

جامعة حائل
المسابقة البرمجية الوطنية بحائل
هاكثون البرمجة والأعمال ٤



Platform Sukkari
(Sukkari)
Version 1.0

TEAM MEMBER
الفريق رقم (27)

Muhammad Munshi

hasah Al-Anzi

alyasimayn Al-Zahrani

Table of Contents

Table of Contents	1
Revision History	2
1. Introduction	1
1.1 Purpose	
1.2 Document Conventions	
1.3 Intended Audience and Reading Suggestions	
1.4 Product Scope	
1.5 References	
2. Overall Description	3
2.1 Product Perspective	
2.2 Product Functions	
2.3 User Classes and Characteristics	3
2.4 Operating Environment	3
2.5 Design and Implementation Constraints	3
2.6 User Documentation	3
2.7 Assumptions and Dependencies	
3. External Interface Requirements	10
3.1 User Interfaces	10
3.2 Hardware Interfaces	13
3.3 Software Interfaces	13
3.4 Communications Interfaces	13
4. System Features	14
4.1 Description and Priority	14
4.2 Stimulus / Response Sequences	14
4.3 functional requirements	14
5. Other Nonfunctional Requirements	17
6.1 Performance Requirements	17
6.2 Safety Requirements	17
6.3 Security Requirements	17
6.4 Software Quality Attributes	17
6.5 Business Rules	17
Appendix A: Glossary	18
Appendix B: To Be Determined List	18

Revision History

Name	Date	Reason For Changes	Version

1. Introduction

1.1 Purpose

A Sukkari app will be created that allows monitoring the current blood sugar level, locating the patient, a report on the patient's medical history, scheduling the dates for changing the diabetic patch, determining the patient's diet, giving courses to take care of a diabetic patient, and Providing medical consultations for "contact medicine" (it turns it into the Ministry of Health number 937), and booking appointments to see a doctor (it turns it into an appointment application). (Sukkari) will be able to display the current sugar reading, the arrow of its sugar direction, record the glucose readings during the last 8 hours and show the number of hypoglycemia cases during a certain period, and show the percentage of time that the sugar readings were within the target range of the patient.

1.2 Document conventions

Times font was followed for the entire document. The font size for chapter names is 18, for headlines 14, and for texts 11 italic.

1.3 Intended Audience and Reading Suggestions

The document targets entrepreneurs and software developers. First we suggest reading the chapter names, then looking at the headlines, then reading the texts, reviewing the use case and interface designs, and at the end the glossary.

1.4 Product Scope

The scope of this project is to design and develop a program that targets people with diabetes and people who care for people with diabetes, because of the large number of elderly people with this disease, our application provides this application for continuous monitoring of sugar levels, and in the event of a rise or fall, an alert is sent to the affected person and the person who takes care of with it.

1.5 References

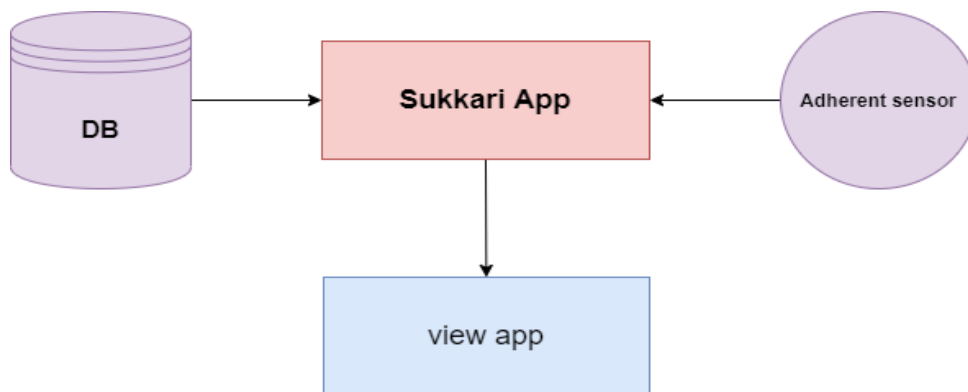
IEEE Recommended Practice for Software Requirements Specifications - IEEE Std 830-1999.

