Requirements and Document for the "QuizWalk" project (RAD)

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1. Introduction

1.1 Purpose of application

The purpose of QuizWalk is to be an entertaining Game for people who would like to get out and do stuff, while at the same time learning. It also suits people who want to create QuizWalks for kickoffs, parties and similar occasions alike. Possible commercial use for this application could be to let companies create QuizWalks to advertise their cause.

This game seeks to virtualize the swedish phenomenae “tipsrunda”.

1.2 General characteristics of application

QuizWalk is an application designed for Android 4.0 enabled smartphone clients utilizing location and map services.

There are two major uses for QuizWalk: to play a game, or to create a new QuizWalk.

When a QuizWalk is played, the application holds places for the user to find. When the user reaches a place the application gives the user a Question to solve. If the user answers correctly he will gain points. When the user has completed all questions the QuizWalk is done and the user will get information about how many questions are answered correctly, and how many points he will receive.

When the user creates a game, there will be a map shown on the screen, and he can choose to walk around in the area where the QuizWalk should be and create Questions, or longpress the map to create a question. A dialog will be shown, with input-fields for question, and answers. When the user created enough questions it is possible to create the QuizWalk and it will be saved to the database.

The apps gui is very often centered around a map.

1.3 Scope of application

The application scope on a global level depends on a plurality of users; ultimately creating a self-driven community where users can extend the game geographically by adding new

QuizWalks. Completing a challenge will often involve actually visiting the associated geographical location.
Application (or computer) does not generate any challenges but retrieves this information online from either developer-specified or user-created challenges

A typical game would be a user selecting a predefined QuizWalk in the application. The different challenges will be presented as nodes on a map. This map will also track the users current location in relation to the nodes. When the user reaches one of the nodes, a challenge is presented. After completing the challenge the user will move on to next node or end game if this is the last location in the QuizWalk.

A user can also create its own QuizWalk, by adding locations and challenges to the QuizWalk. After adding other information such as images and/or descriptions, the user can share this QuizWalk either privately or publicly online.

The application will track user progress. A score system will be implemented to represent user rewards in-game.

The application does not have an implemented server, so the user will not be able to save QuizWalks online.

1.4 Objectives and success criteria of the project

1. It should be possible to play a full QuizWalk. Locations-services should work, and questions should pop up when the user gets close to a question.

2. The app should calculate and present the end result to the user when the QuizWalk is completed.

1.5 Definitions, acronyms and abbreviations

- **Java**
    - Platform independent programming language by Sun Microsystem
    - JRE - Java Runtime Environment
- **Android**
    - Operating System (OS) for embedded devices
    - *Android enabled device*
        - A device (typically a smartphone or tabet) running the Android OS

    - Android API
        - Application programming interface (API)
    - Google Maps API
        - API for Google Maps service. (Example of implementation: http://www.gmap-pedometer.com/)
- **GUI**
    - Graphical User Interface
- **Location Service**
    - Any embedded service in a device enabling users to request GPS-Coordinates

- Application-specific glossary:

- **Challenge**
    - A question or problem, with a specific solution. A challenge will have one location associated with it.
- **Location**
    - A physical location, represented by GPS-coordinates. Can also include a description.
- **QuizWalk**
    - A QuizWalk is a list of **challenges**. It may also involve some **reward** if completed.
- **User**
    - A user with a name, mail, score and password to log in.
- **Player**
    - A unique user participating in a QuizWalk.
- **Reward**
    - Representation of different achievements. “Score” would be such a reward.

2. Requirements

2.1 Functional Requirements

The user should be able to

- Login
- Register
- Start a game, choosing from different QuizWalks
- Complete a question
- Complete whole QuizWalk
- Get a question popping up when arriving to a certain location
- Create a QuizWalk with questions at certain locations

- Get a summary of the QuizWalk when finished, with gained points, completed challenges and other info

2.1 Non-functional Requirements

2.1.1 Usability

Apps usually are well-designed and easy to use. Being a game, it is extra important for the GUI of QuizWalk to be very easy and fun to use.

Since users of mobile phones often exists apps to answer phone or do other things, it should always be possible for the user to reopen the app and find the app in the same state he left it.

2.2.3 Performance

User-actions only affecting local client should react more or less instantly. Synchronized actions to server (e.g. Report GPS location or get loading maps) will be dependent on individual client connections to the internet.

The application should not drain the users battery-life, so all services, like the GPS, should be turned off when not need.

2.2.4 Supportability

The domain-model should be possible to use in another implementation of the program, for another platform, like some other operating system that supports Java. The code written specifically for Android OS will not be possible to reuse to a larger extent. Making a prototype for some other platform could take as long as 2 man-months.

The app should be well prepared for implementation of a server, to hold created QuizWalks and user-data.

2.2.5 Implementation

The application will be written in java, with specific packages for Android OS from google. It will utilize Google Maps API for Android to display maps and locate questions.

