

Bridging the Rural Divide: Ubiquitous Computing for the Rural Economy

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ABSTRACT

In this paper, we describe the Bridging the Rural Divide project, in particular the development of the *Placebooks* application, an online and phone app to gather, publish and share community based maps of rural areas.

Categories and Subject Descriptors

H.5.2 [User Interfaces]: *User-centered design*

General Terms

Economics, Human Factors

Keywords

Mapping, User Generated Content, Ubiquitous Computing, Rural Economy.

1. INTRODUCTION

Though the Internet seems to permeate every aspect of our life, it is still largely an urban phenomenon. Both in terms of access to digital services and the development of rural digital mapping on services like Google maps, the focus has so far been on urban environments.

The University of Nottingham (Computer Science and Geography) and Swansea University (Computer Science) are partners, in the “Bridging the Rural Divide” project that is researching the issues pertaining to the urban/rural technological divide. The project seeks to bridge the rural divide through the development of innovative mapping services, which will enhance a broad range of activities that sustain the rural economy – from walking and cycling to

surfing and bird watching.

The project is developing a prototype toolkit for ubiquitous computing in rural areas, focusing on the activities and the communities that form around these essential activities. Based on ethnography fieldwork and community engagement activities “in the wild”, *Placebooks* is an online, mobile and in print mapping solution tailored to the rural environment and economy.

2. UBIQUITOUS COMPUTING AND THE RURAL ECONOMY

Whilst availability of online services, through broadband, or 3G phone networks, remains an issue in rural areas, access to these existing services is not the only area that lags behind urban environments. Current digital mapping tools and services do not respond well to rural need in that the underlying business models, with their emphasis on advertising, do not stack up for areas of low population density. This project focuses on further developing digital mapping services for rural use by developing tools to extend and complement existing services to provide a prototype toolkit that responds specifically to rural needs.

Mapping activities consist of accurately locating, documenting, cataloguing and publishing features in a particular area; many features of the rural landscape relevant to rural activities remain unmapped and digitally inaccessible, there is little chance of them being captured and capitalised upon without active community involvement. The project seeks to enable users to map features of the rural environment which are essential to the rural economy: to rambling, cycling, climbing, canoeing, and that host of activities that are central to wealth creation in the British countryside. Accordingly, the research explores how new digital devices and services might be integrated with existing ones to leverage the benefits of user-generated content for the rural economy.

3. BORTH, DYFI NATURE RESERVE, CEREDIGION, WALES

The project adopts an interdisciplinary approach to toolkit development; bringing computer scientists, geographers, ethnographers and users together in the exploration of its core themes. User involvement consists of; the Countryside Council of Wales, which is providing the Dyfi Nature Reserve near Borth in Ceredigion as a site for the research; visitors to the Reserve; and members of the local community.

Fieldwork has engaged with potential users in the Borth area, studying the range of activities that take place; as mentioned this includes people with practical interests, such as dog walkers, boat builders, fishermen or local service workers (e.g. lifeguard, etc); it includes people with and general and specific leisure interests (e.g. anglers, kit fliers, geocachers) and a range of other specialist, create sporting and education interests. Ethnography work also documented the use of information involved with undertaking activities such as these, encompassing online and in-print media such as maps, information leaflets, websites, photos and information such as GPS logs.

4. MOTIVATION FOR PLACEBOOKS

The activities above revealed that throughout these activities people already deal with a wide variety of information that maps the activities and features in rural areas. The information and tools that are used however are fragmented, sharing and collaborating is restricted because of this, for example, people and groups engaged in particular activities use websites, online forums, etc but these are limited in scope to within their own communities of practice. A key element in disseminating, publicising and sharing information has been information leaflets which are frequently located within community hubs such as tourist information centres, cafés and visitor centres. In response to this *Placebooks* is a ubicomp application that attempts to extend these information leaflets to the digital domain, providing online tools to create and share and reuse community generated maps, allowing a diverse range of online media to be georeferenced and available to a wider audience than the existing fragmented array of services allows.

Placebooks mirror the style of the information leaflets commonly found in tourist information, etc throughout rural areas but provide an online, dynamic and personalisable collection of information rather than the

generic and static print equivalent. Web pages, photos, videos, maps and GPS logs can be included along with georeferences to locate them in a particular area. A Placebook can be downloaded to a phone and viewed offline, and it is possible to upload photos, videos, and GPS logs from the phone to create a Placebook documenting recent activities. Collecting and uploading data from the phone integrates existing application *EveryTrail*, an online service that allows people to log trips and attach photos and videos and publish them to a website. This is an example of how existing applications with open APIs can be integrated with other forms of information to create a rich mash-up of georeferenced data.

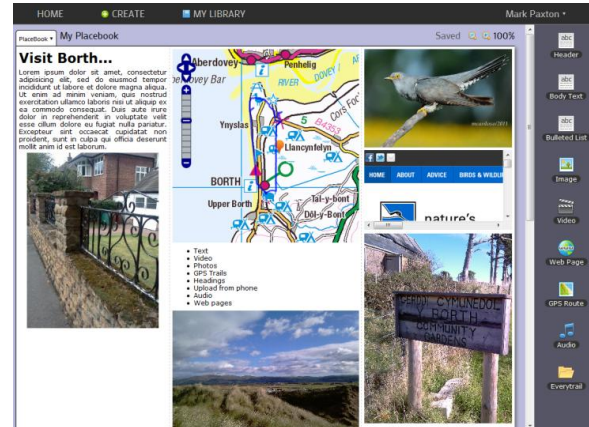


Figure 1: Placebooks web editor interface, integrating web pages, standard text, photos, images and maps.

Placebooks can be publically published online and can be selected and shown on situated display screens in community centres. They can be reused and copied, allowing people to create mash-ups of information and personalise them for their own use, and finally they can be printed out and used in paper form as well.

The project has been deploying and testing Placebooks over the summer of 2011 and will be evaluating and developing it further as the project continues.

5. ACKNOWLEDGEMENTS

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