<Company Name>

Rafiki
Modern Software Requirements Specification
For Smart TV Conversion

Version 1.0

Revision History

Date	Version	Description	Author
10-2	1.0	<details>	Yassmeen

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Modern Software Requirements Specification

1. Introduction

1.1 Purpose

The purpose of this report is to show the requirements set by the customer for a device that converts the TV to a smart-TV. This means that the customer is going to be able to use enhance his TV experience by adding many smart features to his already purchased device.

1.2 Scope

The scope of this software is enhancing the user experience through android based mobile applications and recognition software. The software will be implemented using the java language. It will significantly enhance the user experience of his/her LCD TV.

1.3 Definitions, Acronyms and Abbreviations

Abbreviation	Definition
OS	Operating System
HDMI	High Definition Multimedia Interface
SVN	Subversion
SDK	Software Development Kit
IDE	Integrated Development Environment
API	Application Program Interface
CV	(computer vision)
USB	Universal serial bus
BLL	Business Logic Layer
GUI	Graphical User Interface
UC	Use Case
US	User Story (requirement)

1.4 References

- Project Charter document
- Project Plan document
- Project Vision and Scope document

1.5 Overview

The upcoming sections of this document hold detailed information about the project. These information are included in the following form:

- Overall Description **(Section 2):**
  This section of the document will describe the general factors that affect the product and its requirements. This section does not state specific requirements. Instead, it provides a background for those requirements
- Requirements **(Section 3):**
  This section of the document will contain all the software requirements to a level of

detail sufficient to enable designers to design a system to satisfy those requirements

2. Overall Description

2.1 Use-Case Model Survey

2.1.1 Introduction

The use case model describes the uses cases of this product that are defined and extracted from the user stories about how he/she wants to use this product.

2.1.2 Survey Description

[Survey description of the use-case model.]

2.1.3 Use-Case Model Hierarchy

1. UC-01 Switching between different application categories

ID	UC-01
Actor(s)	User
Description	User wants to switch between different application categories
Pre-conditions	1. The user's mobile is connected to the kit 2. The system boots up correctly 3. Bluetooth pairing connection is available
Basic Flow	1. Turn on Rafiki 2. Open mobile app. 3. The mobile pairs via Bluetooth with the kit 4. The user clicks on the app swapper button from home page. 5. The mobile will send a command to the kit via Bluetooth to the kit 6. The kit check the command and maps it to the required command 7. User Select the required category icon from swapper. 8. User Choose the required app from the opened window of all apps in this category
Post-conditions	The user can click on the toggle button again to show the swapper and switch between categories again
Map to	US-01

2. UC-02 Clear application favorites

ID	UC-02
Actor(s)	User
Description	User wants to clear application favorites
Pre-conditions	1. Bluetooth pairing connection is available 2. The user's mobile is connected to the kit 3. The system boots up correctly
Basic Flow	1. Turn on Rafiki 2. Open mobile app. 3. The user taps settings button in the mobile app from the app swapper 4. The user taps on the favorites settings option in the settings menu 5. The user chooses the clear favorites option
Post-conditions	The user can now put new favorites app in the settings from scratch

Map to	US-02

3. UC-03 add an application to favorites

ID	UC-03
Actor(s)	User
Description	User wants to add an application to favorites
Pre-conditions	1. Bluetooth pairing connection is available 2. The user's mobile is connected to the kit 3. The system boots up correctly
Basic Flow	1. Turn on Rafiki 2. Open mobile app. 3. The user taps settings button in the mobile app from the app swapper 4.The user taps on the favorites settings option in the settings menu 5. The user chooses the edit favorites option 6. The user checks the application he wants to add to the favorites
Post-conditions	The user can now see the newly added apps to the favorites
Map to	US-03

4. UC-04 change device volume

ID	UC-04
Actor(s)	User
Description	User wants to change device volume
Pre-conditions	1. Bluetooth pairing connection is available 2. The user's mobile is connected to the kit 3. The system boots up correctly
Basic Flow	1. Turn on Rafiki 2. Open mobile app. 3. The user taps settings button in the mobile app from the swapper 4. The user taps on the volume settings option in the settings menu 5. The swipes till the volume he needs or he can just click on volume up/down from the mobile app and rafiki will send command to the system to up or low the volume via Bluetooth pairing also
Post-conditions	The user can now enjoy listening to any music with the needed music
Map to	US-04

5. UC-05 view application categories

ID	UC-05
Actor(s)	User

Description	User wants to view application categories
Pre-conditions	1. Bluetooth pairing connection is available 2. The user's mobile is connected to the kit 3. The system boots up correctly
Basic Flow	1. Turn on Rafiki 2. Open mobile app. 3. The user taps on the toggle button to show the app swapper and then view the music or fav or social media icons
Post-conditions	The user can choose now any category and then any app he wants to access
Map to	US-05

