically control the volume envelope of the fog horn.