**States of Difussion**

Is a sound installation diffused through loudspeakers installed in the space, and speakers on mobile devices held by visitors. Visitors influence the sonic experience for themselves and for others with their spatial distribution as they walk around the installation, as well as with through the motion of the device itself.

Sounds are distributed between the

**Visitor-oriented experience**

Visitors enter the installation area and hear the sound from the speakers and any other visitors already present. A poster on the wall has as its main feature, a QR code (and a website address) that are used to navigate to the project website. A brief word about the piece, the privacy policy, and artist bio are also on the poster.

Once the visitor has opened the website on the personal device, their device begins making sound that transforms them into part of the installation. Many of the sounds that emanate from their device can be influenced by how they hold it and the direction they are facing – a simple graphic is displayed that lets the visitors know they are connected and provides feedback about the two dimensions that influence the sound. (see Figure x). They walk around the room influencing the sound with their movement, and immersing themselves in the spatial sound field created by themselves and their coparticipants.

**Some example spatial/sound patterns:**

Tuning:

1. public speakers play a drone rich in harmonics,
2. Personal devices play individual harmonics, detuning slightly with device pitch.

Swing:

1. public speakers pass a "whump" back and forth
2. personal devices squeal (imagine a playground swing) at various phases of the cycle according to the pitch of the device

Cause & effect:

1. public speakers broadcast a sonic event (e.g. thunder)
2. personal devices respond (e.g. rain)

**Software Architecture**

A client/server architecture is used to support a "chat room" structure for the distribution of information from the "public" sound process to the connected personal devices. The server keeps track of state so that visitors can join in the sonic environment at any time, and informs the public process how many personal devices are participating at any given time (so that appropriate sonic behavior can be elicited from the devices).

All software is developed using HTML5 and JavaScript technologies (node.js, express, socketio for serv/client communication, and the Web Audio API for sound synthesis).

**Demonstration**

A facsimile of this installation piece can be experienced by navigating a PC browser to:

Animatedsoundworks.com:9000/decon.public.html

And then navigating a browser on a mobile device (or better yet, several devices) to:

Animatedsoundworks.com:9000/decon/personal.html

The system has been tested with up to 40 connected devices.

**Requirements:**

A sound-isolated area (preferably a room ~ 12m2), with muted lighting

2 or 4 high-quality powered speakers (e.g. Genelec 8040s)

Normal internet accessibility for visitors (a local network system could be provided by the artist if necessary),

Laptop to run the server and the "public" sonic component (provided by artist),

External sound "card" (eg MOTU) connecting computer to speakers (provided by artist)