Chapter 6

Gamifying Everyday Activities using Mobile Sensing

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ABSTRACT

The addition of game design elements to non-game contexts has become known as gamification. Previous research has suggested that framing tedious and non-motivating tasks as game-like can make them enjoyable and motivating (e.g., de Oliveira, et al., 2010; Fujiki, et al., 2007; Chiu, et al., 2009). Smartphone applications lend themselves to being gamified as the underlying mobile technology has the ability to sense user activities and their surrounding environment. These sensed activities can be used to implement and enforce game-like rules based around many physical activities (e.g., exercise, travel, or eating). If researchers wish to investigate this area, they first need an existing gamified application to study. However if an appropriate application does not exist then the researcher may need to create their own gamified prototype to study. Unfortunately, there is little previous research that details or explains the design and integration of game elements to non-game mobile applications. This chapter explores this gap and shares a framework that was used to add videogame-like achievements to an orientation mobile application developed for new university students. The framework proved useful and initial results are discussed from two studies. However, further development of the framework is needed, including further consideration of what makes an effective gamified experience.

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INTRODUCTION

Over the last few years, a growing interest in both research and industry has explored how the engaging aspects of video games can be translated to non-game contexts to make them more motivating. This has become known as gamification (Deterding et al., 2011). An increasing number of software and Web applications are integrating elements of games, for example; achievements, points, and competitive leaderboards have been added to the location-sharing application foursquare to reward players for visiting physical locations; game aesthetics and language have been used to style the to-do list application Epic Win! to look and feel like a role-playing game; and in the online application Chore Wars, a dungeons and dragons style game has been created to make housework more motivating (See Figure 1).

These applications have included game elements as a way to engage users who may not find an activity incredibly motivating to begin with, such as completing housework. In these applications, various activities are being captured and used as input for the game elements. The game rules in these applications may be enforced in a number of different ways. Rules could be enforced by the user, like in Epic Win!, where the user adds and completes tasks themselves to gain experience points. Rules may also be enforced by another user, such as a dungeon master in Chore Wars, or they may be enforced automatically using the technology available, like in foursquare which uses a Global Positioning System (GPS) sensor to determine a user’s location automatically.

Using technology like this to capture different interactions and activities means game rules can be enforced automatically. This relieves the user of the burden of implementing the rules themselves, like in many digital games, and can also help to prevent cheating. As more sensors continue to be included in commodity mobile technology, more and more activities can be recognized and used as input for game elements. The persuasive use of game elements combined with mobile technology provides a number of interesting research opportunities for exploring the gamification of mobile activities, such as exercise. If researchers wish to investigate the effect of gamification in these areas then an existing gamified application is required to study. However, if, for various reasons, an existing application doesn’t exist, then the researcher may need to create their own prototype to study, and therefore will need to know how to integrate...