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TrackMe

R.A.S.D.

Requirements Analysis & Specifications Document

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Chapter 1

Introduction

1.1 Purpose

The purpose of this document is to provide a complete description of the systems Data4Help, AutomatedSos, and Track4run, through the analysis of the problems, the listing and presentation of the goals, constraints, phenomena, domain assumptions and models with the aim of provide to the stakeholders a complete overview of the project.

Goals of Data4Help:

- [G 1.1] Allow a registered user to manage the accesses to his personal data
- [G 1.2] Allow a registered user to visualize his actual health parameters and position
- [G 1.3] Allow a registered user to visualize his past data history
- [G 1.4] Allow a third party to send an authorization request to an user for the access to its data
- [G 1.5] Allow a third party to request the latest data available of a registered user
- [G 1.6] Allow a third party to request a subscription to the data of the registered users
- [G 1.7] Allow a third party to request anonymized data of a set of users
- [G 1.8] Allow a third party to visualize the available data through useful statistics

Goals of AutomatedSos:

- [G 2.1] Communicate to SSN the health status of individual in critical situations
- [G 2.2] The system will interface with SSN IT infrastructure in order to guarantee an optimal support
- [G 2.3] The system finds the nearest emergency ward based on the user location

Goals of Track4Run:

- [G 3.1] Organizers can define a path for a run
- [G 3.2] Registered users can enroll to a run as participants
- [G 3.3] Registered users can visualize the List of planned runs
- [G 3.4] Registered users can visualize on a map the positions of the participants in a run
- [G 3.5] (can invite other users through their email address)

1.2 Scope

The aim of the project is to develop a software-based application for the company TrackMe that provides three different services: Data4Help, AutomatedSOS and Track4Run. Data4Help collects data of individuals through smartwatches and similar devices. Registered users can visualize their data through useful statistics, while third parties can access said data, after authorization, in real time to monitor the location and health status of a single individual, or a set of individuals in an anonymized way. AutomatedSOS offers a personalized and non-intrusive SOS service to elderly people. Lying on the data collected by Data4Help, it detects anomalies in the health status of the individual. When necessary, the nearest emergency ward is alerted, allowing the dispatch of an ambulance as soon as possible. Track4Run is a platform that allows the organization of local runs. Users can create a new run, setting a predetermined path. Participants can enroll to the run and invite other users to join them. The service uses Data4Help data to show the position of the participants on a map, allowing all the users to follow the run live on their devices.

1.3 Definitions, Acronyms, Abbreviations

1.4 Document Structure

This document is divided into 5 sections:

- Introduction:
- Overall Description
- Specific Requirements
- Formal Analysis using Alloy
- Effort Spent

1.5 Revision History

1.6 Reference Documents

Chapter 2

Overall Description

2.1 Product Perspective

- 1) Imagine common shared phenomena
- 2) This is the model of the whole system, based on a class diagram:
- 3) State charts:

2.2 Product Functions

Here we list the main requirements, concerning each goal:

G1) allow a registered user to manage the accesses to its personal data

- R1) The user receives in real time requests on its data from the third parties
- R2) The User can decide to accept a request or deny it
- R3) The user can see the specific type of data requested from the third part

G2) Allow a registered user to visualize its actual health parameters and position

- R1) The user must be able to see its position on an interactive map
- R2) The position must be updated in real time (around 5 seconds) ??
- R3) The system provides the latest health data available

G3) Allow a registered user to visualize its past data History

- R1) the system must ask the user what kind of data he wants to see
- r2) The user can specify the order in which the data is presented
- R2.1) The system provides two grouping options: time and location

R3)The user can perform a manual search on its data history

R3.1)The user can customize its search specifying the time or location range

G4)Allow the third parties to request the access to the data of a registered user

R1)the system ask to insert the fiscal code of the specific user

R2)The system notify the user about the request

R3)The system notify the third party as soon as the response is available

G4.1)Allow the third party to request only the latest data of a registered user

R4)if the request is accepted by the user, the system will provide the third party with its latest available data

G4.2)Allow a third party to request a subscription to the data of the registered users

R5)the third party can define the interval between updates for each specific parameter

R6) If the request is accepted by the user, the system will provide the third party with periodic updates

2.3 User characteristics

2.4 Assumptions, dependencies and constraints

Domain Assumptions:

[D.1] The user's device collect the data through sensors

Chapter 3

Specific Requirements

3.1 External Interface Requirements

3.1.1 User Interfaces

3.1.2 Hardware Interfaces

3.1.3 Software Interfaces

3.1.4 Communication Interfaces

3.2 Functional Requirements

3.3 Use Case Diagram and Scenarios description

3.4 Performance Requirements

3.5 Design Constraints

3.5.1 Standards compliance

3.5.2 Hardware limitations

3.5.3 Any other limitations

3.6 Software System Attributes

3.6.1 Reliability

3.6.2 Availability

3.6.3 Security

3.6.4 Maintainability

3.6.5 Portability

Chapter 4

Formal Analysis using Alloy

Chapter 5

Effort Spent