Software Requirements

Specification

for

DataPack Tracker

Version 1.0 approved

Prepared by TrackNet

Prince Prajapati - 18BCE183

Niraj Prajapati - 18BCE182

Jay Prajapati - 18BCE180

Rasik Prajapati - 18BCE184

Utpal Patel - 18BCE173

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Revision History

Name	Date	Reason For Changes	Version
Tracknet	8/13/20	Initial version	1.0.0

1. Introduction

1.1 Purpose

This document describes a software and hardware requirement and constraints for DataPack Tracker android application.This software is useful to users to know the data usage and also in tracking locations of towers . This software is also useful to limit data and also block the users if someone is using data with a high rate(In case of sharing of data and in wifi usage).This software is useful to users to know delay time,download speed,upload speed.It is also provide a function of an emergency bank.It also has a bedtime mode function which helps users to turn off data automatically.

1.2 Document Conventions

Main Section Titles :-

- **Font: Arial**
- **Face: Bold**
- **Size: 23**

Subsection Titles :-

- **Font: Arial**
- **Face: Bold**
- **Size: 17**

Subpoints of Subsection :-

- **Font: Arial**
- **Face: Bold**
- **Size: 12**

Other Text Explanations :-

- **Font: Arial**
- **Face: bold**
- **Size: 9**

UI - User Interface

UX - User Experience

OS - Operating system

Developer :- Native Android Developer

Requirements with highest priority are coloured in green.

1.3 Intended Audience and Reading Suggestions

Primary audience for this application is android mobile users as it doesn't include any cross-platform frameworks.There is another type of audience which include developers , testers and UX/UI designers .

Reading Suggestions :-

An Interested reader should follow this sequence for the rest of the document.

1. **Product Functions**
2. **Operating Environment**

3. **Assumptions and dependencies**
4. **Design and implementation constraints**
5. **User interfaces**
6. **Functional requirements**
7. **User Documentation**

1.4 Product Scope

This software is useful for tracking data usage and also helpful to users to decide which app is using how much data during a day,a month. It is also helpful to users if some of the apps use high data then it will notify users . Users can also set a data limit of daily usage. It is helpful to know the location of the tower from the user's devices. If towers are near the user's device and still the speed of connection is not preferable then it will suggest the user to call the company with a number. It will also have a bedtime mode which automatically turns off data at night. It also has an emergency bank that is a data that is preserved from the daily data pack for emergency work .

1.5 References

1> Android material design Guide :- https://developer.android.com/guide/topics/ui/look-and-feel

2> Android Documentation :- https://developer.android.com/docs/

3>Developer Blog :- https://android-developers.googleblog.com/

4>Android Studio installation :- https://developer.android.com/studio/install

2. Overall Description

2.1 Product Perspective

Data Tracker application is an application based on android API and It will be implemented on top of the Android core libraries. It uses the android material design library for UI.

2.2 Product Functions

- **Data tracker shows user's data usage.**
- **Data tracker gives the information of download and upload speed.**
- **It shows the information of how much data all the apps are using and if one app uses more data then with user's permission it will block the app.**
- **Here users can set data limits.**
- **If towers are near the user's device and still the speed of connection is not preferable then it will suggest the user to call the company with a number.**
- **It will also have a bedtime mode which automatically turns off data at night.**

- **It also has an emergency bank that is a data that is preserved from the daily data pack for emergency work .**
- **If a user has more data left than usual it will notify him/her to use the data pack.**
- **If someone is connected to a user's hotspot and it consumes more data then it will give an alert message to the user.**

2.3 User Classes and Characteristics

Mainly this software for those people who have Network problems in their area and who have data regarding problems in their android mobile phone .

TYPES OF USERS:-

1.Students and employees → Those who study online from their android phones ,they need data saver and continuous data for their online lectures or video or conferences.

2.Users from Network issues area → They need to complain in a mobile network company or they need to find a place where network speed is high.

3. .Users using High data→ They need to take care of their available data and which app uses more data and options for uninstalling it.

2.4 Operating Environment

System Requirements - Software

- **Desktop app:Android Studio**
- **Language:Java**

System Requirements - Hardware

- **Ram: Minimum 1 GB**
- **Space: Minimum 500 MB**
- **Minimum SDK version : 21**

2.5 Design and Implementation Constraints

This application is only for the android mobile users and android tablet users ,so it will not target the other devices like desktop,laptop or TV .It does not work on any other platform besides android, so mobile devices which run on any other OS are not intended for this purpose.

Tools that are used for this android studio and languages used are java and xml.

2.6 User Documentation

The product is under development stagehand requires a complete implemented prototype to explain the user documentation.Once the prototype is designed and implemented online manuals,user manuals can be provided.

2.7 Assumptions and Dependencies

- **Each user has a UserID and password.**
- **Good Internet connection is there.**
- **GPS is enabled to track mobile towers.**
- **User is using the app on android mobiles/tablets with supported hardware dependency.**

3. External Interface Requirements

3.1 User Interfaces

- **Back-end software : Firebase**
- **UI : XML**
- **All the design specifications are based on the android material design guide.**

3.2 Hardware Interfaces

- **All android mobiles and tablet that matches requirements**

3.3 Software Interfaces

- **Android studio - implementation**
- **Firebase - for user authentication and cloud storage**
- **Operating system - Android**

3.4 Communications Interfaces

- **Communication is handled by the underlying operating system which must be android.**

4. System Features

There are many features of this Software. Every feature has unique functionality.This many features lead our software to as close as use requirement.

