ABSTRACT

When conducting mass participation trials on Apple iOS devices researchers are forced to make a choice between using the Apple App Store or third party software repositories. In order to inform this choice, this paper describes a sample application that was released via both methods along with comparison of user demographics and engagement. The contents of these repositories are examined and compared, and statistics are presented highlighting the number of times the application was downloaded and the user retention experienced with each. The results are presented and the relative merits of each distribution method discussed to allow researchers to make a more informed choice. Results include that the application distributed via third party repository received ten times more downloads than the App Store application and that users recruited via the repository consistently used the application more.

Keywords: iOS, iPhone, Mass Participation, Mobile Applications, Ubicomp

INTRODUCTION

Only recently have we seen mobile phones that are both numerous enough to afford a large trial as well as advanced enough to support downloading and installation of research software. Market research firm IDC (Nagamine, 2010) suggests that, at the end of 2009, 15.4% of the mobile phone market consisted of smartphones, an increase from 12.7% in 2008. So, while still not the predominant type of handset, it can be said that smartphones have been adopted into mainstream use. Running a trial solely with smartphone owners may not be selecting a user-base that is representative of the population at large, it can no longer be seen to be using only the most advanced ‘early adopters’.

Evaluation of the use of ubiquitous or mobile computing systems has, as recommended by (Abowd & Mynatt, 2000), moved towards conducting evaluations outside of the laboratory and in the wider world, with all the complexities and challenges that brings. While there have been arguments against the utility

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and cost-effectiveness of this move (Kjeldskov, Skov, Als, & Høegh, 2004) there have also been arguments presented in support (Rogers et al., 2007). Making use of the market penetration of smartphones and the new App Store style software distribution methods to reduce the cost, in terms of hardware, of recruiting a large group of participants for a trial ‘in the wild’ while increasing the potential diversity of users is becoming an attractive option for researchers. For those researchers looking to begin to take advantage of these opportunities the range of platforms and distribution methods available to researchers has to be explored, as the cost of re-tooling to develop on a new platform and the purchase of devices on which to develop is not insignificant. The differences in the hardware capabilities and the support given to developers are outlined in Oliver (2009).

However, researchers working in this area in 2007 had less choice. The original iPhone, released in June 2007, was a powerful smartphone that was adopted by the general public at a rate the previous generation of smartphones never hinted at achieving. Within weeks of its launch the development community had produced a method of distributing software directly from the developers to the end users’ handsets. In July 2008 Apple launched their App Store and addressed many of the traditional difficulties users experienced in downloading third party applications to their smartphones – all the applications were available in one of two places, compatibility was easy to ascertain and the process was made as painless as possible for the end user to the point where they were able to install new applications without the need for a desktop PC. Faced with these opportunities many research groups made the time and monetary investments necessary to move their development to this platform. The iOS platform, which runs on iPod Touch and iPad devices as well as iPhones, has a larger installed user base of over 90 million units than either Android OS, with 60 million, or Blackberry OS, with 50 million (Flurry, 2010).

Oliver (2009) notes that the iOS platform presents a better option for researchers when the device is ‘unlocked’ from the restrictions placed upon it by Apple. This, however, only took into account the development of the applications and not the difficulties in distributing applications to end-users. Applications developed taking advantage of restricted features are not eligible for distribution via Apple’s App Store and therefore must be released via third party software repositories only available to those users who have unlocked their device in this manner. This exclusivity based upon APIs used, among other considerations, means that the decision as to which distribution method to use has to be taken the early in the design and development process. This paper reports on work on practical aspects of research methodology in ‘mass participation’ trials of ubicomp systems (McMillan, Morrison, Brown, Hall, & Chalmers, 2010). The research goals of such trials include the development of tractable and affordable methods of gathering useful data for evaluation and design, in the context of worldwide software distributions. This paper contributes towards this methodology by focusing upon the two distribution methods available for iOS devices and the affect this choice could have upon a system trial. With the information presented here researchers will be more informed as to the consequences of choosing a distribution channel, and be able to make this choice with more confidence.

RELATED WORK

Due to the practical and technical constraints upon Ubicomp research, large scale deployments are the exception instead of the norm. The distribution methods and processes are rarely described in HCI publications, leaving researchers wishing to conduct complimentary experiments in the dark. Here we survey such large scale deployments and comment upon the information given with regards to how users were recruited.

One of the earliest large-scale deployments of an ubicomp application was Mogi Mogi. As reported by Licoppe and Inada (2006), this
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