6.UC-6 control an installed application

ID	UC-6
Actor(s)	User
Description	User wants to control an installed application
Pre-conditions	1. The system boots up correctly 2. The camera is connected to the kit 3. Bluetooth pairing connection is available
Basic Flow	1. Turn on Rafiki 2. Open mobile app. 3. The user taps on the app swapper on the all categories icon 4.the user chooses the category he wants to open the specified app 5. the user chooses the app he wants to open
Post-conditions	The user can easily now navigate in the chosen app or close it again
Map to	US-6

7.UC-7 view all the installed applications

ID	UC-7
Actor(s)	User
Description	User wants to view all the installed applications
Pre-conditions	1. The system boots up correctly 2. Bluetooth pairing connection is available1 3. The user's mobile is connected to the kit
Basic Flow	1. Turn on Rafiki 2. Open mobile app. 3. The user taps on the app swapper on the all categories icon

Post-conditions	The user can easily now navigate to the any app to open or close it again
Map to	US-7

8. UC-08 Turn off Rafiki

ID	UC-08
Actor(s)	User
Description	The user should be able to turn off Rafiki whenever he wants
Pre-conditions	4. The user's mobile is connected to the kit 5. The system boots up correctly
Basic Flow	9. Turn on Rafiki 10. Open mobile app. 11. The user taps the turn off button from the mobile app
Alternative flow	
Post-conditions	The user can eject Rafiki from his TV safely
Map to	US-08

9. UC-09 remove application from favorites

ID	UC-09
Actor(s)	User
Description	The user should be able to remove an application from the favorites list
Pre-conditions	1. The user's mobile is connected to the kit 2. The system boots up correctly
Basic Flow	1. The user taps settings button in the mobile app 2. The user taps on the favorites settings option in the settings menu 3. The user chooses the edit favorites option 4. The user unchecks the application he wants to remove from the favorites
Alternative flow	
Post-conditions	The user will no longer see the application as a favorite
Map to	US-09

10. UC-10 Change the device's brightness

ID	UC-10
Actor(s)	User
Description	The user should be able to change the device's brightness
Pre-conditions	4. The user's mobile is connected to the kit 5. The system boots up correctly
Basic Flow	1. Change brightness from slider on mobile app
Alternative flow	1. The user taps settings button in the mobile app 2. The user taps on the brightness settings option in the settings menu 3. User changes the brightness from slider on the screen
Post-conditions	The brightness is changed to the specified value
Map to	US-10

11. UC-11 Uninstall an application

ID	UC-11
Actor(s)	User
Description	The user is should be able to uninstall an already installed application
Pre-conditions	5. The user's mobile is connected to the kit 6. The system boots up correctly
Basic Flow	1. The user taps settings button in the mobile app 2. The user taps on the application manager in the settings menu 3. The user taps on the application he wants to install 4. The user taps on the uninstall button 5. The user approves uninstallation
Alternative flow	
Post-conditions	The user will no longer see the application
Map to	US-04

12. UC-12 Open an installed application

ID	UC-12
Actor(s)	User
Description	The user should be able to open any installed application on the device
Pre-conditions	4. The user's mobile is connected to the kit 5. The system boots up correctly
Basic Flow	1. The user taps to open one of the application categories 2. The user taps on the desired application to open
Alternative flow	
Post-conditions	The user can access the desired application
Map to	US-12

13. UC-13 Pair his mobile with Rafiki over Bluetooth

ID	UC-13
Actor(s)	User
Description	The user should be able to pair his mobile with Rafiki
Pre-conditions	1. The user has the Bluetooth in his mobile on. 2. The system boots up correctly
Basic Flow	1. The User will send a pair request to Rafiki 2. Rafiki will accept the pair request
Alternative flow	
Post-conditions	The user will be able to control rafiki

Map to	US-13

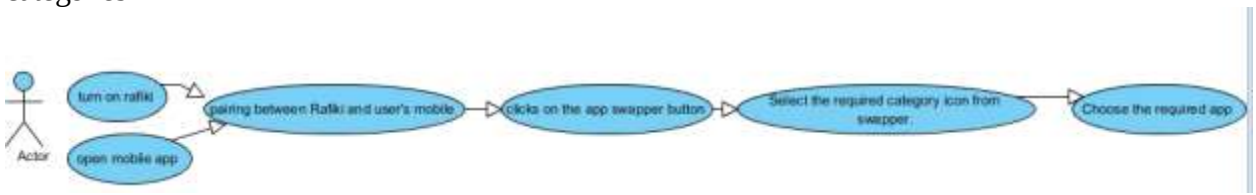
14. UC-14 Open Rafiki Settings

ID	UC-14
Actor(s)	User
Description	The user should be able to view the device settings
Pre-conditions	1. The user's mobile is connected to the kit 2. The system boots up correctly
Basic Flow	1. The user should tap on the settings button in the mobile app
Alternative flow	1. The user can navigate to the settings button in Rafiki
Post-conditions	The user can access the device settings
Map to	US-14

