

The Belfast Soundwalks Project: A Locative Smartphone App

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ABSTRACT

This paper outlines the ongoing development of a locative smartphone app for iPhone and Android phones entitled The Belfast Soundwalks Project. Drawing upon and evolving a method known as soundwalking, the aim of this app is to engage the public in sonic art through the creation of up to ten soundwalks within the city of Belfast. This paper discusses the use of GPS enabled mobile devices in the creation of soundwalks in other cities. The development of the app and the app interface are also discussed.

Categories and Subject Descriptors

J.5. [Computer Applications, Arts and Humanities]: *Music*

General Terms

Design

Keywords

Locative, Smartphone App, Soundwalking, Sonic Art

1. INTRODUCTION

The practice of soundwalking has existed since the 1970's. Originally devised by R. Murray Schafer during the World Soundscape Project, a soundwalk is described as 'any excursion whose main purpose is listening to the environment. It is exposing our ears to every sound around us no matter where we are...wherever we go we will give our ears priority' [7]. Hildegard further describes soundwalking as 'an exploration of our ear/environment relationship, unmediated by microphones, headphones and recording equipment. It is an exploration of what the 'naked ear' hears and how we relate and react to it'. These descriptions highlight that the original purpose of undertaking a soundwalk was to listen to the environment around us without technological intervention. In the 40 or so years since the practice was devised, evolution has inevitably taken place. Though many people still carry out soundwalks under the original ethos, such as

urban planners, others have used it to inspire their own artistic practice. McCartney informs us that a soundwalk 'can be recorded or not. It can be re-situated in the same location, or translated into other media forms with little or a great deal of sound processing' [4]. It is with this evolution in soundwalking that the Belfast Soundwalks project can be situated.

The Belfast Soundwalks project has been created by researchers at the Sonic Arts Research Centre (SARC) at Queen's University Belfast, in collaboration with Belfast City Council. Through the development of a locative smartphone app, the project aims to engage the public through sonic art. Targeting both tourists and citizens of the city, this project seeks to sonically enhance the experience of a number of areas of the city, including destinations that may not traditionally be accessed as attractions by visitors and/or disregarded or undervalued by local residents. The project brings together a number of sonic artists/composers from SARC who, at the time of writing, will create approximately ten soundwalks within and around the city. Using GPS technology, the app tracks the user's location within the city to present unique listening experiences associated with key places. These listening experiences may consist of sound materials ranging from speech and environmental sound to abstract imagined sound worlds.

2. SOUNDWALKING AND MOBILE DEVICES

One of the key differences between the Belfast Soundwalks project and soundwalking in its original form is that pre-composed audio is presented to the user on a mobile device and listened to through headphones. The user does not listen to the environment in which they are in, though depending on the type of headphones that are connected to the mobile device, sound from the surrounding environment will be heard to varying degrees. This is not a novel idea however, as GPS enabled mobile devices have been used for a number of years to create numerous projects described as 'mediascapes', and soundwalks have been created in other cities around the world. The user experience of a mediascape is described as 'walking through the physical world and triggering digital media which has been situated in that place for a particular reason by the mediascape designer' [6]. Only by physically walking through the environment with a GPS enabled device can the digital content be accessed. This digital content may consist of one or all of images, text, audio and video. With reference to existing soundwalks, sonic artist David Drury created 'Hearing There', an interactive soundwalk along a stretch of Boulevard St. Laurent in Montréal. Using a PDA he explains that as the user walks along the street 'the sound they are hearing at any given moment is a binaural recording of the interior space

closest to where they are standing' [1]. Also based in Montréal, the 'Audiotopie' iPhone app is described as 'audioguided stories oscillating between reality and fiction'¹. Finally, in 2011 The University of Manchester created a number of compositions and soundwalks around Manchester City Centre for a project entitled 'Manchester's Sonic Meta-Ontology Project'. These walks were labeled as 'augmented aural city trips' [8] and could be experienced during the annual MANTIS festival.

