Hearing Sirens

Cathy van Eck
Orpheus Institute Gent / University of Leiden
Fehrbelliner Straße 95
10119 Berlin Germany
0049 30 4483223
cathy@cathyvaneck.net

ABSTRACT
In this paper, I give a short description of Hearing Sirens – a project for mp3-players with portable hornloudspeakers.

Keywords
Mp3-players, hornloudspeakers, sirens, mobile music, wearable sound..

1. Introduction: Reversing the Philosophy of Headphones
A usual fashion to hear music nowadays is through headphones. The mp3-player made more music transportable than ever before and streets and public spaces are crowded nowadays with people, living in their own acoustic world. My project is about reversing this situation. Using the same mp3-players, this time it is not for creating private music, but the music coming out of the mp3-players is sent to two big portable horn-loudspeakers, radiating the sound to the environment. The sound coming out of the hornloudspeakers reveals by the reflections it causes the acoustical qualities of the environment.

2. The Acoustic and Visual Design: Greek Siren and Emergency Siren
The project **Hearing Sirens** is based on two of the applications of the word siren. The siren is both a mythological woman, having the body of a bird and the head of a woman as a noise maker, used to warn in emergency cases. The sirens as bird-women were known in Antiquity for their beautyful singing. It was unable to resist them and most of the men who heard them did not survive. The siren as a noisemaker is used to warn people for emergency cases and can therefore be seen as a survival tool. It uses a rotating disk with holes, to create its characteristic sound. I used both as an acoustic, visual and conceptual starting-point for the project **Hearing Sirens**.

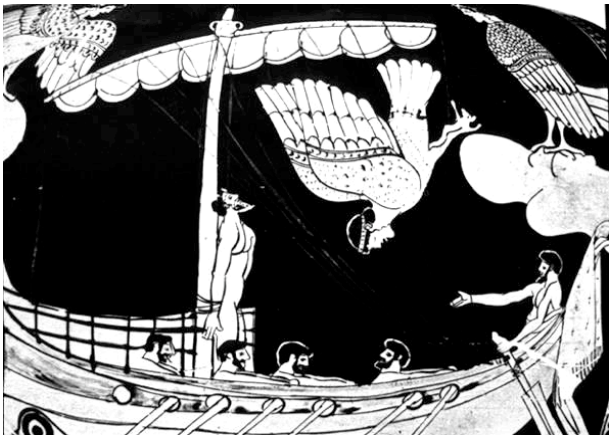

Figure 1. Attic red figure vase depicting sirens (450 BC, the scenery is from the Odyssey).

Figure 2. A siren as an outdoor warning noise-maker.

3. Construction
The portable hornloudspeakers consist of a small mp3 player, a box with an amplifier and battery, and two loudspeakers in two big yellow horns (painted cardboard). The horns are quite light and everything together is not heavier than a normal backpack. The construction is made to be worn on the bacj of a dancer or performer.

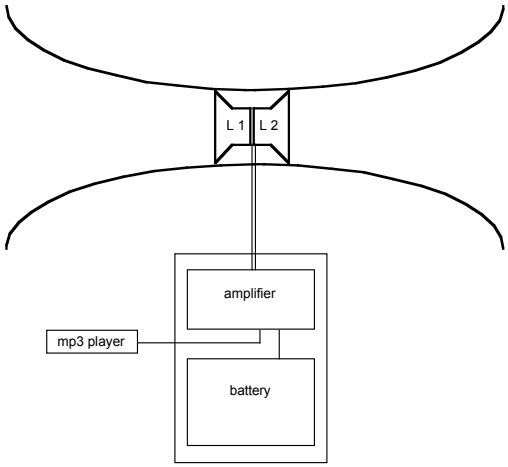

Figure 3. Building scheme of the portable hornloudspeakers.

Figure 4. A *Hearing Sirens* performance in Amsterdam, May 2007.

4. Acoustical Characteristics

The specific construction of the horns and the fact that they are portable give them special acoustic possibilities. First of all the sound source can be taken anywhere, since the construction does not need any additional power. Also, due to the big horns, the sound is diffused very directional. Therefore the audience often hears the early reflections before the direct sound. In this way, the hornloudspeakers reveals the acoustical characteristics of the environment. By a small movement of the dancer / performer, the pattern of the reflections can change enormously. The sounds diffused by the sirens are made with physical models of a siren programmed in Max/MSP.

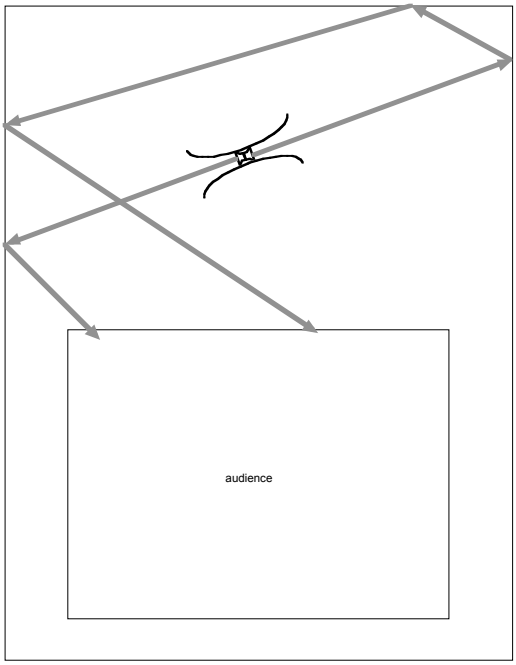

Figure 5. These are the directions of the signals out of both hornloudspeakers and the reflections they make before they reach the audience (this reproduction of the acoustical signals is of course very simplified compared to what happens in reality).

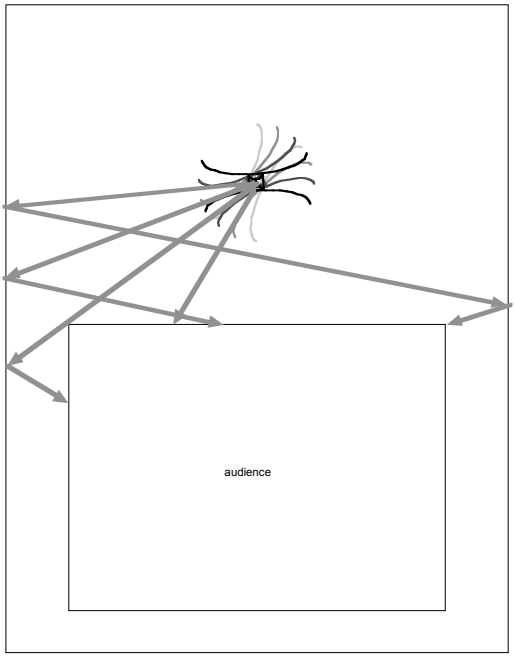

Figure 6. The effect of a small movement made by the dancer wearing horn-loudspeakers: while the dancer just turns a little bit, the audience will perceive big changes in sound movement (a signal of just one hornloudspeaker is displayed).