University of Moratuwa

Parental Controller for Android
Software Requirements Specification
For Childroid
Version 3.1

Revision History

Date	Version	Description	Author
03/01/2012	1.1	Modify the Initial Document	H.M.G.C. Karunarathne
14/01/2012	1.2	Develop the Architecture of the system	H.M.G.C.Karunarathne
15/01/2012	1.3	Develop the Dynamic interaction between functionalities	H.M.G.C.Karunarathne
22/01/2012	1.5	Generate and send a message, Design GUI for Child app	H.M.G.C.Karunarathne
31/01/2012	1.7	Generated MMS and send, Forward pictures/Capture snapshot of screen	H.M.G.C.Karunarathne
14/02/2012	2.0	Modify for mid evaluation	H.M.G.C.Karunarathne
28/02/2012	2.5	Generate Call Notification Report	H.M.G.C.Karunarathne
13/03/2012	3.0	Get the Phone Location	H.M.G.C.Karunarathne
28/03/2012	3.1	Finalize Documents	H.M.G.C.Karunarathne

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Software Requirements Specification

1. Introduction

1.1 Purpose

The purpose of this SRS documentation describes the major functionalities and non-functional requirements of the Parental Controller for Android app. It has two major modules as Parentdroid and Childroid. This SRS is mainly focus on Childroid application. The limitations and constrains of system building. This document will be the guide line for the project development process.

1.2 Scope

Parental Controller for Android is an administrative application which will help to parents to keep track on their children. This is a software application which is running on Android OS. It has major two components as Parentdroid and Childroid as describe above. Parent can have the notification of under control Childroid and can able to get relevant data according to parent's interest.

Parent can specify the permission application which can be access by Childroid. And also get the notification about current activities those are occurring. Get the location of Childroid and keep reminders on their below hood.

 Additionally, integrated intelligent agent will be notifying about the suspect behavior of Childroid.

Other main application that is Childroid will be affected by this documentation mentioned application.

This documentation *will be updating about issues that are pop out* and changes that are applied to those issues.

1.3 Definitions, Acronyms, and Abbreviations

Parentdroid – The application which is control by an adult person. Administrator of the system

Childroid – person who is under control

SRS – Software Requirement Specification

GUI - Graphical user interface

1.4 References
- RUP examples :
  http://www.ts.mah.se/RUP/RationalUnifiedProcess/process/modguide/md_srs.htm
- RUP SRS template
- Parental Controller for Android – Feasibility Report
- Parental Controller for Android – Project Vision Report
- Parental Controller for Android – Project Schedule
- Parental Controller for Android – Project Development Case

1.5 Overview

Also this document we will discuss about these aspects of the project: product perspective product functions, user characteristics, constraints, assumptions and dependencies and requirements subsets under second topic. Also in topic three, it will be describe about the usability, performance and reliability etc like non-functional requirements.

2. Overall Description

- product perspective

There are two Android software applications which are running on Android base device. These apps are build top on the Android API provide by developers.
These apps are get the functionalities which are provide by Android libraries and perform.

Parentdroid has the administrative privilege and it can give/remove permission of Childroid.
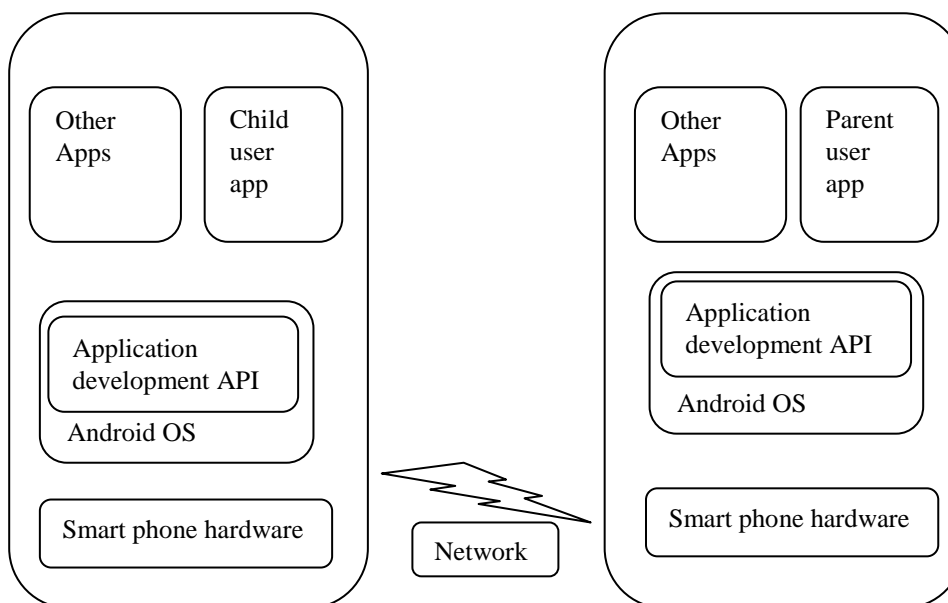
- product functions

  - Send child SMS to parent device.
  - Forward child SMS/MMS to an email account.
  - Send phone call notifications of child device as SMS.
  - Forward phone call notifications of child device to an email account.
  - Record phone call in audio file forwarded with notification if parent asked for those (forward by email only).
  - Send phone location with a time period.
  - Forward pictures
  - Send a random screen shot of videos play in phone (forward by email only).