Three other projects are now briefly discussed that further demonstrate the presentation of audio content through mobile devices. Although they cannot directly be compared to the notion of a soundwalk as employed in the Belfast Soundwalks app and the previous examples of other soundwalk projects, parallels can be drawn. The [murmur] project, based in Canada, is described as a 'documentary oral history project' [9], in which 'stories and memories' are recorded from local people who live or have had some sort of experience in a specific location. Pope tells us that these locations or stories are usually unknown or 'often overlooked in officially sanctioned histories' [5] of the city. The creators of the project tell us that they are interested in 'the intimate, neighbourhood-level voices that tell the day-to-day stories that make up a city' [9]. This narrative is presented to the user through a mobile phone and is accessed by telephoning a number provided on a street sign located in the spot of interest. The user can stand still in the spot to listen to the audio, though sometimes the stories suggest that the listener should 'walk around, following a certain path through a place, while others allow a person to wander with both their feet and their gaze'. 'The Frome Maidens' by Hoyte, Yeats and Phelps is described as a 'GPS-triggered music/poetryscape' [10] or 'a unique word-music fusion' situated along the River Frome. The resulting symphony that is heard by each user is wholly dependent on the users 'own completely unique pathway through the virtual soundscape'. The creators are now exploring the possibility of a sharing mode, in which individuals can record the experience they are having and then share this with other people. Finally, 'Sonic City' used walking as a creative process to write music. Gaye described the project as enabling users 'to create electronic music in real time by walking through and interacting with the urban environment' [2]. Akin with all types of soundwalking, the project was described as promoting 'musical creativity integrated into everyday life, familiar places and natural behaviours'. Music, or a 'personal soundscape', was created through a 'wearable system' that sensed 'environmental context and user actions in real time, and mapped it to the live audio processing of urban sounds' [3]. Unlike all of the projects previously discussed, Sonic City did not present precomposed audio content that related to the city in terms of a narrative or its history, culture or the environment. Instead, a unique soundtrack was created by physically walking through and interacting with the city. Light levels, proximity to objects such as metal, temperature and the users heart rate, to name several of the many parameters monitored, were detected through numerous sensors and used to manipulate urban sounds that could be heard through headphones. Gaye states that 'context and user action are mapped to sound processing parameters and turn live concrete sounds into music' [2]. As users of the system traveled through the city and became aware of the impact of each sensor element on the music they were hearing, paths normally trodden were changed and adapted so as to control the music. Gaye states that it was important for

the mapping of the parameters to be 'transparent' enough for the user to understand how they could influence the sound, but 'complex enough to sustain interest if the system were to be used day after day' [2]. A downside to this system is the requirement for the user to be connected to numerous sensors in order to have the experience, which may lead to a dip in enthusiasm after this has been carried out a few times. Whilst the Belfast Soundwalks app and others like it are much less cumbersome in that they only require a mobile device and a pair of headphones for the user to experience it, 'Sonic City' may have been experienced on many more occasions by a single user because of the changeability of the sounds heard every time.

3. BELFAST SOUNDWALKS VERSUS BELFAST ITOURS

Whilst Belfast City Council promotes a pre-existing audiotour of Belfast, the Belfast Soundwalks project is unique to this city in terms of the technology that it employs and the content which is presented to the user. 'Belfast iTours' are self-guided tours of the city that resemble the manual audioguide systems found in museums around the world. Equipped with a map and a mobile device containing audio files consisting of music and narrative describing the history, culture or stories associated with the area, the user travels a predetermined route through the city and selects the relevant audio track on arrival at a specified point. As with the [murmur] project discussed previously, the Belfast Soundwalks app cannot be likened to an audiotour, as the traditional tourguide narrative of the city cannot be heard. Whilst a narrative, commentary or interviews with people can be heard in some of the soundwalks, the predominant sounds heard are sounds from the environment in which the soundwalk is situated, both in their natural form and/or processed in some way. As with the [murmur] project, the soundwalks do not follow the traditional tourist route, though unsurprisingly they do overlap at points. Whilst it is true that the soundwalks can take their inspiration from the city's history and culture, more often than not the soundwalk themes explore alternative aspects of the city. At the time of writing, one soundwalk explores the theme of conflict and is situated along a stretch of the 'Peace' wall, drawing directly on the 'troubles' endured by the citizens of Belfast. Unlike the traditional narrative that provides a brief outline of what the 'troubles' were about, the material used for this soundwalk draws directly from interviews with local people who reflect on this period of the city's history. In response to this narrative the artists state that they have also composed musical material that "gradually emerges from the spoken words". Whilst this soundwalk is inspired by the history of the city, another soundwalk has been created upon the theme and recordings of church bells. At the time of writing, the composer intends to situate these recordings in an area of the city surrounding Belfast City Hall. Whilst visiting important or historic churches is a commonplace tourist activity, it is rare for a tourist to hear audio recordings of the bells in this context, or for the sounds of the bells, which are naturally very separate within the city both in terms of their geographic location and religious denomination, to be heard together. One other soundwalk, entitled 'Culinary Belfast', is composed around the theme of food. The app user is able to visit specified high quality restaurants and food establishments where they can experience behind the scenes recordings of busy restaurant kitchens alongside interviews with the chefs or proprietors in which they talk about the food culture

