The iLand of Madeira
Location Aware Multimedia Stories

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Abstract. This paper describes the initial stages for the iLand project, a Location Aware Multimedia Story project that captures and exposes the rich oral culture and traditions at the Island of Madeira, using the Madeira main city, Funchal, as a setting to bring a new level of engagement of the audience with the city and its traditional stories. We developed high quality content to be used in an already existing platform to deliver location aware stories. With the story experience carefully designed, an evaluation was carried out in order to expose the opportunities where such systems can be improved. Finally we discuss the results from the evaluation and explain how we will address them in the design of our new system.

Keywords: Interactive narrative, Locative media, Mobile Devices, Experience Design.

1   Introduction

Madeira is a small island in the Atlantic Ocean with a very rich oral culture and traditions. In order to take advantage of this special context we conceived, designed and produced a digital mobile story experience to capture and share the intangible heritage of this island. In this paper we describe the first prototype and user study of the iLand Location Aware Multimedia Story project.

1.1   Mobile devices

Mobile devices have become indispensable artifacts embedded in our lives: tools for supporting people's activities in their work as well as leisure time. In the last few years mobile devices have rapidly evolved in size, screen and general performance and now often include of a number of sensor technologies like GPS, compass, and accelerometer.

The new generation devices are equipped with bigger and better screens and a general increase in performance, which has led to a trend in developing multimedia applications for Smartphone platforms like Android, iPhone, Symbian, etc [6].

1.2 City as the place for play/interaction

Each city has its particularities, different purposes and meanings, because of the different kinds of people and actions that take place in it. These differences represent an opportunity for sharing and discovering different cultures and meanings through the design and development of mobile location aware experiences.

As human beings, we need to see, hear, touch, smell and taste in order to understand, make sense of and fully enjoy reality. The city itself offers a rich sensorial experience to us: *"The city assaults all senses continuously awakening a wide range of meanings and desires"[1]*. By coupling stories with the exploration of real city locations we are designing an experience where all senses are stimulated. By using the city as a set, people are able to see, hear, touch and smell the environment where the story happened. This way we enable our audience to act in public spaces while offering a rich and all senses encompassing experience. Moreover the experience of visiting a new place can be transformed, by knowing the stories of that place and culture and understand why the city, its inhabitants and social environment are the way they are.

1.3 Location Aware Multimedia Stories: LAMS

After considering the city as the context for our experience, we focused on defining what kind of experience we are building, expanding on the concept of Location Aware Multimedia Stories (LAMS), which is defined by Nisi et al. [2] as:

"Cinematically rendered narratives, which content is related to specific locations and embedded in those real spaces through the use of location aware mobile technologies."

2 Related Work

In the following section we give a brief overview of the main projects that served as inspiration for the iLand project. Our work builds directly on the Media Portrait of the Liberties (MPL) project [2], which makes use of location aware and mobile technology to deliver a collection of video stories adapted from written accounts of life in an inner city area of Dublin. We decided to extend and redesign the experience for a site-specific installation in Funchal. Further inspiration for our work comes from the M-Views [3], a system for creating and participating in context-sensitive, mobile cinematic narratives. There are no conclusions regarding the user experience with the M-Views system and what people actually felt when using the system. By studying the audience reaction to the experience of LAMS as a whole, we envisage progressing LAMS research. The project StoryTime [7] is a location-based system for presenting stories in a networked mobile computing device. It offers the users a sense of

connection to a location's past through stories that are told by the people who experienced them. Stories told in first hand can make the audience feel more engaged with the character and with the story. In our project, we also acknowledged the importance of searching for stories that are meaningful and filled with personal connotations.

3   The iLand project

Stories are all around us but sometimes it is hard to access to them. Often the people who have them do not find the right opportunity or setting to share. Through the iLand project we designed an opportunity to uncover and share these stories.

We started by connecting with local people who are part of our social network, like friends and relatives, asking them for stories. The stories collected in this way were colored by personal shades of drama, personal details and warmth that could not be found in formally written accounts. We selected eight stories for production, based on the potential drama and the thematic connection to religious and spiritual matters. We wanted our audience to learn about the folklore of the island and to remain open regarding the truth and the value of these folkloristic tales.

While developing the stories' plot and characters we designed the iLand LAMS experience as a whole. We targeted foreigners as well as Madeiran users who are not familiar with Funchal's old part of town. The location chosen was Rua Santa Maria in Funchal, since it is has a mysterious as well as traditional atmosphere that fits the type of experience that we want our audience to have.

3.1   Location aware story delivery platform

As our story delivery platform we used Placeware [4], the second iteration of the system used for the MPL experience. Placeware runs on a Windows Mobile, GPS enabled smart phone. It uses a wide touch screen that allows an easy use of a map based interface and the presentation of multimedia videos. As the application starts, a map of the place is displayed and the system obtains the GPS coordinates for the user's position, represented as a circle on the map. The circle moves as the user walks. Small dots represent the stories on the map. When the user position overlaps with the dots the phone vibrates and the dot enlarges. The user has then the option of clicking on the dot to watch the story's video fragment. After watching the story the application returns to the map and the user continues the tour.

