SOFTWARE REQUIREMENTS SPECIFICATION

for

Event driven invocation of services from Android

Version 1.0

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Contents

1 Introduction

1.1 Purpose

The purpose of this document is to present a detailed description of a software system which invokes some services/actions on the occurrence of an Android Event(s). It will explain the purpose and features of the software-system, the interfaces of the software, what the software will do and the constraints under which it must operate. This document is intended for users of the software and also potential developers.

1.2 Document Conventions

This Document was created based on the IEEE template for System Requirement Specification Documents.

1.3 Intended Audience and Reading Suggestions

- Application Users, who want to use this android app for a particular action based on some conditions when met.
- Programmers who are interested in working on the project by further developing it or fix existing bugs.

1.4 Project Scope

EDIOS is an android application which can be used where some type of event(s) in one android device or service(s) automatically triggers an action in same device. Users can customize the services provided by android in a more user friendly way. EDIOS is a completely free software available to all android users.

1.5 References

IEEE Template for System Requirement Specification Documents:
https://goo.gl/nsUFwy

2 Overall Description

2.1 Product Perspective

EDIOS is a standalone Android app that provides functionality described in the products function section.

2.2 Product Functions

Major functions that the product provides to the user:

- Choose an event based on some change in the state of the android device of user.
  - Receive a call/get a missed call
  - Change in date/time
  - Change in location
  - Change in battery power
  - Photo is taken from camera
  - Notes are saved
  - Change in Linear velocity
  - Change in temperature of the processor
- Automate some service based on the events chosen .
  - Save call logs to google spreadsheet
  - Set ring tone volume
  - Toggle on/off Wifi/Bluetooth/flashlight/GPS /power saver/Hotspot/Screen Lock/Airplane mode
  - Send an E-mail
  - Send an SMS
  - Get weather forecast notification
  - Set an Alarm/Reminder
  - Set Wallpaper
  - Make a phone call
  - Post on facebook

2.3 User Classes and Characteristics

- Application User, who want to use this android app for a particular action based on some conditions when met.
- Programmers who are interested in working on the project by further developing it or fix existing bugs.

2.4 Operating Environment

The app will be designed to run on all android devices which runs on Android version V5.0 and above(This will cover more than 90% of devices).

2.5 Design and Implementation Constraints

EDIOS is developed using Java and XML ,It is built on top of Android Studio. It uses a modular design where every feature is wrapped into a separate module and the modules depend on each other through well-written APIs. Several Google APIs were also used to support the functioning.

2.6 Assumptions and Dependencies

EDIOS is an android application so user must be familiar with android features and functionality.He should also understand basic English instructions to create and customize events.

3 External Interface Requirements

3.1 User Interfaces

User interface should be such that a normal user can easily create desirable functionality after going through the tutorials once(which are displayed on the screen while creating an event). User can create multiple events at a time and can choose multiple services also.

3.2 Hardware Interfaces

An Android Phone or Tablet

3.3 Software Interfaces

EDIOS uses Google's API services for certain tasks.It uses SQLite database engine of android to manage all the data used for creating and executing services.

3.4 Communications Interfaces

EDIOS requires internet connection to communicate with Google's API and executing other services.Also App requires mobile cellular network connectivity for certain services.

4 System Features

This section demonstrates EDIOS's most prominent features and explains how they can be used and the results they will give back to the user.

- Creating an Event
- Editing/Deleting an existing Event
- Searching for Available Services

4.1 Functional Requirements

4.1.1 Use Case Scenarios

4.1.1.1 Use Case Scenario: Post on Facebook

Purpose	Post on facebook
Actor	User of the application
User Input	Content to be posted on facebook.
Precondition	1. User must select an event and selected service must be "Post on facebook". 2. Facebook app must be already installed on device. 3. device must be connected to internet. 4. App must have permission to post to facebook,Photo Gallery,Internet connection.
Postcondition	Successful post made on facebook
Basic Flow	Text and Pre-selected photo is accessed from the gallery and saved in Local Database , then it is posted to facebook
Alternative Flow	If internet connection is absent, then post saved in local database is accessed after every 30 minutes within a specific time period and app tries to post it on facebook

4.1.1.2 Use Case Scenario: Save call logs to spreadsheet

Purpose	Save call logs to spreadsheet
Actor	User of the application
Precondition	1. User must select an event and selected service must be "save call logs to spreadsheet". 2. Google sheets must be already installed on device. 3. User must allow to access the call logs, and permission to read write to spreadsheet.
Postcondition	Call logs is written in spreadsheet
Basic Flow	Call logs is accessed, and if internet is connected spreadsheet is updated
Alternative Flow	Call logs is accessed and stored in local database whenever internet is not connected

4.1.1.3 Use Case Scenario: Set ring tone Volume

Purpose	Set ring tone Volume
Actor	User of the application
User Input	Volume Level as percentage
Precondition	1. User must select an event and selected service must be "Set ring tone Volume". 2. User must allow to access the ring tone volume.
Postcondition	Desired ring tone level is set
Basic Flow	App Accesses android's ring tone volume manager and changes the current volume level to the Input provided by the User
Basic Flow	1. The volume level to be set is saved in the local database 2. when the selected event occurs volume level is fetched form the local database and then volume level is updated.

