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Development of
mobile information
systems and
services

Wonderdocument

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The name of the project/group:

Authentication methods

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Problem area of the project

With mobile devices constantly taking a bigger part in our everyday life, the convenience of accessing bank account, paying for any services or even checking medical journals independently of current place and time is getting more and more feasible. Having in mind that these kinds of services require access to the user's personal information, the logical major requirement is high security and how strong are user authentication methods. What options are there today? How do people react to them? How does one evaluate a security/usability trade off and what solutions are already in place? We recognize the potential of new mobile services that are emerging (e.g. mHealth, mBanking, mLearning), but we would like to find out if security is on level high enough to provide adequate support for them or they can provide more threats and problems to users than benefits.

Questions in the problem area

Our main goal through this project is to identify what are most common and accepted authentication methods for mobile services, and what are most important features of mobile devices that can be used for facilitating authentication. In addition we will look at the differences, opportunities and challenges concerning user authentication for mobile services compared with traditional stationary computers. Also we want to compare different authentication methods and see what are their advantages and disadvantages regarding security they provide and usability requirements. We would like to find out what kind of authentication is required for different kind of services and applications in general, and if there are some factors that affect this requirements (different countries, types of users,...). Additionally, if we have time we would also like to do small research about authentication methods specially adapted to physically impaired people.

Plan of the project

1. Research

The first phase of our project is to perform research on what is already developed and available in the area of user authentication for mobile service. After that we want to identify other technologies and approaches that can provide good solution when ported to a mobile device. Some of the questions that we plan to explore are: what are current services that requires user authentication (buying bus tickets, parking space, mobile banking), what are existing technologies for user authentication and their characteristics (how secure they are, usability issues, for what kind of application and services they are used), what kind of authentication methods exist specially designed for health impaired people.

2. Interviews

Based on research results, we want to interview users from focus groups and identify main requirements and satisfactions with different user authentication methods. Also we would like to find out what are their impressions of authentication requirements for different types of services, what they view as sufficiently secure for different services and what difficulties usually arise when they interact with (mobile) authentication methods. The basic questions that we plan to use during the interviews will mainly focus on how users perceive the authentication methods and how easy is for them to perform authentication process. Other things that may affect their ability/understanding/performance regarding the process, such as age, occupation, education or computer know-how, would be taken in consideration. For example, some professions might be more positive to advanced authentication processes and how does this adjust their threshold for usage. A more concrete set of questions will probably appear as we research the subject more thoroughly.

3. Evaluation

At the end we want to evaluate and summarize our findings and present different types of authentication methods looked from different angles (e.g. security they provide, usability for users, type of service they are intended, type of users they are intended). We plan to find out which authentication methods are more suitable for mobile devices and if there are some authentication mechanisms that are developed just for mobile devices by utilizing their specific characteristics. Also we want to see if usability and security represent two opposing sides of a continuum, what is the required balance between them and how they are related to types of the services or applications and privacy issues.

Our expectation from the project

By doing this project we would like to dive deeper into the area of authentication in a general way, and figure out what kind of methods are used today on mobile devices. By exploring their advantages and disadvantages we would like to learn more on how to choose the proper authentication method for the different types of services, and how to implement them. Are there major difference between mobile devices and stationary devices? How to make a compromise between security, usability and risk? By involving end users we aim to see regular people's reaction on the authentication topic and what they actually expect from these services