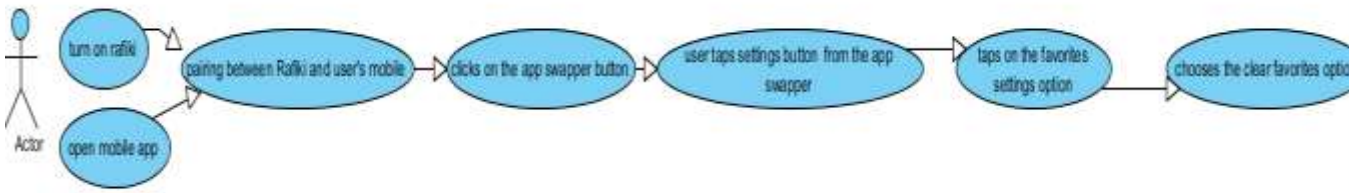
2.1.4 Diagrams of the Use-Case Model

- The MiniPc Package:

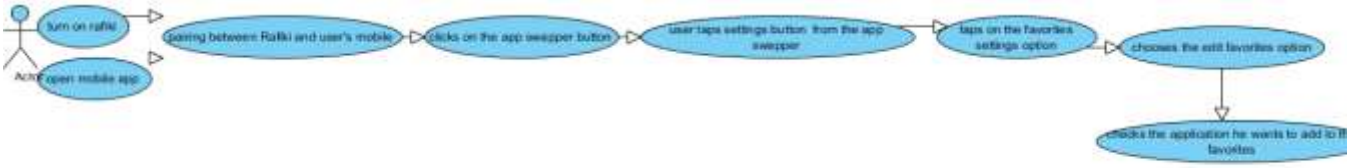
1. UC-01 switch between different application categories



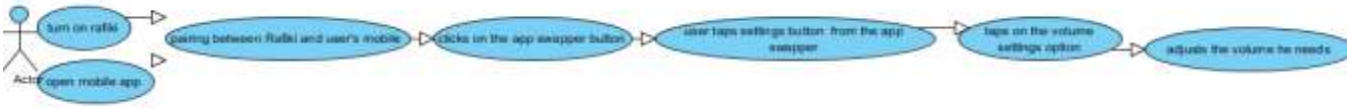
2. UC-02 clear application favorites



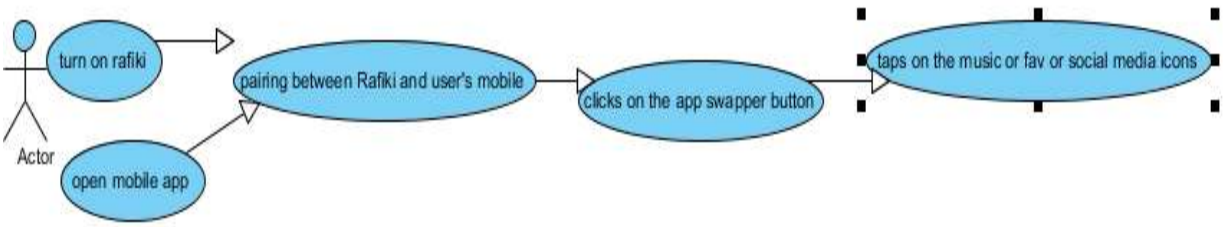
3. UC-03 add an application to favorites