2.2.6 Packaging and installation

The application will be distributed in a .zip-archive, containing:

- The runnable application - will be delivered as a .apk file, which is a zip-archive containing

all that is needed to run an Android application on an Android enabled device.
    - This file also contains all resource files, including graphical content, libraries and manifest.

- A README-file documenting usage of the application..

2.2.7 Legal

Not covered here.

2.3 Application models

2.3.1 Use case model

See APPENDIX for use case model and textual descriptions.

2.3.2 Use case priority

1. Complete challenge
2. Start Game
3. Reach challenge destination
4. Quiz over
5. Create Quiz
6. Login
7. Register

2.3.3 Analysis model

See APPENDIX

2.3.4 User interface

Application will utilize the Android SDK user interface: Targeting handheld mobile devices for optimal viewing experience.

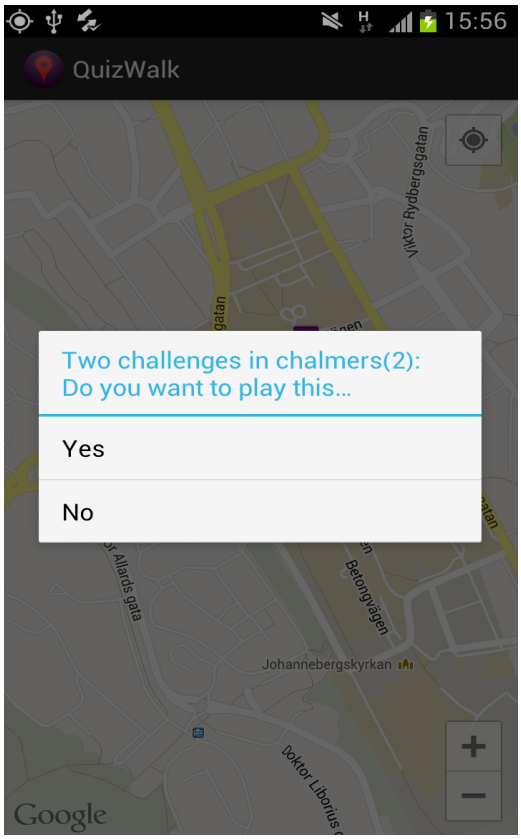
The app will be, to a lesser extent, support devices with smaller screens, but optimized for bigger screens with resolution 480x800.

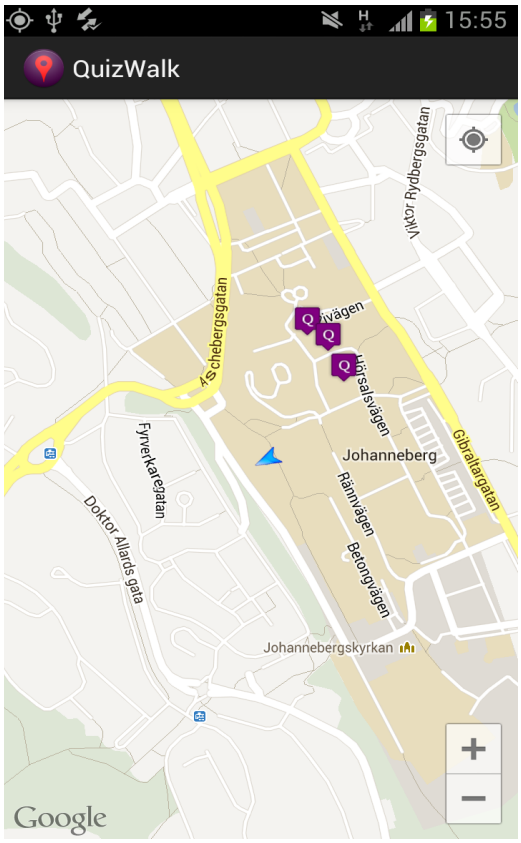
Some features mentioned in this document are not fully integrated into the user interface whilst implemented in the game model.

