

# *Hearing Blind* as a New Interface for Exploring the Urban Soundscape

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## **Abstract**

Using the smartphone-based application *Hearing Blind* as a case study, this paper explores ways in which listeners can explore sound-based archives and mapped constructs in a physically-present and dynamic way. This move toward a geolocated data presentation interface represents a dynamic shift in how curators, artists, and the general public can engage with the intangible cultural heritage of the constantly evolving sound environment. This paper puts forward a series of recommendations surrounding the use of new media technologies in the appreciation and understanding of documenting the ephemeral experience of the everyday soundscape.

## **The *Hearing Blind* Project**

Over the past two decades, there has been a shift toward recognizing sounding spaces, aural archives, and sound-based mappings as important objects in the study of (often intangible) cultural heritage. The *Hearing Blind* project utilizes soundwalking and directed listening methods developed by acoustic ecologists and the World Soundscape Project to generate a unique interface for creating, managing, and exploring sound-based mappings. [1, 2] This interface allows for listeners to actively participate in their exploration of the archive or mapping, responding to issues raised by Bijsterveld surrounding the intangibility of accessing urban audio documents in the real world. [3] The *Hearing Blind* project makes the intangible tangible, creating an interface where listeners are able to move through translated aural mappings that overlay relative Global Positioning Satellite (GPS) coordinates of a mapped space onto the one they are physically exploring.

Virtual maps contain the potential for embodied, interactive forms of representation that can be experienced by a wide range of user groups – including the visually impaired. This paper examines how sound-based mapping strategies destabilize the notion that maps are inherently visual media. We use a case study of the *Hearing Blind* project to explore the ability of mobile media technologies to promote aural accessibility – this is done using a research-creation approach to integrate audio, GPS-based locativity, sensor-based networks, and smartphone applications. The key questions that drive this project are: how do soundmaps encourage direct, physically-present relationships between real physical space and virtual mapped space, and how can these

relationships challenge normative assumptions about maps and mapping?

Soundmaps are extensions of the critical cartographic concept of “mapping.” According to Kitchin et al, a “mapping” is a processual document that embodies the fluid nature of physical space. [4] They posit that assumptions surrounding the map as a fixed document fail to take into account the complex social, political, and technical elements that shape cultural perceptions of space. Locative (or GPS-based) soundmapping allows individuals, researchers, and scholars to engage with space in a dynamic way, generating dialogues about concepts of noise, quality of life, and the navigation of the everyday. [5, 6] These are all aspects that encourage further exploration within the framing of sonic documents as cultural heritage. In this paper, these conversations find new resonance through practical application in research-creation, particularly in the construction of augmented reality and immersive smartphone applications that represent the diversity of urban experience.

This paper examines the *Hearing Blind* application as a case study for examining both urban sounds as cultural objects and the process of creating new media interfaces for their exploration and archiving. This is a way of experiencing our past through the present. By reframing the experience of the mapped soundscape in the real world (shifting away from traditional individuated mobile listening practices), or the romantic idea of the scholar or adventurer spending countless hours poring over sheets of maps, flipping pages of an atlas in an opulent library map room, the *Hearing Blind* project turns the exploration of the mapping, and the construction of the mapping itself into a social and physically-active process. [7, 8]

*Hearing Blind* has been specifically built for networked mobile devices to take advantage of the accessibility of GPS information. The first iteration has been built for the Android platform, but the ideal version would be platform agnostic, as the most important aspect of the form function (mobile) is having access to Google Location Services (or a similar service in the future), which is available on all major mobile platforms. The significance of using GPS is that we can then introduce the user’s latitude and longitude as variables in the software, which is fundamental in creating a dynamic, listener-controlled soundscape/soundwalking experience.

While similar geolocative audio apps exist (*Recho*, *Echoes*, *SonicMaps*), what sets *Hearing Blind* apart is the ability to listen to a mapping of one area in a completely different location. [9, 10, 11] By treating latitude and longitude as user-defined variables allows the application to calculate the relative distance between the listener's location (translated from their actual location to their starting location on the soundmap they have chosen) and the recording points of archived *Hearing Blind* maps, which in turn allows us to mimic the relative volumes they would experience through real-life movement across the mapped space(s). However, we have discovered that the richest listening experiences occur when the user is consistently immersed in sound, so the 'true' acoustics of the mapped space has been modified slightly for the aesthetic experience of the project (otherwise there could be moments of little or no mapped sound coming from the listener's headphones). The most significant aspect that the *Hearing Blind* project brings to the study of mapped or archived soundspaces is that the listener will experience a change in the re-presented sonic environment as they move through space. However, the user has control over the rate of this change, as the application allows listeners to scale the relative distance of the recording points. Thus, it becomes possible to scale the sounds of an entire city down to the walking distance of only a few blocks.

Another very significant aspect of the design of *Hearing Blind* is that all recordings are playing at all times. This, like the latitude and longitude variables, is a simple process that has a profound impact on the listener-end result of the experience. Since the recordings are not necessarily the same length, their starting points will only sync up the first play-through of each recording. As such, any particular sonic moment is nearly impossible to replicate. One cannot simply stop moving and expect the recordings to repeat. This provides the listener with a rich listening experience, and one that mimics a traditional sound walk very closely. On the other hand, since users cannot precisely "sync-up" their start times on the program, when a *Hearing Blind* walk is performed by a group, there is no reason to think that another person is even hearing the same point in each discrete recording, let alone within the overall mapped sonic environment.

In early tests of the *Hearing Blind* application, the similarities to and distinctions from traditional soundwalking methods and practices have turned out to be quite important. In a traditional soundwalk, the experience of the sonic environment is a shared one. However, in collective *Hearing Blind* walks, the mapped points exist as reference points within a semi-shared experience, but the resulting sonic moment is not really a shared experience. As beta-testing listeners walked through the mapped environment, there were moments when listeners would look over at the other as if to say, "Hey did you hear THAT?" But of course then realized that there was no way the other person could have heard that exact same synchronization of locative space and pre-recorded sound.

Through an examination of the *Hearing Blind* project, this paper deconstructs assumptions surrounding how and why sound-based mappings and archives *should* work, using a combination of acoustic ecology and soundwalking methods to reconstruct the mapping interface as a fluid and dynamic form. This is a new media interface that allows soundscape listeners and new media users alike to explore archived and documented sounding spaces in elegant and transparent ways -- creating a listening experience that simply could not exist otherwise. The focus, as with traditional soundwalking, remains focused on developing a relationship to the aural environment by attending to both cultural heritage and archival perspectives through the dedicated act of listening. By placing the past within the present, *Hearing Blind* allows listeners to experience recordings in a continually reinvented way, using their own movement as the variable that controls the sonic relationships and development of the listening experience as a whole. To replace previous static mapping interfaces with a dynamic one fundamentally changes how these media artifacts function.

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