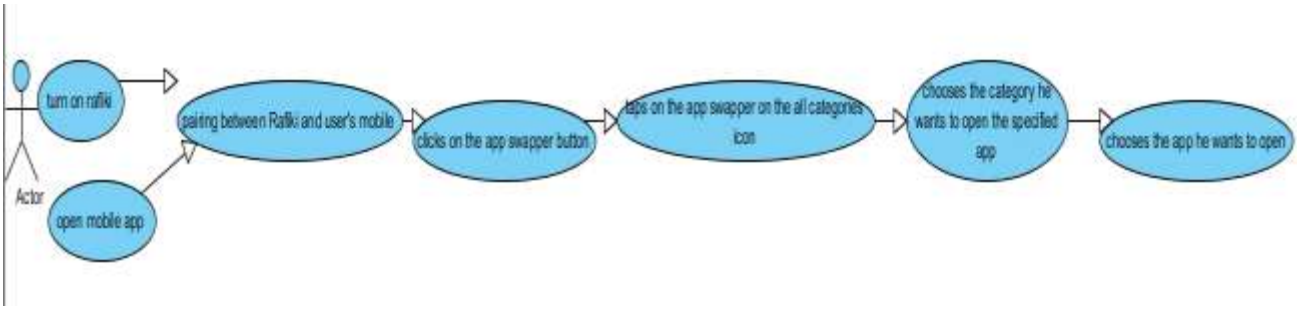
4. UC-04 change device volume



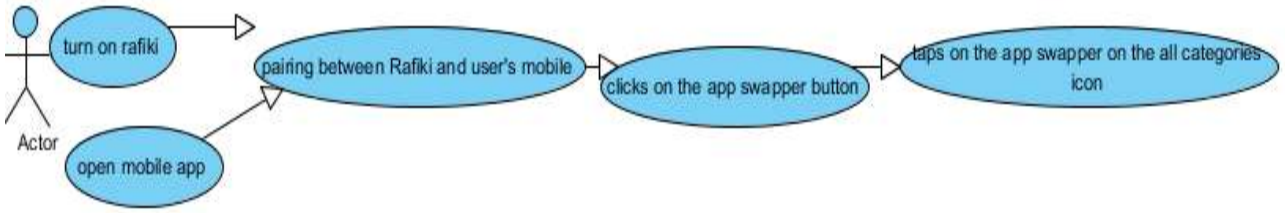
5. UC-05 view application categories



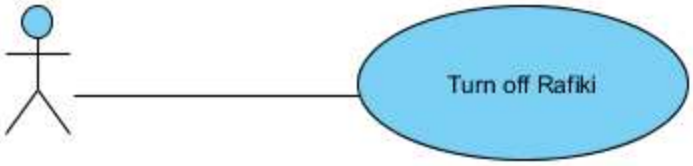
6. UC-06 control an installed application



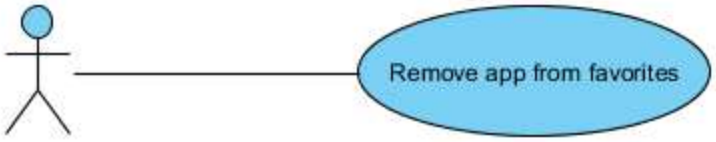
7. UC-07 view all the installed applications



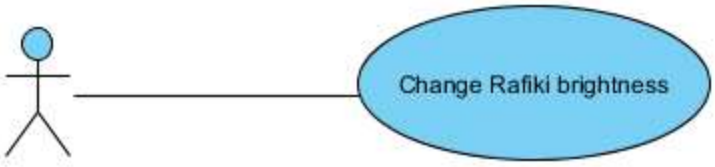
8. ‘UC-08



9. UC-09



10. UC-10



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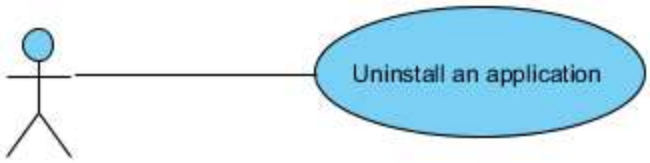
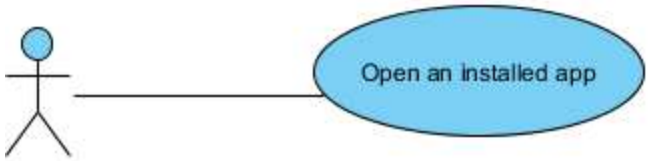
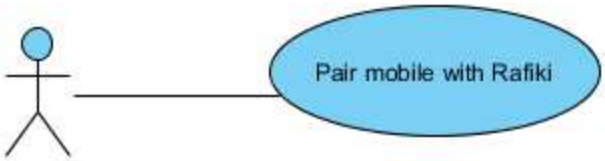


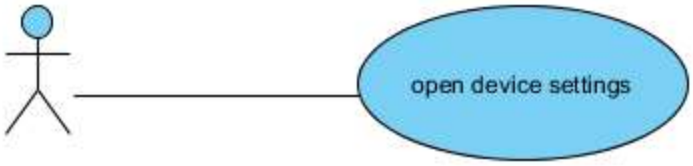
12. UC-12



13. UC-13



14. UC-14



2.2 Assumptions and Dependencies

AS-1: Wireless network available.
DE-1.1: YouTube is working.
DE-1.2: Social Media websites are working.