- user characteristics

    The major target is Childroid

    - User should have basic skill about using Android device
    - User should be responsible for not doing unauthorized actions (if so those will be sent to parent)

- constraints

    - The availability of smart phones will limit the use of application.
    - Threat on attacking to the Childroid is a major issue
    - Users have to obey the guidelines given by the application.
    - Childroid will be disable after rebooting child's device
    - The mobile internet coverage/ GPRS coverage will be limited the communication between two applications
    - Time constrain of available time have to complete the project (Time is not sufficient to finished the project. Because of project scope is more than available time)
    - There are issues with testing the application with virtual device (Emulator). Some real functionality can't able to test.
    - Unable to sent message between two emulators
    - It is not permitted to take screenshot of the smart phone because of security issues.
    - Unable to send emails directly via Emulator.
    - Unable to disable application from a third party application when API level of Android become high.

- assumptions and dependencies

    - Assume users have smart phones with following facilities: Android OS, GPS and Internet Connectivity.
    - Assume that the GPS and Internet services are reliable.
    - Assume there is no any threat on Childroid
    - Assume child device starts up after rebooting the system

3. Specific Requirements

3.1 Functionality

3.1.1 *Generate and send messages via mobile service provider*

System shall generate the message with including application process defined data and sent to other mobile device via mobile service provider.
Rationale: Generated message will send useful data to Childroid as it can reachable to data. This would avoid application secretly installed on child device and get personal data.
Ref: http://developer.android.com/reference/packages.html

3.1.2 *Generate and send email via Internet*

System shall generate the emails with including application process defined data and sent to other email account via internet service. Have to use third party application (K9 mail)
Rationale: Generated email will send useful data which can't be go though some technologies. In emulator, it is not possible to send messages with directly code (it works in real device). So have to get the support of a third party application.
Ref: http://developer.android.com/reference/packages.html

3.1.2.1 Record voice and phone calls

System shall record the voice calls which are coming to Childroid

3.1.3 *Access to the file system*

System shall access to the file system of Android in order to store and retrieve data.
Rationale: Store large data until to process those (call record).

3.1.4 *Take snapshots of the screen*

System shall get the instance snapshot of the screen with random times. Unable to take snapshot of device because of it is a security issue. Use an external library to simulate in Emulator.
Rationale: this function will send current displaying view/using application to the parent. If it allows to take snapshots, someone can get the password of users.

3.1.5 *Get the phone location by mobile service provider*

System shall get the current phone location by Google API.
Rationale: parent wants to know about where is the child.

3.1.6 *Starts up after rebooting*

System shall startup with rebooting of Childroid.
Rationale: otherwise Parentdroid doesn't enable to get info from Childroid

3.1.7 *Communicate though Internet*

System shall communicate though Childroid with reliable, secured manner.
Rationale: Parentdroid should be able to communicate with Childroid with secretly without the exploited to child

3.2   Usability

3.2.1   Training Time for normal user

- Not applicable

3.2.2   Graphical user interface

- GUI must be using the standard key features which use for default application on Android.
- GUI should use simple table base user interface to operate the features and add/drop features.

3.2.3   Error Handling

- System should have the capability of errors handling.
- System should be check for the validity of the data.
- System should be informed with recovery guide details when some error occurs.

3.2.4   Help Documentation
   Not applicable

3.3   Reliability

3.3.1   Network

- App should be use encrypted messages to communicate through the network
   Rationale: to ensure the trustworthiness of the communication between two systems.

3.3.2   Availability

- Availability of the system

   System must be available 90% of the device working time.
   System should be response to request as soon as device starts up.

- Availability of the network

   Network should be available 100% to perform an action between two devices.

3.3.3   Communication

- Communication between two devices should have 90% correctness.

3.4 Performance

3.4.1 Optimized Data stored

- Application must use optimum data storage facility to store the data (It may use database or invented data stand to store data).
  Rationale: avoid wasting storage capacity of device and get high performance when retrieving data

3.4.2 Keep History

- Application shall be remove data after predetermined time period.
  Rationale: to get use of optimize usage and avoid drawback of keeping out of date data

3.4.3 Network utility
- Internet should be used in optimize way. When data size is too large, system should be send randomly selected piece of data to Parentdroid

3.5 Supportability

3.5.1 Android API

- Android software development API (http://developer.android.com/reference/packages.html) and Help can be found in the user mailing lists Android forum. http://developer.android.com/resources/community-groups.html
- Use java high level programming language to implement the system. That will enhance the work out put though the system developing and further maintainability of the system

3.5.2 Android OS backward capability

- Android have the capability of running older version application with newer version Android operating systems.

3.5.3 Good Coding Practice

- Use Object Oriented Concept in developing system
- User Design Patterns for enhance reusability and expandability
- Use good naming conversion to develop system

3.5.4 Development Process Documents

- The RUP templates are used for better documentation purpose

3.5.5   User Help Documents

- These documents will give the capability of avoiding system corruption by bad using

3.5.6   User Suggestions
- User suggestions will be help to debug the errors in system
- Enhance features
- Improve security issues

3.6 Design Constraints

- Unavailability of internet and GPS connections.
- Make sure the security though entrusts internet connection.
- Use GPS to get the phone location.
- Time limitation for the development process of the project
- Childroid has a threat on killing the application execution by another process.
- Ambiguity of getting system privileges

3.7 Interfaces

3.7.1   User Interfaces

There are few user interfaces to parent to use the functionalities of the system.

- Administrator logging interface – authenticate and give the permission to access the application features.

- Features add/drop user interface – check available features and to do necessary changers

3.7.2   Hardware Interfaces

The system must integrate with Android device to avoid unwanted behaviors when the device is switched off and on.

3.7.3   Software Interfaces

- Software application must be interfaced with Android OS.

- App should be interface with a web browser

3.7.4   Communications Interfaces

- GPRS connectivity with a mobile service provider

- Internet connectivity

- Mail server communication

3.8 Licensing Requirements

- Android: http://source.android.com/source/licenses.html

4. Supporting Information

Not applicable