Fig. 1. Video Frames from the iLand stories.   **Fig. 2.** Placeware interface

4   Evaluation

After the story production, we designed a pilot study to uncover the main issues encountered by our target users. We focused our pilot on a sample of five young adults (aged between 24 and 34) with different backgrounds and experiences with the city: a foreigner recently moved to Madeira and four residents in Madeira, two of which live in the city but are not familiar with the Rua Santa Maria, while the other two live in others cities of Madeira. The users were asked to try the iLand story experience singularly. They were taken to the location, explained how to use the system and after establishing basic demographics, such as age, nationality, and profession etc. they were left exploring the stories on their own. We observed them by shadowing without intervening if not on request. At the end of the experience we conducted a semi-structured interview to better understand how users generally felt about the experience as a whole.

5   Discussion/Future work

In this section we present the main issues uncovered through the study, starting with the strengths and weaknesses of the system, and ending on how we intend to address these problems in our future work.

5.1   Strengths of the system

Beside the strengths and weaknesses of LAMS systems discussed in [3], we want to highlight the features that users enjoyed the most during the iLand experience:

GPS and Vibration notifications: People enjoyed the device highlighting their location and vibrating when in range with a story. Having a system performing the location detection surprised them as well as empowered them.

Audience connection with the surrounding location: People liked the stories, in particular the ones where they could connect with the surrounding. When this happened the experience was more immersive.

Clean and simple Interface: All the users enjoyed the simple and clean interface.

5.2   Story Related problems

Lack of context of the stories presented: As some users did not understand the relation between the stories and the location in which the stories were made available, we decided to create a narrator to introduce each story and explain why the user is seeing that specific story in that context.

Overwhelming experience: Some users found it hard to stay focused on the stories with all the activity and the richness of the urban surroundings. As a solution the

narrator will point out specific places in the surrounding and let the users take some time to observe and only after this time of observation the multimedia story will begin.

Hard to pinpoint exact location details: People reported that they couldn't relate the story to the specificity of the place. We plan to integrate the D-Touch markers (see figure 3) developed by Costanza [5] to pinpoint specific points in the locations. Using this technology, we can design markers that are related to each story and that will be placed on the exact spot that has a reference to the story itself.

Fig. 3. D-Touch marker

5.3 Technical Problems

GPS accuracy is sometimes poor: This problem is going to be alleviated by the use of the D-Touch markers. After the phone vibrates near the story, even if it is not on the exact place, the users will need to look for the marker: upon finding it they are sure to be in the right place for the story.

Visibility of the screen was poor in broad sunlight: The use of a different device (Nokia 5800) with a brighter screen and a larger resolution will tackle this issue. Also, we recommend users to experience iLand at the end of the day, when sunlight is weaker.

5.3.1 Experience Design

Traffic disturbing and endangering users: This is an issue that will be addressed by the use of the D-Touch markers. The markers are going to be put in places where people can watch the stories safely without being disturbed.

5.4 Reflection on the study

In LAMS, content has proven to be essential to provide a meaningful experience. Sometimes stories developed for such systems can be superficial and users cannot deeply connect to them. The link between the story and the place may not always be obvious to the user. Furthermore combining real space with rich media content can overwhelm the user. In order to deliver a pleasurable experience, a balance between looking at the mobile device screen and the surrounding context needs to be found. Therefore, to build a system that provides not only a service but also a meaningful experience, we need to pay attention to the overall experience and design the system together with the stories' narrative structure and visual production.

6   Conclusion

The increasing development of mobile platforms, such as the Android, iPhone, and Symbian, led to a demand for new and meaningful mobile experiences.

In order to fulfill this need we have highlighted a number of key issues regarding the design of the interactive location aware story experience. Our current effort to design and implement a new system for delivering location aware stories involves a specifically designed narration style and the use of marker technology to address the main issues uncovered by the study presented in this paper. Through the redesign of the iLand system we are progressing the state of the LAMS and repositioning our work for further user study.

7   Acknowledgements

8   References

1. Stevens, Q. (2007) *The ludic city: exploring the potential of public spaces*. Routledge, Abingdon, UK. ISBN 9780415401791
2. Nisi, Valentina, Ian Oakley and Mads Haahr (2008) "Location-Aware Multimedia Stories: Turning Spaces into Places" in Álvaro Barbosa (ed.) *ARTECH 2008: Proceedings of the 4th International Conference on Digital Arts*, Porto, 72-82.
3. Crow, M., Pan, P., Kam, L., and Davenport, G. (2003) "M-Views: A System for Location-Based Storytelling" in *Proceedings of Ubiquitous Computing*, Seattle, Washington, October 12-15, 2003, 31-34.
4. Nisi, Valentina, Ian Oakley, Martine Posthuma de Boer (2010) "Locative Narratives as Experience: A New Perspective on Location Aware Multimedia Stories" in *ARTECH 2010 Proceedings of the 5th International Conference on Digital Arts*, Guimarães, Portugal, 59-64.
5. Costanza, Enrico and Jeffrey Huang (2009) "Designable Visual Markers." in *Proceedings of the 27th international conference on Human factors in computing systems*, Boston, 1879-1888.
6. Oliver, E. (2009) "A survey of platforms for mobile networks research." in *SIGMOBILE Mob. Comput. Commun. Rev.* **12**, 4 (Feb. 2009), 56-63.
7. Kelly, L., Reeder, S., Wang, X., and Morse, S. C. 2009. StoryTime: experiencing place through history. In Proceedings of the 21st Annual Conference of the Australian Computer-Human interaction.