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# **Software Requirements Specification**

**for**

## **THHR (TEMPERATURE HEART RATE READINGS)**

**Version 1.0 approved**

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## Revision History

Name	Date	Reason For Changes	Version
SRS 1.1	14-12-2018	Needs to be more specific	1.1

# 1. Introduction

## 1.1 Purpose

This document will give an overview over the software we intend to design and implement. Moreover, this document discusses programming, UI and database requirements and overview of the functionalities offered by the application. The document will cover half of the content of the android application as another document will be prepared for the next semester.

## 1.2 Document Conventions

The document will often use the term app, which refers to the android application being developed and for which the document is being written.

## 1.3 Intended Audience and Reading Suggestions

The document is for internal use as well as for external. It is to be used as reference/guideline by developers, for reference about all the functionalities and requirements. Furthermore, it can be used by external developer for an overview about the application usage and standard used for the development.

## 1.4 Product Scope

The product scope is to offer a easy to use and flexible product. The flexibility intends to let the product to be used in different scenarios. The final purpose of it is to make life easier, efficient and healthier.

## 1.5 References

*Health at hand: A systematic review of smart watch uses for health and wellness, BlaineReeder &*

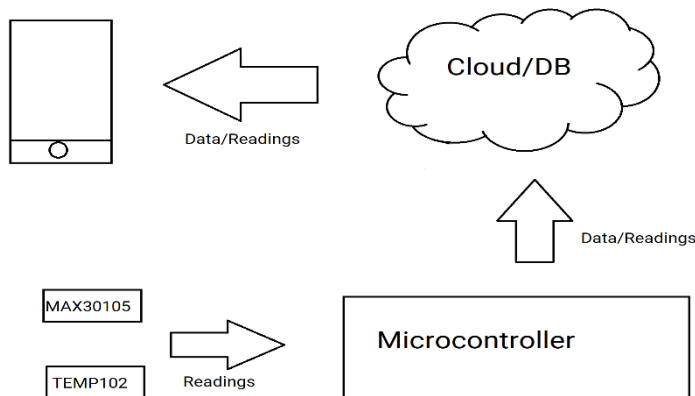
*AlexandriaDavidBS, October 2016, [www.sciencedirect.com/science/article/pii/S1532046416301137](http://www.sciencedirect.com/science/article/pii/S1532046416301137)*

# 2. Overall Description

## 2.1 Product Perspective

The product is designed to help people in the fitness world to monitor and improve their performance. The product is the result of the combination of two sensors: MAX30105, TEMP102.

The first is a heart rate sensor and the second one is a temperature sensor. The combination of the two will make possible creating a device that can monitor both temperature and heart rate.



## 2.2 Product Functions

- Sign up function
- Sign in function
- Connect to DB
- Retrieve HR and Temperature reading
- Retrieve HR readings filtered by date
- Retrieve temperature readings filtered by date
- Change language to French
- Being able to use the application in portrait mode as well as landscape mode
- From application send email through phone resources.

## 2.3 User Classes and Characteristics

This product is designed for any age group, but it is more useful for people practicing sports daily and need to monitor specific value in order to improve their performance. So the age range targeted is 14-50. However, people in any age range can use the application.

## 2.4 Operating Environment

The software will run on Android Lollipop 5.0 (API 21) and above.

Regarding the hardware, the software is designed for smartphone (landscape, portrait mode) as well as tablet. The application will be using the phone resources to send and email/message for accessing the help section of the app.

## 2.5 Design and Implementation Constraints

The company will be responsible to maintain and protect the personal information of the users. The database will be developed on Firebase, which is a NO SQL DB. The software is specifically designed for android platform and is not portable to IOS. The application will be available only in English and French.

## **2.6 User Documentation**

There is no specific user manuals available for users. However, a specific section in the app is available to reach out the customer service for any kind of help or to address any concern regarding the usage of the application. The UI is designed to be intuitive and easy to use.

## **2.7 Assumptions and Dependencies**

Assumption comprehend the database, which will be Firebase. We are assuming that we will be able to translate our classes in the database and store data efficiently. If this does not reveals to be true, another DB would have to be designed and deployed.

Moreover, we assume that the main user of the app will be using Lollipop and above as otherwise the application will not be functioning properly.

# **3. External Interface Requirements**

## **3.1 User Interfaces**

The software has 5/6 main screens. The GUI should follow same designing pattern between all pages such as colors, buttons style, font style, etc..

After the splash screen a page with login and sign up should appear. The sign up button should redirect to a registration form and the sign in should redirect to a page to input email and password. Then there is the homepage, which shows the readings from most recent to oldest. Moreover, there are going to be to more screen that shows specific readings (one for HR and one for temperature) filtered by date.

Finally there are going to be two more pages: Help(to contact customer service) and settings where the user can change language.

## **3.2 Hardware Interfaces**

The hardware should transfer data to the DB and save it as JSON object, then the app will retrieve the JSON object from the DB and convert it to a displayable format. All data transfer will be done online as the hardware will be connected to the network.

## **3.3 Software Interfaces**

This product connects to the DB to retrieve data. This is the main connection done through the device network. The application will be using the local storage to save preferences (login information, readings for offline mode, etc..). The software will be using inner communication to move one page to another.

Finally the last connection made by the software is to open the local resource to send an email/message

## **3.4 Communications Interfaces**

The main communication is the one that connects app to DB. Where, HTTP protocol is used to exchange data. Other inner communications protocol are managed by the app and OS.

## **4. System Features**

Below is a description of the main functions of the product,

### **4.1 Registration**

The user should be able to register, the registration form contains: email and password.

### **4.2 Sign in**

Once a user is registered, it must be able to use its credential to sign in and access all other functions

### **4.3 HR / temperature readings**

This function allows the user to look through the different readings, uploaded by the hardware. The readings contain heart rate, temperature and timestamp

### **4.4 HR readings**

This function, specifically displays the heart beat readings filtered by date.

### **4.5 Temperature readings**

This function, specifically displays the temperature readings filtered by date.

### **4.6 French/English language**

The app is available in two languages: French and English. The user can change it in settings>language.

### **4.7 Remote support**

In case the user needs help with some function, it can access the help function where there is an email/number available, which can be used to contact the customer service for further queries.

## **5. Other Nonfunctional Requirements**

### **5.1 Performance Requirements**

The application must boot up within 4s. An offline version of the app must be available, so the most recent data will be stored locally as well. The data on the DB will be uploaded by the hardware as soon as it gets the reading. The maximum latency permitted is 30s.

## **5.2 Safety Requirements**

User's data must be protected and kept safe. The product must not be used for medical purposes and all its readings must not be considered 100% right. Children can use the product only with an adult supervision of the parent.

## **5.3 Security Requirements**

Each user needs to register before being able to use the product. The fields required are: email and password. The email should be unique so each user can link one and only one account per email. The password needs to be at least 8 characters long and be alphanumeric.

## **5.4 Software Quality Attributes**

The product needs to be easy to use, as easier it is to use, more the user feels comfortable with the usage. Moreover, flexibility is an important asset as the product needs to change based on the change in demand.

## **5.5 Business Rules**

All users can fully use the product (except underage children, see 5.2) as the product itself has been designed for personal and recreational usage. Additional usage of the app, for commercial use, needs to be notified to the owner company.