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Making the link—providing mobile media for novice communities in the developing world

Andrew Maunder[a], Gary Marsden[a,*], Richard Harper[b]

[a]University of Cape Town, South Africa
[b]Microsoft Research, Cambridge, UK

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Abstract

In this paper we investigate the media needs of low-income mobile users in a South African township. We develop and deploy a system that allows users to download media at no costs to themselves, in order to probe future media requirements for similar user groups. We discover that not only are the community interested in developmental information, but are also just as interested in sharing local music or videos. Furthermore, the community consume the media in ways that we did not expect, which had direct impacts on their lives. Finally, we conclude with some reflections on the value of media and the most appropriate ways to deliver it in developing world communities.

Keywords: ICT4D; M4D; Situated media

1. Introduction

Much has been written about the proliferation of mobile handsets throughout the developing world. Within South Africa, the penetration rate is close to 100%, implying that the mobile is an ideal platform to deliver locative media in the developing world (International Telecommunications Union, 2010). But this is only half the story. Whilst many people in Africa do have handsets, many cannot afford air time in order to download, upload or share media (Gitau et al., 2009). Governments, Non-Governmental Organizations (NGOs) and commercial bodies are frustrated as they create valuable online content, yet the people they are trying to reach cannot afford to download it.

Based on our research into the problems of media sharing in Southern Africa it became apparent that we needed to create a system that would allow users to download relevant media at *no cost* to themselves. Nor should costs be incurred by forcing users to purchase special hardware or state-of-the-art smart phones. Standard phones need to be the platform on which cost free interaction is supported. Furthermore, as the target users are not familiar with the internet (and cannot afford large download fees) the distribution system would have to work in ways that the users are familiar with.

Satisfying these requirements led us to develop a system called Snap and Grab. This is a new public media sharing system. It consists of a PC-based image processing and media database system, which users can interact with via their camera-phones and Bluetooth. Users select content from a public display by photographing the content with their phone and Bluetoothing that photograph to the computer running the display. The computer processes the image to determine the selected content, then sends the relevant media (images, audio, video, etc.) to the user's handset over Bluetooth (the process is described in Fig. 1).

Furthermore, users can upload their own media to the display via Bluetooth by first sending their vCard, followed by any media they wished to upload. This process can be seen in Fig. 2 (the design of the system is discussed more fully in Gitau et al. (2009)).

Having solved the technological problem of distributing media to standard camera phone handsets (at no cost to

*Corresponding author. Tel.: +27216502666; fax: +27216899465.
E-mail address: gaz@cs.uct.ac.za (G. Marsden).

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Fig. 1. (A) shows the 40 in. screen; (B) the user takes a picture of the item they are interested in; (C) the 'SnapAndGrabBoard' is selected as a target to send the photograph; (D) the photograph is sent; (E) the system performs image recognition on the photograph (feedback is given by highlighting the image in green); and (F) an image (and MP3 in this case) are sent to the transmitting handset.

Fig. 2. (A) shows the vCard of the user; (B) shows that vCard being selected for sending; (C) shows the vCard being transmitted to the SnapAndGrabBoard; (D) shows the new, blank, slot being created on the display screen; (E) shows a photo being selected by the user; (F) shows the photo being transmitted to the screen; and (G) shows the photo populating the newly created user-slot.

the user) we were eager to see what applications it might be used for. The rest of this paper reports on how we went about unearthing relevant media and evaluating how successful the community was in appropriating the technology to access, share and reuse that media. The paper ends with a reflection on these findings and their implications for future public media sharing systems in the developing world. Our findings suggest that the value of these systems is likely to be great, but that the content exchanged via them may not be what many HCI for development researchers and NGOs would expect.

2. Environment

Our goal was to explore the media sharing patterns and needs of those who (before the advent of the cellular handset) had no access to digital communication networks. We were interested in what media they might value and whether the Snap and Grab system could be used to facilitate the distribution of that media.

Specifically we chose to study people living in a township just outside Cape Town in South Africa. This group was chosen as many people living there have camera-phones