

Digital Stadium: Designing for Topophilia

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ABSTRACT

Stadium events present ideal research opportunities to exploit pervasive technologies that can enhance visitor experiences. The Digital Stadium project is partnered with the brand new AMEX Community football stadium that is home to rising stars of the second tier of the English football leagues; Brighton and Hove Albion. As well as presenting an overview of our work we also draw attention to some of the key themes of the project that centre on both human and cultural geography and the study of our relationship with space and place. We also discuss the methods we are using in our research that form the backdrop to our software designs that aim to enrich the experience of the supporter community.

Author Keywords

Stadium, mobile, football, topophilia

ACM Classification Keywords

H.3.5. Online Information Services: Data sharing, Web-based services; H.5.m. Information Interfaces and Representation (e.g., HCI): miscellaneous; K.m.k. [Computing Milieux] Miscellaneous: Sports

INTRODUCTION

Researchers at eMarketer recently predicted the number of smartphone users in the UK will more than double between 2012 and 2016, from 19.2 million to 41.9 million, and user behavior will change accordingly [3] As this increasing market penetration continues, the smartphone will become a central part of the customer experience in a wide variety of contexts.

Considering the experience of a football match in a stadium environment, we are already seeing these mobile devices become linked to:

- Ticketing – to search, order and hold the electronic ticket
- Individual's seat – for example, the recent London Olympics had wired connections that enabled devices
- Direct marketing – such as food and merchandise offerings
- Modes of transport – travel updates and timetables
- Way finding – on the way to (maps and directions) and within the stadium (layout plans and directions)

- Geography – weather and location information (local facilities)
- Leisure – social networks
- The event itself – scores, commentary, statistics and so on

However, the numbers and density of people and their likely interaction patterns make it difficult to provide adequate bandwidth with larger range networks, which when combined with the concrete and steel construction of the stadium make network provision a serious technical challenge. The city of Brighton has approximately 155,000 inhabitants and match attendance that is almost at 30,000 which is a significant population migration that local infrastructures have to contend with.

Broadly speaking our research is concerned with two main research problems. The first is to build a networking technology that can compensate for the impoverished capacity available within the stadium. Our approach is to use a pocket switched network, using direct inter-connection of the smartphones [7]. However, such technologies are still rare, and there are significant challenges to manage here; in particular users' trust and willingness to share their connection with fellow fans as well as having their security concerns appeased. We will be building on the implicit relationships between the fan, the football club and their fellow fans to engender the necessary trust.

The second general area of our research is concerned with understanding the stadium visitors' experience and enabling the provision of services across this network and its management. It is this area that blends HCI with Human and Cultural Geography that we discuss in this article.

THE FOOTBALL STADIUM

Football is the most popular sport in the world and brings the masses together in the stadium, and in front of televisions in homes or at bars. There are over 11,000 stadiums with capacity greater than 10,000 visitors that are situated around the world [2]. The football crowd is a social construct that has a culture extending beyond the stadium and the sporting event. Nonetheless it is the stadium containing the event itself that is the primary focus of the fans' experience. In 2006 during the UEFA World Cup in Germany a multidisciplinary team worked together on a seminar series made up from a variety of academic perspectives; geography, architecture, archaeology, history, sociology and philosophy [4]. Although technology use did

not feature in these essays it provides an intriguing array of perspectives on the 'beautiful game'. One of the regular discussion points revolves around the notion of 'topophilia'. Topophilia (literally defined as love of place) refers to a place that generates strong feelings of affection. The stadium and the journey to and from it on a match day are what outline the fans' experience of these cultural events.

Bale describes a series of ways in which the stadium could be constructed and interpreted such as; sacred place, scenic space, home, tourist place and finally as a place of local patriotism [1]. The stadium is both a social and a physical space that facilitates intense economic, social and cultural development. Traditionally (certainly in the UK) these stadiums were situated in the heart of a community, mainly built in the early 20th Century before the motorcar was commonplace. As such, the experience of going to the match there was a strong focus on the surrounding geography; the sites and spaces that made up that local community such as the pubs, shops, fast food, bookmakers, stall sellers, alleyways and streets formed part of the journey to and from the stadium [5].

"The stadium only takes effect as place through the spatial practices and rituals of football fans...the atmosphere of dense geography is created which leads to a strong bond between the fans and the stadium." [4]

OUR WORK

We are running our project utilizing user-centered design principles central to HCI. Indeed HCI has a long history of embracing methods and techniques from a variety of academic disciplines and industries. Traditionally these have been from psychology, sociology, ergonomics, marketing and so forth, and quite naturally geography is an extension to these resources from which to draw.

Stakeholder and fan engagement

As we progress with this project between now and the summer we are running a series of user-research activities. We have already conducted an online survey polling season ticket holders via the Club that resulted in over 1,500 individual responses. This provided confirmation that stadium connectivity issues are a problem, understand the kinds of devices people had and the extent to which they were used within the match day experience.

From our data set we have canvassed 100 users from a single stand within the stadium who will partner in our research. We shall go on to undertake a variety of user-engagement exercises in the development online services

that will sit upon the shared network technology being developed as part of the project. These research activities include ethnographically based field-work; shadowing different fan profiles (e.g. father and son) on match day in order to fully understand how technology already plays a part in the match day experience and when there are opportunities for technology to 'fill a gap.' These activities will inform the development of the project prototypes and regular engagement and feedback sessions are planned during beta-testing and wider scale user-acceptance testing.

As well as a physical connectedness to an area it is now familiar to have a digital connection to a particular place especially as location facilities are commonplace on modern mobile devices. Particular visualizations provided by geographic community such as modern mapping tools and way-finding services will be of particular interest to the project as it

The seminar series around the 2006 World Cup in Germany demonstrates that this kind of high profile event can be viewed through a variety of lenses. Similarly the proposal for the workshop's virtual tour of Paris could examine the history of Paris, its geography, architecturally and so on. How these different perspectives are presented to a user via current technology is of particular interest to our project.

Our presentation will highlight our insights as we move into the week preceding the last game of the season and the final stage of this project.

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