AS-2: Consumer own a smartphone and capable of downloading the remote application.
DE-2.1: The user will be able to remotely control the product.

AS-3: There is an available image of the android version on the Mini PC Google TV player that can be modified.
DE-3.1: The possibility of attaching extra accessories to be able to add extra features to the product.

AS-4: The project is built using Open Source software.
DE-4.1: There will be no legal issues so we are free to sell the product

AS-7: Wireless network available.
DE-7.1: Browsers are working.

3. Requirements

3.1 Use-Case Specifications

3.1.1 US-01 switch between different applications categories on the TV

The user should be able to switch between different applications categories using the app swapper that is always drawn on the screen of the user's TV

3.1.2 US-02 clear application favorites

The user should be able to clear application favorites he had saved before on the system.

3.1.3 US-03 add an application to favorites

The user should be able to add an application to favorites from all the previously installed apps on his TV

3.1.4 US-04 change device volume

The user should be capable of changing the device volume for the music or games he is using on the kit

3.1.5 US-05 view application categories

The user should be capable of using the app swapper to view application categories whether music or social apps

.

3.1.6 US-06 control an installed application

The user should be capable of controlling the installed apps on his device whether open or navigate through them

3.1.7 US-07 view all the installed applications

The user should be capable of opening the all apps icon from the app swapper to show all installed apps on his kit

3.2 Functionality

3.2.1 Installing and using android apps:

The product should enable the user to install and use many android applications on his smart tv

3.2.2 Using smart controls:

The product should enable the user to control his TV in a smart way like using hand gestures and voice commands

3.3 Usability

3.3.1 Mastering the system

The user interface of the software system should be friendly so that it takes maximum 3 days to master its usage.

3.4 Reliability

3.4.1 Mean time between failures

The mean time between failures should not be more than once per 6 months.

3.4.2 Defect rate

The maximum defect rate should be 10 Lines per KLOC.

3.4.3 Mean time between failures

The mean time failures should be minimum 1 year.

3.4.4 Mean Time to repair

The mean time to repair should be maximum 15 minutes.

3.4.5 Availability

The system must be available 99% of the time used.

3.4.6 Accuracy

The system's hand and voice recognition's accuracy should be at least 90%.

3.5 Performance

3.5.1 Response time for a transaction

The response time for transactions on Rafiki should be on average 6 nano seconds.

3.5.2 Throughput

The systems should do on average 50 transactions per second.

3.5.3 Capacity

The system is dedicated to a single TV user.

3.5.4 Resource utilization

The systems should handle the resources efficiently and enable the user to manually manage his resources

3.6 Supportability

[This section indicates any requirements that will enhance the supportability or maintainability of the system being built, including coding standards, naming conventions, class libraries, maintenance access, maintenance utilities.]

3.6.1 <Supportability Requirement One>

[The requirement description.]

3.7 Design Constraints

3.7.1 Java Programming Language

The programming language used in this product should be java android language.

3.7.2 Agile software development process

The used development process should be agile software development to ensure the acceptance of the product within a tight limit

3.7.3 Implementation at low cost

This product should not exceed 1500EGP in its cost

3.7.4 The MiniPc MK802IIIs device is used

This device is used as it has

3.8 Online User Documentation and Help System Requirements

The product will have online user documentation and help system for any further support with any technical problem after purchasing the product.

3.9 Purchased Components

The purchased components are:

3.10 Interfaces

3.10.1 User Interfaces

A first-time user of the mobile application should connect with Rafiki Kit when he/she opens the application, See Figure 2. If the user has configure connection successfully,

Figure 1.1

Figure 1.2

In the Tv side user should open Rafiki see Figure 2.1 and wait to connect to mobile after connect successfully , user will be directed to Home Page see Figure 2.2

Figure 2.1

Figure 2.2

Hardware Interfaces

There will be interface between the (Rafiki kit) components .

3.10.2 Software Interfaces

the mobile app connect with Rafiki Os to send commands to control tv from mobile app .and Rafiki os connect with system database to validate user login .

3.10.3 Communications Interfaces

The communication between the different parts of the system is important since they depend on each

Other. However, in what way the communication is achieved is not important for the system and is

Therefore handled by the underlying operating systems for both the mobile application and Rafiki Kit.as per both support Bluetooth Connection.

3.11 Licensing Requirements

There are no licensing requirements to be exhibited by this software.

3.12 Legal, Copyright and Other Notices

There are a number of copyright notices to be considered:

1. The product name is a copyright and cannot be used without legal permissions
2. The product logo is a copyright and cannot be used without legal permissions

3.13 Applicable Standards