¹ iTunes App Store: App Store/Travel/Audiotopie

of Belfast, amongst other things. The closer the user gets to the restaurant, the more information that will be revealed.

4. APP DEVELOPMENT

The Belfast Soundwalks app has been developed in two strands. The sonic artists creating the soundwalks have made use of 'AppFurnace'², a web-based app development software to create apps for iPhone and Android devices. One of the advantages of this software is the location function, which allows audio files to be placed upon a map, and hence within the physical space in the city. If desired, the software enables multiple audio files to be layered within a particular area. When the user of the app reaches the designated 'hotspot' areas, the relevant audio is triggered. These hotspot areas can be of any geographical size, but it is recommended that they are not too small due to known issues such as GPS drift and jitter. By layering audio files and coding the relevant fade-in and fade-out functions, it is possible that the user can happen upon different information or sounds depending on where they choose to walk. Whilst layering too many files is not recommended due to processing limitations, theoretically it means that the soundwalk could be experienced on a number of occasions and new pieces of audio heard each time. Figure 1 indicates the area in which the soundwalk entitled 'nature versus noise' is located, which in the case of this soundwalk is within a public park. Each circle indicates the hotspot locations. The arrow symbol situated at the top right of the map in figure 1 provides the user the opportunity to track their location within the area in relation to the hotspots.

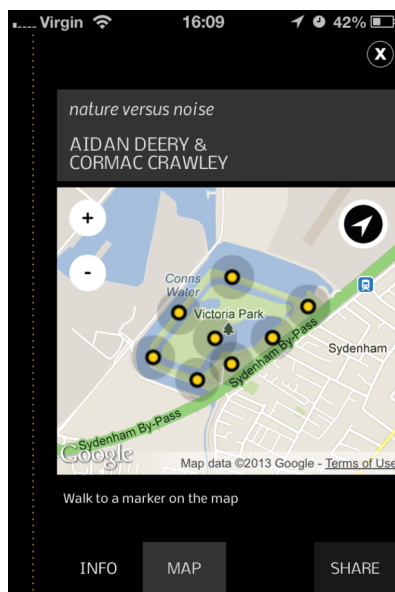


Figure 1. Audio hotspots

The hotspot markers and the user location marker demonstrate the low level of interaction that is involved between the user and the main functionality of the app on the mobile device. The main form of interaction that the Belfast Soundwalks app enables is that between the user and the city. Only by physically moving through the city to the locations of interest does the app function as intended. The user has no control over the playback of audio on the mobile device itself. Their only method of control is to be at the specified location for the soundwalks. The soundwalks cannot

be listened to off-line, though a short youtube trailer for each soundwalk is available within the app so as to give the user a taste of what the soundwalk is about prior to downloading or experiencing the soundwalk. When a user enters a hotspot area the audio plays, hence if they leave the hotspot area before the audio track has finished the audio will stop. To the oblivious spectator they may see a person retracing their steps and stopping, whilst for us it implies that the hotspot boundary has been found and the audio resumed. This dependence on the user's physical location to control audio playback indicates that the soundwalks app creates an experience. The audio that has been composed is to be experienced, rather than just listened to, or heard, as may be the negative view of the users of some audioguides. The audio may provide an alternative audio accompaniment to a visual stimulus, or it may bring it alive. One of the soundwalks featured in the app is on the theme of Brass Bands in Belfast. The soundwalk will be situated in Belfast's Botanical Gardens, which contains a bandstand that hosts many concerts by bands throughout the summer months. On reaching the bandstand an audio recording of a brass band will be heard. What is a static, empty, graffiti laden structure on most days, will suddenly be brought to life for the user. The soundwalks provide the user a chance to experience an area of the city in a way they have not experienced it before. Rather than just passing through an area, it affords the user the opportunity to linger in places that they may not have lingered in before.