2. Overall Description

2.1 Product Perspective

This product is a system running on a service operator, or database within the Kingdom of Saudi Arabia; Where the required data will be downloaded to the application from the service operator or database, and from (the attached sensor). Our product will focus on reading the current blood sugar level, and sending alerts in the event of an increase or decrease from the normal limit. The six basic parts of the application are:

- Read the current blood sugar level.
- Determine the location of the patient.
- Display the direction of sugar arrow.
- Displaying the number of hypoglycemic cases during a certain period.
- Show the percentage of time your sugar readings were within your target range.
- Create a suggested diet for the patient.



2.2 Product Functions

- Monitor the current blood sugar level.
- Determine the location of the patient.
- A report on the patient's medical history.
- Scheduling the dates for changing the diabetes patch.
- Determine the patient's diet.
- Giving diabetes care courses.
- Providing medical consultations, "telemedicine".
- Book appointments for diabetic patients.

2.3 User Classes and Characteristics

For this system, there are three types of users:

- 1 - patient / is a diabetic.

2 - Who is following the patient's condition / is the person who is following the patient's condition. He is one of his family or relatives. He can view the patient's data only, but he cannot amend it.

3 - Technical support / it is the employee who can modify, delete and add data, and solve technical problems.

2.4 Operating Environment

The application will be available on an iOS operating system, and it will be linked to a wireless glucose meter (for example: Freestyle Libre), and the application will receive a reading of the glucose level from a sensor attached to the body (for example: Freestyle Libre Sensor).

2.5 Design and Implementation Constraints

- The law may not allow linking the application to external players, according to the royal decree stipulating that the data of Saudi citizens remain within the borders of the Kingdom of Saudi Arabia.

- In the event that the application gives an incorrect value and is too far from the average, it is possible that this error may be due to the "(sticky sensor)", so the patient must measure it with the normal conventional device

2.6 User Documentation

An educational video on how to use the application will be shown, and reading from a sugar reader will be taken.

2.7 Assumptions and Dependencies

1. The dashboard will be updated, the number of low glucose instances, and the percentage of time the sugar readings were within the target range.

2. All users are already logged into the system.

3. The system users are divided into three sections:

- Patient*
- Who follows the patient's condition*
- Technical Support*

3. External Interface Requirements

3.1 User Interfaces

The application should provide a simple and easy interface with clear numbers, human and machine readable. The design phase will contain more details on the proposed orders.

3.2 Hardware Interfaces

No hardware interface required in this system.

3.3 Software Interfaces

With each startup, the system brings the most recent dashboard, number of low glucose states, and the percentage of time your glucose readings have been within your target range.

3.4 Communications Interfaces

TBD

4. System Features

4.1 Blood glucose level :

4.1.1 Description and Priority :

The system allows the patient to check the current blood sugar level through the sensor attached to the patient's body, and sends the readings to the app, in case the readings are lower or higher than the patient's normal limit, the app sends an alert to the patient and to Who follows the patient's condition.

4.1.2 Stimulus / Response Sequences:

Once you open a window, take a new reading and pass the device near the sensor, the application takes the current sugar reading and displays it, as well as updating the number of total cases of blood sugar, the number of cases of high blood sugar and the number of normal measurement cases.

4.1.3 functional requirements:

Description:	The system allows the patient to check the current blood sugar level through the sensor attached to the patient's body, and sends the readings to the app, in case the readings are lower or higher than the patient's normal limit, the app sends an alert to the patient and to Who follows the patient's condition.
Rationale:	The device needs to take the reading from the sensor attached to the patient to know the current diabetes status
Inputs:	Reading from a sensor attached to the body
Outputs;	Display the current reading in the application screen
Persistent change:	Reading the current sugar, as well as updating the number of total cases of hypoglycemia, the number of cases of high blood sugar, and the number of normal measurement cases
Related requirement:	none