4.1 System Feature 1

This subsection provides actual feature information that the user wants to know. The basic knowledge that users want to know. This subsection shows how our software responds and how it should work on users priority.

4.1.1 Description and Priority

1) **To calculate data consumption of apps on the mobile.**
2) **Notify users with the alert message for high data consumption of particular apps.**
3) **Data used for downloading this app**

4.1.2 Stimulus/Response Sequences

1.Search for available data - Display available data

2.Search for highly data usage app - Display highly data usage app in descending order

4.Search for data usage - Display its todays data usage

5.Search for nearly network towers -Display nearly network towers in order to distance

6.Search for bad time mode timing setting - Display setting with change option

4.1.3 Functional Requirements

- **ID: FR1**

  TITLE: Download mobile application

  DESCRIPTION : A user should be able to download the mobile application through either an application store or similar service on the mobile phone. The application should be free to download.

  DEPENDENCY : None

- **ID: FR2**

  TITLE: Download and notify users of new releases

DESCRIPTION : When a new/updated version or release of the software is released, the user should check for these manually. The download of the new release should be done through the mobile phone in the same way as downloading the mobile application.

DEPENDENCY : FR1

- **ID: FR3**

  TITLE: User registration - Mobile application

  DESCRIPTION : Given that a user has downloaded the mobile application, then the user should be able to register through the mobile application. The user must provide user-name, password and email address. The user can choose to provide a regularly used phone number.

  DEPENDENCY : FR1

- **ID: FR4**

  TITLE: User log-in - Mobile application

  DESCRIPTION: Given that a user has registered, then the user should be able to log in to the mobile application. The log-in information will be stored on the phone and in the future the user should be logged in automatically.

  DEPENDENCY: FR1, FR3

- **ID: FR5**

  TITLE: Retrieve password

  DESCRIPTION: Given that a user has registered, then the user should be able to retrieve his/her password by email.

  DEPENDENCY: FR1

- **ID: FR6**

  TITLE: Mobile application - Home Screen

  DESCRIPTION: Given that a user is logged in to the mobile application, then the first page that is shown should be the page with data statistics. The user should be able to see available data , used data and list of applications using data .User can see his profile details and other information about the data statistics.

  DEPENDENCY: FR4

- **ID: FR7**

  TITLE: data statistics for each application

DESCRIPTION: There should be a separate page for displaying data usage information of each application which is installed on a user's device.

DEPENDENCY: FR6

- **ID: FR8**

  TITLE: Map - view for towers

  DESCRIPTION: A user should be able to see a map view where all the nearby towers are displayed to the user and user can also choose the specific tower for navigating to that tower.

  DEPENDENCY: FR4

- **ID: FR9**

  TITLE: Navigation to tower

  DESCRIPTION: A user should be able to select a tower on a map. When a selection is made,the location of the tower should be sent to the mobile phone's GPS-navigation program. The user should then be navigated to the destination.

  DEPENDENCY: FR8

- **ID: FR10**

  TITLE: Profile Page

  DESCRIPTION: On the mobile application, a user should have a profile page. On the profile page a user can edit his/her information, which includes the password, e-mail address and phone number. A user should also be able to choose what language the mobile application should be set to

  DEPENDENCY:FR6

- **ID: FR11**

  TITLE: Bed time mode

  DESCRIPTION: In Bed time mode , mobile data will be automatically turned off on the specified time at night. A user can set the time.

  DEPENDENCY:FR7

- **ID: FR12**

  TITLE: Emergency Data bank

  DESCRIPTION: In emergency data bank , some of the data from daily data pack will be stored and users can use these data only after all the remaining data has been used.User can also tuen off the data bank and he can also set the data limit for bank.

DEPENDENCY:FR7

5. Other Nonfunctional Requirements

5.1 Performance Requirements

The requirements in this section provide a detailed specification of the user interaction with the software and measurements placed on the system performance

- **ID: PR1**

  TITLE: Optimal page load time

  DESCRIPTION:Average page load (from a user perspective) must be less than 500 milliseconds or optimal.

  DEPENDENCY: none

- **ID: PR2**

  TITLE: display of data statistics

  DESCRIPTION: Information regarding data usage should be easily displayed to the user and clearly understood by them.

  DEPENDENCY: none

- **ID: PR3**

  TITLE: displaying clear error messages

  DESCRIPTION: If the system loses the connection to the Internet or to the GPS device or the system gets some strange input, the user should be informed. Users have to turn data on to access the all features of the app.

  DEPENDENCY : none

5.2 Safety Requirements

- **Safety requirements are defined for the purpose of Risk reduction.**
- **The system shall not operate if the external temperature below 4 degree celsius.**

5.3 Security Requirements

- **Internal storage access.**
- **Users have to permit data access of all apps.**

- **Users have to give login info.**
- **No other person can see the user's data.**

5.4 Software Quality Attributes

Software Quality Attributes are:

Correctness: The software should be correct in terms of its functionality, calculations used internally and the navigation should be correct. This means the application should adhere to functional requirements.

Installability: It will be installed in >98% of android mobile phones.

Safety:There is no safety regarding issues in our software.

Robustness: Our software has good exception handling ,so there is no issue regarding reliability.

Performance: If you have good or average RAM in your device then performance level is very good.

Recoverability: There is no need of recovery because there is no possibility of failure of this software.

Flexibility : This software is flexible enough to modify. Adaptable to other products with which it needs interaction. This software is easy to interface with other standard 3rd party components.

5.5 Business Rules

No such business rule.

6. Other Requirements

No other requirements.

Appendix A: To Be Determined List

User Documentation
Layout Designs