4.1.1.4 Use Case Scenario: Toggle on/off

Purpose	Toggle on/off Wifi/GPS/Bluetooth/Airplane Mode/flashlight/Hostspot/Screen Lock/Power Saver
Actor	User of the application
User Input	Intended State to be Updated
Precondition	1. User must select an event and selected service must be "Toggle on/off". 2. User must allow to access the Wifi/GPS/Bluetooth/Airplane Mode/flashlight/Hostspot/Screen Lock/Power Saver.
Postcondition	Changes in the state of Wifi/GPS/Bluetooth/Airplane Mode/flashlight/Hostspot/Screen Lock/Power Saver is/are successfully performed.
Basic Flow	1. The Desired state is saved in the local database after getting Input 2. When selected event is occurred the state is fetched from the database and then updates it

4.1.1.5 Use Case Scenario: Send an E-mail

Purpose	Send an E-mail
Actor	User of the application
User Input	Subject,Recipient and Content of the Email
Precondition	1. User must select an event and selected service must be "Send an E-mail". 2. G-mail app must be installed on the device. 3. App must have permission to access G-mail and send an email through it.
Postcondition	An email is sent through G-mail account of the user to the selected recipient.
Basic Flow	1. All Input data is saved in the local database. 2. When the Event is occurred then data is fetched from the database then email is sent to the selected recipient

4.1.1.6 Use Case Scenario: Send a SMS

Purpose	Send a SMS
Actor	User of the application
User Input	Recipient and Content of the SMS
Precondition	1. User must select an event and selected service must be "Send a SMS". 2. App must have permission to access contacts and send SMS.
Postcondition	A SMS is sent through message service, to the selected recipient.
Basic Flow	1. All Input data is saved in the local database. 2. When the Event is occurred then data is fetched from the database then SMS is sent to the selected recipient

4.1.1.7 Use Case Scenario: Get weather forecast notification

Purpose	Get weather forecast notification
Actor	User of the application
Precondition	1. User must select an event and selected service must be "Get weather forecast". 2. Device must be connected to the internet. 3. App must have permission to access GPS service.
Postcondition	A weather forecast notification is received by the user.
Basic Flow	1. Latitude and Longitude is fetched through GPS of the device and Google's GeoLocation API. 2. Weather information is received using Google's Weather API. 3. A notification is displayed to the user specifying the weather forecast.

4.1.1.8 Use Case Scenario: Make a phone call

Purpose	Make a phone call
Actor	User of the application
User Input	Recipient of the Phone Call
Precondition	1. User must select an event and selected service must be "Make a phone call". 2. App must have permission to make a phone call. 3. User's device must be in a network range.
Postcondition	Phone call is successfully made to the preselected recipient.
Basic Flow	1. Contacts of the user are accessed and the recipient's phone number is selected. 2. A phone call is made to the selected recipient.

4.1.1.9 Use Case Scenario: Set an Alarm/Reminder

Purpose	Set an Alarm/Reminder
Actor	User of the application
User Input	If Reminder is selected as an action then app will take text input from user for Reminder to be displayed,If Alarm is selected then user must select a ring-tone for the Alarm.
Precondition	1. User must select an event and selected service must be "Set an Alarm/Reminder" ... 2. App must have permission to Set an Alarm/Reminder and select from Media.
Postcondition	A Reminder is displayed on the notification bar or Alarm has rung.
Basic Flow	1. Content for the Reminder/Ring-tone is saved in the local database. 2. When the events occurred the data is fetched from the local database. 3. If reminder was selected, then a notification is shown to the user with the pre specified message. 4. or Alarm rings with the reminder.

4.1.1.10 Use Case Scenario: Set Wallpaper

Purpose	Set Wallpaper
Actor	User of the application
User Input	A wallpaper to be updated.
Precondition	1. User must select an event and selected service must be "Set Wallpaper" ... 2. App must have permission to access Photo Gallery.
Postcondition	selected Wallpaper is updated successfully.
Basic Flow	1. Selected wallpaper is saved in local database 2. Then at the time of update app retrieves wallpaper from local db then updates it.

5 Other Nonfunctional Requirements

5.1 Performance Requirements

Application should consume less amount of RAM for background services running. Also the battery drainage for these background processes should be less.

5.2 Security Requirements

All the data is stored only in the local database on the device itself.So no risk for privacy.

5.3 Software Quality Attributes

5.3.1 Reliability

The reliability of the overall program depends on the reliability of the data provided by:

- User itelf.
- provided by Google's API and other API services.

5.3.2 Availability

All the data is stored in the database for events so if mobile phone/tablet is restarted then the data is still available. Some services don't utilize any external accessory,so they are always available whereas some services are available only if there is internet availability or cellular network availability.

5.4 Appendix A: Glossary

- Events: Change in the state of the android device(i.e. Scre en Lock–¿Screen awake
- Services: A Service is an application component that can perform long-running operations in the background, and it doesn't provide a user interface.
- EDIOS: Name of the Android Application(Event Driven Invocation of Services)