Geospatial System Requirements Specification

for

The Park Planner

Version 1.0

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Revision History

Name	Date	Reason For Changes	Version
Laura Flyte	**4/19/2012**	**Grammar**	**1.0**

Introduction

1.   ## Purpose

We are proposing a geospatial system that benefits tourist at amusement parks. The system will give real time information on ride statuses; wait times, character greeting locations, and special event show times. The system would be made into a smart phone application and potentially also be available on touch screens located at the park entrance. This application would have the user create a "user profile". This profile would include basic information that pertains to the parameters needed for customized park information, such as height for rides. There would also be an option for the user to leave comments about the rides, shows, or park in general. By utilizing the GPS system already in place by a smart phone, our system would allow a user to "map" their way through an amusement park. The application would consider the real time data for the rides, character meetings, and shows, and then output a "route" through the park on a map-based interface.

2.   ## Document Conventions

We focused on applying the 10 usability heuristics as a "rule of thumb" for user interface design in order to meet the needs of the end user.

3.   ## Intended Audience and Reading Suggestions

This document is primarily intended for park administrators such as the owners, developers, project managers, marketing staff, and testers.

4.   ## Project Scope

The purpose of The Park Planner is to provide increased efficiency to the park system and allow the end-users with a more enhanced experience at amusement parks as a cost-effective tool that benefits all associated use cases.

5.   ## References

http://developer.android.com/guide/practices/ui_guidelines/index.html <<User Interface Guidlines for Andriod Developers, Human Computer Interaction Institute at Carniage Mellon University (Citizen Sciensits).
http://www.hcii.cmu.edu/, Human Computer Interaction Center at Penn State,

http://www.hcii.cmu.edu/, John A Dutton e-Education Insistute (GEOG 468, GEOG 463).
Balsamiq Mockups for Desktop -7 day free trial, Balsamiq

6. Product Perspective

Diagram 1

7. Product Features

The main features of the product include an interactive map of the park that contains real-time ride and attraction information as well as a customizable user profile that can be saved to the users device. Other features include line sensor data to determine the queue time for rides, route planning, and finally, query and filtering of the ride database for ride information and restrictions.

8. User Classes and Characteristics

The first user class consists of the most frequently used aspects of the application and system. This includes the line sensors which have a high frequency of use throughout the park operating hours providing real-time queue times, the devices using the application daily, park administrators overseeing park operations, and finally the customer. The customer will need frequent access to the park database and route planning systems throughout their time in the park. Another user class consists of the various levels of education a user needs to deal with the application. The customer needs the least amount of education to use the application, this keeps it accessible to various age groups and those guests with different backgrounds in technology use. Above the customer is the application and park management who will need working knowledge of a GIS and spatial literacy, as well as programming and database management knowledge to keep the system operational and up-to-date. Out of all the classes, the customer is the most important to satisfy since they will be the ones to use the application daily and throughout their entire park experience. Customers are the ones who ultimately provide profit to the parks.

9. Operating Environment

The architecture in which the system will operate will include the hardware and the operating system. Hardware consists of the server, router, computer, television, phones, and line sensors. The operating system will be a mobile OS such as the Android and iOS. The application will also have software that is Linux based.

10. Design and Implementation Constraints

The main limitations to the application development are time and money available to develop, research and test the application. Developers will also have to take into account that not everyone will have access to a smart phone. This requires a secondary device to display a public version of the application on touch-screens throughout the park. Due to the wide range of people using the application, developers will have to make the application available to people with various levels of

education and technological skill sets. The software will need to be basic and recognizable to the user so they can teach themselves how to use the application. Specifically, the user interface should follow the 10 usability heuristics guidelines. Lastly, the developers and programmers will need to ensure that the application is secure and maintainable. This may limit the developers because park management and customer service employees who are not familiar with programming will need to have a working knowledge of the application foundations to deal with issues as they arise.

11. User Documentation

The application will have both an online tutorial as well as an introduction to the application (video demo). Internally, the application will contain a small help system that includes frequently asked questions, basic feature explanations, user controls, and any other basic information a user may need. There will also be access to a help line if a users questions cannot be answered through the help documentation.

12. Assumptions and Dependencies

It is assumed that most people who will use this application have at least a basic understanding of touch-screen technology, knowledge of smartphone application use, and basic map reading skills. The system will utilize GPS capabilities on the user's phone and communicate the user's location via Google Maps while the user is getting directions to the park.

2. System Features

3.1.1 Database

The database is of high priority as a system feature. It will hold all park data including, queue times, ride attribute data, attractions and amenities information. Furthermore the database will run parallel with the user devices where queries will originate from.

3.1.2 Application

The application as a feature will consist of the interactive map and visualization of the park for guests to plan out their day. Guests will be able to create a user profile to customize their day by filtering rides and attractions by attributes. The application will also provide recommendations for users based on their ride history.

3.1.3 Experience

The application will provide the feature to enhance the guest's experience within the park by aiding with route planning. This allows the user to save time and is much more cost efficient than wandering around the park. The user profile will also be saveable so the guest can re-use the application each time they come to the park and have specific areas they'd like to

visit. The goal is for the Customer to be able to easily enjoy as many of the aspects of the park as possible in a day.

3. # External Interface Requirements
1. ## User Interfaces

Since most people are familiar with web browsers, the application GUI will follow a similar interface. This includes home, back, and search buttons as well as dropdown menus and radio buttons for feature selections and queries. The buttons and functions will be consistent between menus and should be recognizable to an average computer user. Any features that are not easily recognizable by the public will make use of semiotics and have a symbol or name that references the features action. All features will follow the usability heuristics that have been researched. The screen layout of the application will be limited by what can fit comfortably on a smartphone screen.

