The max patch *panner.maxpat* acts as the hub of the various sensor, audio and video components. It receives the distance measurements from the sonar sensors and calculates the person’s coordinates in the space. The sound follows them around, and the flocking words fly away from them.

The soundscape consists of a low rumbling drone that is fed constantly to all the channels in the installation. This provides a constant, unsettling ambience. On top of this, a granular synthesis vocal sample follows the listener as they move around the room. The grain location and duration are determined by the audience’s location. If the observer comes to stop, a merry whistling person passes them by. As they approach the projections on the walls, the words fly around to the opposite side of the room.

Using the distances received over serial connection from the Arduino sonar sensors, the javascript file *localizer.js* determines the observer’s exact location in the room. It does this by calculating the intersection of overlapping circles, centered at the sensors, whose radius is the respective distance from each sensor. The person’s angular position (with respect to the center of the room) determines the VBAP panning position of the granular voice, while the proximity to any speaker controls the volume. Pulkki’s VBAP external is used. The Cartesian coordinates of the person determine the central flocking point of the word cloud – the flock is sent to the exact opposite spot on the opposite wall.

Before the patch can be used, the position of the sensors (distance and angle) and the azimuths of the loudspeakers used must be specified by sending configuration messages to localizer.js and the VBAP panner respectively. Additionally, a pictslider (i.e. x,y slider) can be used for testing the location detection and VBAP panner without physical sensors.

***Dependencies/externals:***

vbap ([www.maxobjects.com/?v=objects&id\_objet=1197&requested=vbap&operateur=AND&id\_plateforme=0&id\_format=0](http://www.maxobjects.com/?v=objects&id_objet=1197&requested=vbap&operateur=AND&id_plateforme=0&id_format=0))

jit.boids3d ([www.maxobjects.com/?v=objects&id\_objet=3979&requested=boids3d&operateur=AND&id\_plateforme=0&id\_format=0](http://www.maxobjects.com/?v=objects&id_objet=3979&requested=boids3d&operateur=AND&id_plateforme=0&id_format=0))

localizer.js