4.2 Determine the location of the patient :

4.2.1 Description and Priority :

The app locates the patient with every swipe it takes

4.2.2 Stimulus / Response Sequences:

Once reading on the day of application is taken, updating the patient's last site

4.2.3 functional requirements:

Description:	<i>The app locates the patient with every swipe it takes</i>
Rationale:	Sometimes some patients lose consciousness, so its location must be determined
Inputs:	Location coordinates from Google Maps
Outputs;	Update the patient's last location
Persistent change:	View the patient's location in the app
Related requirement:	Activate the site feature

4.3 Schedule of dates for changing the diabetes patch :

4.3.1 Description and Priority :

. *The sensor attached to the patient's body is not permanent, he must change it every 15*

4.3.2 Stimulus / Response Sequences:

Once the sensor is changed, the app alerts the patient to set the new duration for the new patch

4.3.3 functional requirements:

Description:	The sensor attached to the patient's body is not permanent, he must change it every 15
Rationale:	Sometimes the patient forgets the length of time the patch was put on, and this is also useful for following up on the elderly
Inputs:	Enter the patient's time
Outputs;	Calculate the rest of the time in the application page
Persistent change:	Change the rest of the time on the app page
Related requirement:	none

4.4 patient's diet :

4.4.1 Description and Priority :

. *In this function, the patient can choose a healthy diet that takes into account that the patient has diabetes*

4.4.2 Stimulus / Response Sequences:

Once this window is opened, the patient selects the appropriate system for him

4.4.3 functional requirements:

Description:	<i>In this function, the patient can choose a healthy diet that takes into account that the patient has diabetes</i>
Rationale:	Food is one of the most important causes of excess or decreased sugar. We aim to educate the patient about what should be eaten and what should not be
Inputs:	Patient's personal information
Outputs;	The patient's diet
Persistent change:	none
Related requirement:	none

4.5 Medical consultations :

4.5.1 Description and Priority :

Communication medicine between the patient and the nurse to provide medical advice

4.5.2 Stimulus / Response Sequences:

Patient contact

4.5.3 functional requirements:

Description:	<i>Communication medicine between the patient and the nurse to provide medical advice</i>
Rationale:	Sometimes the patient needs urgent advice
Inputs:	none
Outputs;	none
Persistent change:	none
Related requirement:	none

4.6 Report on the patient's condition:

4.6.1 Description and Priority :

It is a report indicating the patient's condition and the importance of his commitment during the week, month, or (specified period)

4.6.2 Stimulus / Response Sequences:

display the current sugar reading, the arrow of its sugar direction, record the glucose readings during the last 8 hours and show the number of hypoglycemia cases during a certain period, and show the percentage of time that the sugar readings were within the target range of the patient.

4.6.3 functional requirements:

Description:	<i>It is a report indicating the patient's condition and the importance of his commitment during the week, month, or (specified period)</i>
Rationale:	It shows the importance of the commitment of the diabetic patient
Inputs:	Data taken from 4.1 , 4.3
Outputs;	Report
Persistent change:	none
Related requirement:	4.1 , 4.3

5. Other Nonfunctional Requirements

Non-functional requirements define the quality characteristics and standards of a system in relation to form, appearance, usability, security, and performance requirements. These requirements and others are carefully described in the following points :

5.1 Performance Requirements

- *The system is quick to respond to cases of complaints.*
- *The system performs well in a wide range of users who access the system concurrently.*

5.2 Safety Requirements

- *TBD*

5.3 Security Requirements

- *Only registered users have permission. The system should log off the user automatically after a period of time.*
- *The system implements the SHA-256 security algorithm in entering the password to log into the system.*

5.4 Software Quality Attributes

- *Patient information must be secured and can only be accessed by them.*
- *The system is built in such a way that new functions can be added easily.*
- *Customer will remember how to use once they learn.*
- *The system is available at any time and is able to receive many requests without any failure and retrieve results in a short period of time.*

5.5 Business Rules

- *TBD*

Appendix B: To Be Determined List

- *Communications Interfaces .*
- *Safety Requirements .*
- *Business Rules .*