Software Requirements Specification

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1 Introduction

The following document will outline and describe the mobile application meant to answer the question "What is this?" with respect to natural optical phenomena. In this document, the question of what the application will do will be addressed, however emphasis will be made to avoid addressing how the mobile application will accomplish its tasks. This document will define the purpose and scope of the application, along with any associated definitions, acronyms and abbreviations. In addition, product perspective, product function, user characteristics, constraints, and assumptions and dependencies will be explored with respect to how they apply to the mobile application. Functional requirements and non functional requirements will also be defined in this document.

1.1 Purpose

a) As mentioned previously, the requirements document is meant to describe everything that the system must do. This will include all tasks that the application must complete as shown in the functional requirements , as well as how the application must look, perform, be maintained, be usable and be secure as shown in the non functional requirements. Through the use of business events and viewpoints, the requirements document will outline how the application must react to different user stimulus.

b) The intended audience of this document is anyone who wishes to gain insight on what the application must do and how it must react to user stimulus.

1.2 Scope

a) The application will be called Nature Optix.

b) The product will allow the user to answer a set of questions asked by the application. The application will then try to determine what natural phenomena the user is trying to specify based off the users answers. The application will also allow the user to take pictures of the phenomena and post it to social media.

c) The objective of this application will be to enable the user to identify natural and optic phenomena. Other features, such as allowing the user to post picture to social media will help to generate awareness of different natural and optic phenomena.

1.3 Definitions, Acronyms, and Abbreviations

a) Not Applicable

1.4 References

Not Applicable

1.5 Overview

a) The rest of this document will be organized into 3 parts as follows: Overall Description, Functional Requirements, and Non-Functional Requirements. Each of these sections are further broken down. The Overall Description will discuss product perspective, product function, user characteristics, constraints, assumptions and dependencies, and apportioning of requirements. The Functional Requirement will list all functional requirements and provide business events and viewpoint corresponding to each. Non-Functional Requirements will be divided into the following sections: Look and Feel requirements, Usability and Humanity Requirements, Performance Requirements, Operational and Environmental Requirements, Cultural and Political requirements, and Legal Requirements.

2 Overall Description

2.1 Product Perspective

The product under production will be similar to Akinator, the Web Genie. Akinator is an internet game that is based off of twenty questions. The game has the user think of a charcter or famous person. Akinator then asks the user a series of questions that can be answered with either Yes, No, Maybe, or Don't Know. Akinator than guess who the user is thinking of based on the answer given. Unlike Akinator, this application will focus soley on identifying natural phenomenon based on user information.
Due to the time constraints of the semester the application will be totally self-contained.

2.2 Product Functions

Some of the funtions that the applictaion will perform are as follows;

1. Identify a natural phenomona based on inputs
2. Allow the user to take a photo to share on social media

2.3 User Characteristics

The intended users are assumed to have the following characteristics:

a) user has a grade nine level education

b) users are aged at least thirteen years

c) users are familiar with using mobile applications

d) users have accounts with social media websites

These assumptions are made of the user because these are the characterics of the indented audience of the application.

2.4 Constraints

Some of the constraints that have been put on the project are;

a) Time: The project must be completed within the set time of the sesmester. Also the developers time will be spilt between the project and other course work for external classes.

b) Budget: The project has a budget of zero dollars becuase it is a school project.

c) Software: The application is restricted to run on the Android operating system. This is a constraint that is laid out by the insturcutor for the project.

2.5 Assumptions and Dependencies

a) Assuming that users have phones that run atleast Android 4.0. This allows for the widest availability coverage.

b) Assuming that the user's phone has internet access. This allows for users to connect to the experts as well as any other features that are to be implemented.

c) Assuming that the user's phone has a build in camera. This allows for the user to take pictures of the natural phenomenon.

2.6 Apportioning of Requirements

1. Not Applicable

3 Functional Requirements

BE1. User wishes to access the app

VP1.1 User

i. User shall be able to download the app onto their smart phone. This operation will be handled by the operating system.

ii. User shall be able to open the app.

VP1.2 System Developer

i. Application shall be able to handle user input.

BE2. User wishes to take a picture and post it to social media

VP2.1 User

i. User shall be able to access the built-in camera on phone and it's functionality from the app.

ii. User shall be able to save the picture to the app and the phone.

iii. User shall be able to post to social media directly from the app.

VP2.2 System Developer

i. Application shall have access to internet via wireless connection from smart phone.

ii. Application shall have access to the built-in camera on the smart phone.

iii. Application shall have access to social media (Instagram)

iv. Application shall be able to save pictures directly to the phone.

BE3. User wishes to view and modify pictures from the app

VP3.1 User

i. User shall be able to view saved pictures through the app and the phone.

ii. User shall be able delete pictures from the app and the phone.

VP3.2 System Developer

i. Application shall display requested pictures to the user.

ii. Application shall be able to delete pictures directly on the phone.

BE4. User wishes to identify a natural phenomena

VP4.1 User

i. User shall be presented with options in which they can narrow down possible answers to "What is this?".

ii. User shall be able to post a picture on social media through the app to get feedback from friends to identify a phenomenon.

