Chapter 20

uRun:
A Framework for User-Generated Mobile Services in the Health and Fitness Domain

Alexandra Chapko
German Research Center for Artificial Intelligence, Germany

Andreas Emrich
German Research Center for Artificial Intelligence, Germany

Stephan Flake
Orga Systems GmbH, Germany

Frank Golatowski
University of Rostock, Germany

Marc Gräßle
German Research Center for Artificial Intelligence, Germany

Andreas Kohlos
Morpho Cards GmbH, Germany

Nico Laum
University of Rostock, Germany

Christian Lerche
University of Rostock, Germany

Carsten Rust
Morpho Cards GmbH, Germany

Jürgen Tacken
Orga Systems GmbH, Germany

Dirk Werth
German Research Center for Artificial Intelligence, Germany

Carsten Zoth
Orga Systems GmbH, Germany

ABSTRACT

This article presents a framework which enables end users to create small, sharply focused mobile services directly on a mobile device. By this, end users are no longer only consumers of mobile services; they also become producers and providers of mobile services. The domain of mobile health and fitness applications has been chosen to demonstrate the feasibility of the approach. The article presents the underlying platform for easy creation of mobile services and describes the implementation of a Web-based editor for easy mobile service creation as well as our solution to access device capabilities out of Web applications.

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1. INTRODUCTION

The number of people with chronic diseases like diabetes and arthritis is growing worldwide. Actions to encounter this trend take an ever-increasing proportion of national health care budgets. In view of the demographic change, effective prevention of diseases becomes an inevitable challenge to our society. In this context mobile technology, intelligent assistance systems and user-drive may play an important role. According to a study from eMarketer, there were nearly 116 million US user-generated content consumers, along with 82.5 million content creators in 2008. Both numbers are expected to increase significantly by 2013 (Verna, 2009). Furthermore, usage of mobile devices, such as smart phones or tablets, has overtaken application of ‘classical’ devices like PCs or laptops. According to another study (Flurry Analytics, 2011), daily time spent in mobile apps has surpassed Web consumption. At the time of writing, the average user spends 9% more time using mobile apps than the Internet.

As a result, we expect that in the near future consumption and creation of user-generated content in the domain of health and fitness will move to the mobile environment. This will be much more suited to the way we carry out social interactions – anywhere and anytime. Soon, this will further evolve and the mobile world will provide not only contents, but also ad-hoc user-created services from the ‘long tail’, i.e., a large number of unique services with a comparatively small number of users. The mobile terminal will be evolved to become also a server. When put into exploitation directly by using the mobile device, a mobile user will provide constantly updated information, relevant to other users’ instantaneous interests.

We assume that technologies enabling the creation, deployment, discovery, and sharing of user-generated mobile content and services are crucial for the further evolution of the mobile world. Individuals will become ‘super prosumers’, i.e., producers, providers, and consumers of mobile content and services. The super prosumer concept responds to the most relevant driver of mobile usage which is the instantaneous and personalized response to a need for communication, information, and entertainment using powerful ubiquitous user devices and mobile network infrastructures.

This article is an extended version of two articles, in which first results of the project have been presented (Chapko et al., 2010a, 2010b). In this article, we present a more detailed view of the uService architecture, which is the underlying generic platform for mobile service management. As a concrete application area of a super prosumer scenario, the uService project investigates, among others, the health and fitness domain. This is due to the fact that people are increasingly looking for products and services that allow them to track, socially interact, and share data related to health and fitness while being on the move (Buttussi, Chittaro, & Nadalutti, 2006; Kurdyukova, 2009; Miluzzo et al., 2008). Furthermore, social interaction, challenge and reward systems are significant trends for health and mobile applications (Ashbrook, 2010). The uService project extends these ideas even further by enabling users to create mobile services on mobile devices on their own and provide them to others. The uRun framework can therefore be seen as an instantiation of the uService platform for the domain of user-generated health and fitness mobile services.

The remainder of this article is structured as follows. In Section 2, an overview about related work concerning the creation of mobile services and the current technologies for mobile running applications are reviewed. In Section 3, example scenarios for the use and creation of mobile applications in the health and fitness domain are outlined. The uService platform and the uRun framework are presented in Section 4. Finally, this article is closed in Section 5 with a conclusion and outlook on future work.