Through the use of 'AppFurnace', the soundwalks have essentially been developed by the individual artists as stand-alone apps. In order to bring these multiple single apps together, the company behind 'AppFurnace'³ were commissioned to develop an 'umbrella' app. As can be seen in Figure 2, this 'umbrella' app consists of three pages, namely: 'Map', 'Soundwalks, and 'Info'.

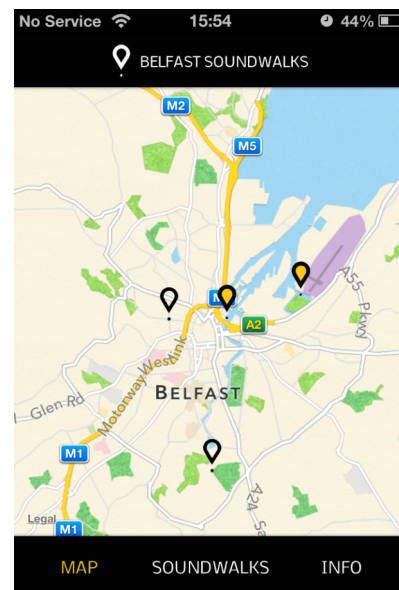


Figure 2. 'Map' page

² <http://appfurnace.com/>

³ Calvium Ltd. <http://calvium.com/>

Through the map interface, the user can view the starting location of each soundwalk. Clicking on a pin icon displays the name of the soundwalk and the artist who created it, and a button to a page providing more information on the soundwalk. The 'Soundwalks' page simply lists the soundwalks, as can be seen in Figure 3. Selecting a particular soundwalk takes you to the page providing more information, as described previously. The 'Info' page provides background information on the project.

The 'AppFurnace' software limits the size of any app to a maximum of 50mb so as to comply with Google Play regulations. Although the format of the audio files used in the soundwalks are mp3, each soundwalk is still relatively large. For this reason it is impossible for the 'umbrella' app to contain the soundwalks on download. Essentially, the 'umbrella' app is therefore an empty structure. When the user navigates to the information page for each soundwalk a one-minute youtube video is available for them to view. If the user decides that they like the soundwalk they are given the opportunity to download that individual soundwalk. As can be seen in Figure 3, when a soundwalk is downloaded the colour palette of the pin icons, on both the 'Map' and 'Soundwalks' pages, change from white to yellow.

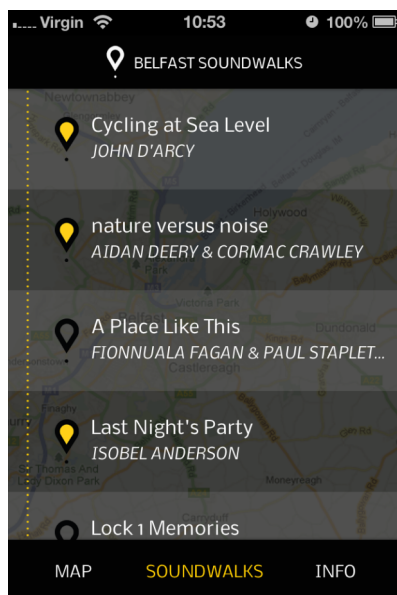


Figure 3: 'Soundwalks' page

5. CONCLUSION

At the time of writing, the Belfast Soundwalks App is still in the process of being created. The current planned launch of the app, in association with Belfast City Council, is September 2013. Currently, seven soundwalks have been completed, and are ready to be tested with members of the public so as to gain feedback on the soundwalk content, the soundwalk experience, and highlight any bugs that the soundwalk artists have not picked up through their own testing. This testing period is due to take place in June 2013. The Belfast Soundwalks app is an exciting project for the city of Belfast. Thanks to support from Belfast City Council, the app should reach a greater proportion of the population than similar projects that have taken place in other cities around the world.

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