VP4.2 System Developer

i. App shall provide the user "Yes or No" questions to identify a natural phenomenon.

ii. App shall access the user's location using google maps services.

iii. App shall be able to narrow down options after each question asked.

iv. App shall display the identified phenomenon on the interface.

v. App shall have access to the internet via wireless connection from smart phone.

vi. App shall have access to social media(Instagram).

vii. App shall be able to switch "expert" modules in order to identify the natural phenomenon

4 Non-Functional Requirements

4.1 Look and Feel Requirements

4.1.1 Appearance Requirements

LF1. The product shall have a simple display and easy to understand user interface.

4.1.2 Style Requirements

N/A

4.2 Usability and Humanity Requirements

4.2.1 Ease of Use Requirements

UH1. Product should be understandable and easily navigateable for all those between the ages seven to sixty years old.

UH2. No prior training is necessary in order to use this product assuming the user understands the basic naviagtion of their phone and general applications on their device.

4.2.2 Personalization and Internationalization Requirements

UH3. Product is only available in Canadian English.

UH4. Each user will be able to use their personal social media accounts to upload their desired images. The social media platforms that they will be able to access are Facebook, Instagram and Twitter.

4.2.3 Learning Requirements

UH5. Assumption is made that user already knows the basics of navigating their phone and simple applications on their phone.

4.2.4 Understandability and Politeness Requirements

UH6. The product shall hide the details of its implementation from the user.

UH7. The product shall use symbols and words that are naturally understandable to the user.

4.2.5 Accessibility Requirements

N/A

4.3 Performance Requirements

4.3.1 Speed and Latency Requirements

PR1. The system shall respond to any user input within three seconds.

PR2. The user shall be able to upload the desired picture to their designated social media platform within two minutes.

PR3. The user shall be able to recieve their location status within two minutes.

4.3.2 Safety-Critical Requirements

N/A

4.3.3 Precision or Accuracy Requirements

PR4. The product shall accurately detect natural phenomenon.

PR5. Location shall be accurately detected according to accuracy available with google maps.

4.3.4 Reliability and Availability Requirements

PR6. Product shall be available for use 24 hours a day, every day of the year.

4.3.5 Robustness or Fault-Tolerance Requirements

PR7. The product shall alert user if internet connection is not available.

4.3.6 Capacity Requirements

PR8. The product shall be able to save as many photos as there is memory available on the device.

4.3.7 Scalability or Extensibility Requirements

N/A

4.3.8 Longevity Requirements

PR9. This product is expected to operate without any maintenance.

4.4 Operational and Environmental Requirements

4.4.1 Expected Physical Environment

N/A

4.4.2 Requirements for Interfacing with Adjacent Systems

OE1. This product shall interact with google maps in order to determine the user's location and location of natural phenomenon.

OE2. This product shall be able to capture photos using the devices camera application.

OE3. This product shall be able to upload photos to user's social media platforms including Facebook, Twitter and Instagram.

OE4. This product shall be able to interact with weather application to determine current weather status.

4.4.3 Productization Requirements

N/A

4.4.4 Release Requirements

N/A

4.5 Maintainability and Support Requirements

4.5.1 Maintenance Requirements

MS1. The application needs to be able to work efficently under several circumstances, namely - scalability, portability and robustness.

- Scalability : When the application scales, depending on our algorithm and the web services that we end up using, we need to take into consideration that each user is served equally and well (request reponse less than 5 sec)
- Portability : For now the application should only work for Android. But we need to make sure that the architecture is so robust that come time and if we get a good response, we can port it to other platforms

4.5.2 Supportability Requirements

MS2. We shall take multiple steps to ensure that the application has built in/dedicated support via :-

- Secondary/Backup Server
- Framework/Frameworks that support backing up of data
- Dedicated support personnel
- A forum for users

4.5.3 Adaptability Requirements

MS3. Depending on how well the app does on the Android platform, we may decide to push it out on iOS, BlackBerry and Web.

4.6 Security Requirements

4.6.1 Access Requirements

SR1. From the user's perspective, anyone who has access to an android phone (w/ v. 4.4) will be able to download and run the application.

4.6.2 Integrity Requirements

SR2. The application shall be using a framework that ensures data integrity. The application's main concern is to return the right data upon a request made by the user; pproviding a secure SSL channel for the user all the way.

4.6.3 Privacy Requirements

SR3. The product shall not be obtaining crucial private information from the user, however in terms of being open about our intentions, we will be notifying users everytime we change our information policy.

4.6.4 Audit Requirements

SR4. Legally, we are required to turn over all of the information that is hosted on the application's servers and user data to an auditing firm. Note - This is stated in our information policy.

4.6.5 Immunity Requirements

SR5. The application is being developed for the Android platform; a derivative of linux, which is good in terms of handling malicious hacking attempts. We will be implementing Symmetric security measures for the different facets of the application. Emphasis will be on securing the database to ensure correct information is obtained upon every user request.

4.7 Cultural and Political Requirements

4.7.1 Cultural Requirements

CP1. The application should make sure that none of the phenomena (especially phenomena that is specific to a certian country/part of the world) has any cultural/religious affliations/statements associated to it.

4.7.2 Political Requirements

CP2. The application should make sure that none of the phenomena (especially phenomena that is specific to a certian country/part of the world) has any political affliations/statements associated to it.

4.8 Legal Requirements

4.8.1 Compliance Requirements

LR1. Personal information shall be implemented so as to comply with the Data Protection Act.

4.8.2 Standards Requirements

LR2. The applications shall comply with the standards stated by all the experts (web services) that are being used.

A Division of Labour

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