2. ## Hardware Interfaces

The interfaces within this application consist of; the link between the database and application, the GPS and the user's phone, the application and the database server, and the route between the screen/display and code. Many of these aspects will need to happen in a wireless environment and be programmed as such. See Figures 1-5.

3. ## Software Interfaces

The application will have the ability to connect with outside applications such as Google Maps and even weather data from a separate application. It will also utilize a SQL database that will be available for queries of ride data and park information. The operating system that the application is meant for will be a mobile OS (iOS, Android, etc.).

4. ## Communications Interfaces

Communication requirements for this application include the use of a web browser for the initial download and for extended help documentation. The application itself will require parallel communication between the user's phone, park database, and GPS. All of these communications will have to take place in a secure network to avoid outside tampering.

4. # Other Nonfunctional Requirements
1. ## Performance Requirements

The application should be small because of being used on a smartphone, limiting the app size to between 7 and 10 megabytes is required. The memory usage should also be relatively low as to not overload the user's phone, this should stay below 10 megabytes as well. A general smartphone

has an 800 megahertz processor so the program will need to be developed with that in mind. Finally, the application would ideally have some capacity to update in real-time for the guests so they can access notices about unscheduled ride maintenance and incoming bad weather or park closings.
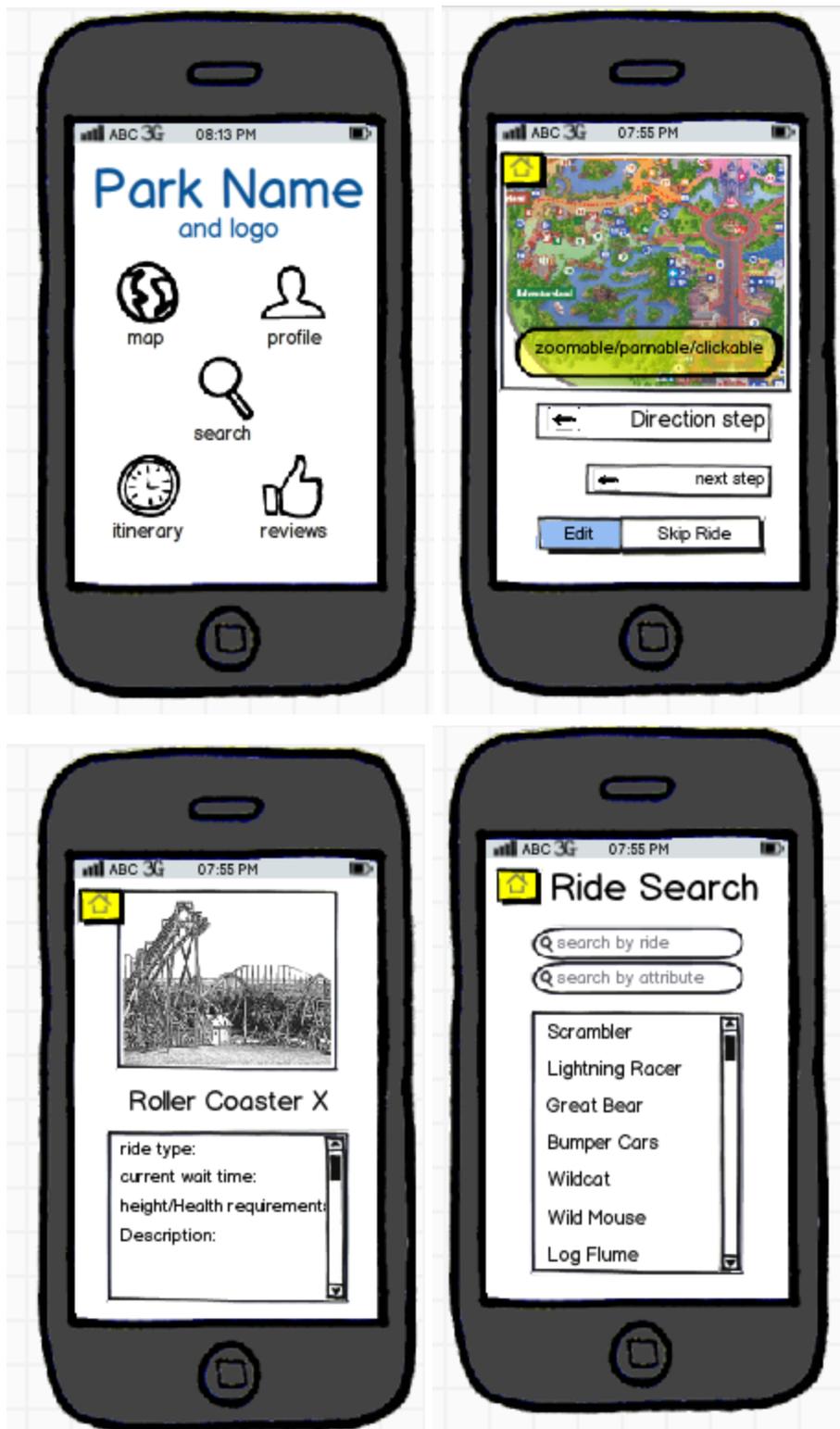
2.   Safety Requirements

Possible risks during use of this application are low. Users should be aware of their surroundings while using the application and use common sense to avoid putting themselves or others at undue risk.

3.   Software Quality Attributes

To ensure high quality of the program, an exit survey as well as an open ended interview will be given during testing of the product. Various groups will be interviewed and surveyed to ensure a wide selection of use cases are covered. These groups will include the general park goer, park management, and employees. It is important that the park guests are satisfied with the usability of the application and are able to reuse it during future visits. The application also must be reliable and maintainable due to the high frequency of changes within amusement parks pertaining to ride breakdowns and weather changes.

Appendix A: Models