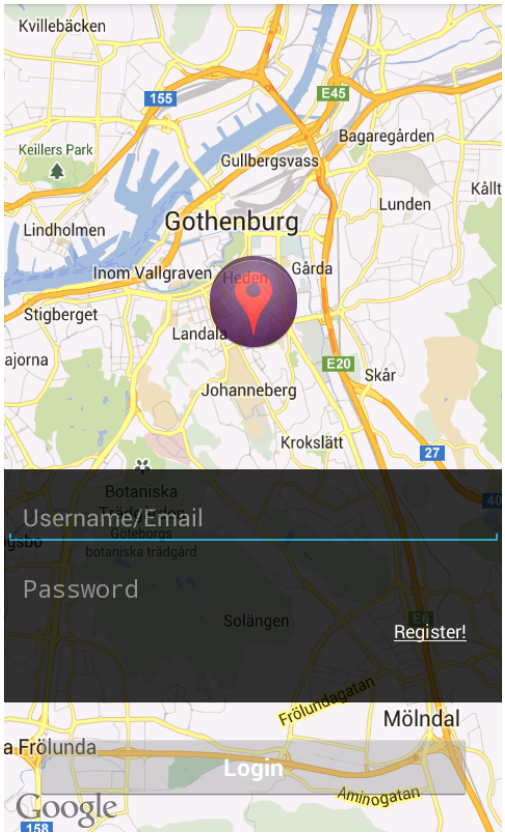
APPENDIX

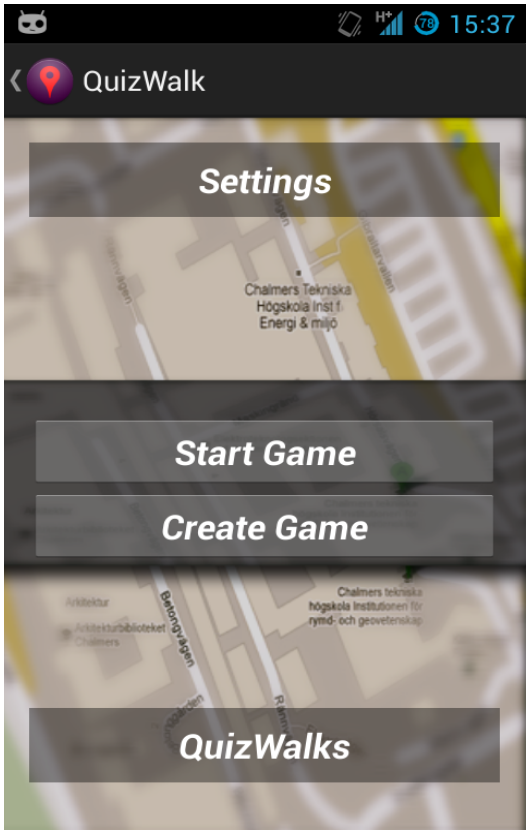
See included document “RAD - Use Cases”

Preliminary gui

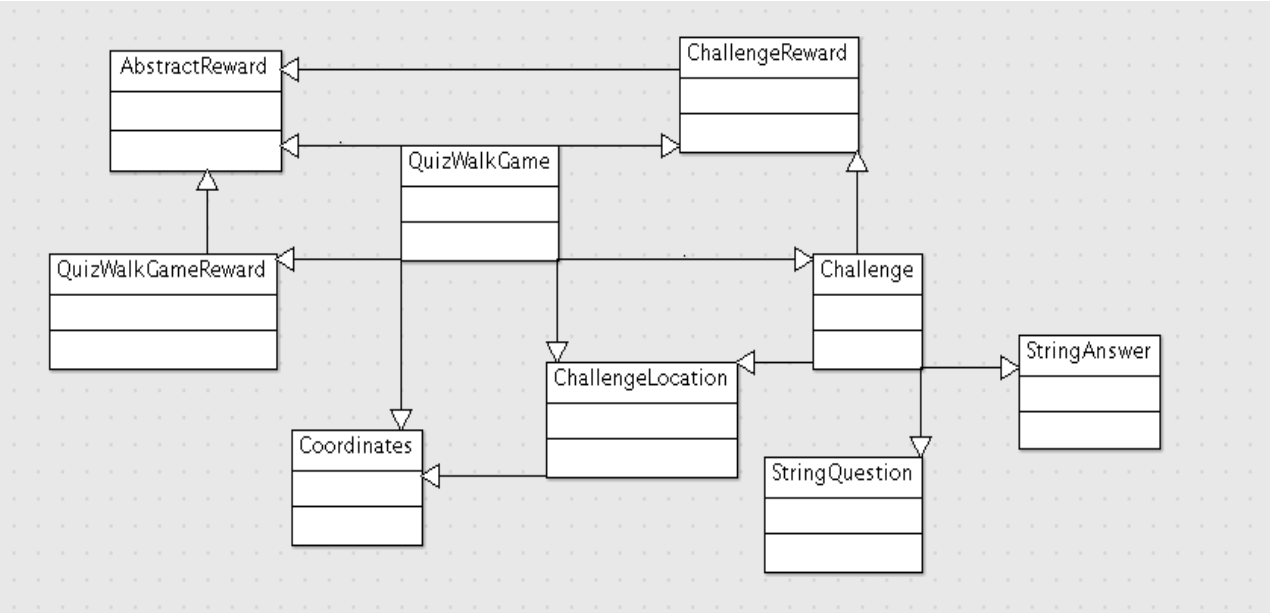








Analysis Model



2.4 References

The concept of QuizWalk:
http://sv.wikipedia.org/wiki/Tipspromenad (in swedish)

Android development:
http://developer.android.com/index.html

Google Maps API for Android:
https://developers.google.com/maps/documentation/android/