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Master in Computer Science and Engineering
Software engineering 2 course

TrackMe RASD

Requirements Analysis and Specification Document
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Table of Contents

1 Introduction

1.1 Purpose

1.2 Scope

1.2.1 Goals

G1: The user can be recognized by providing a form of identification
G2: Allow third parties to monitor data about location and health status of individuals.
G3: Allow third parties to access data relative to specific individuals
G4: Allow third parties to access anonymized data of groups of individuals
G5: Allow third parties to offer a personalized and non-intrusive SOS service to elderly people so that an ambulance arrives to the location of the customer in case of emergency.
G6: Allow athletes to enroll in a run
G7: Allow organizers to manage runs
G8: Allow spectators to see on a map the position of all runners during the run

1.3 Definitions, acronyms, abbreviations

1.4 Reference documents

1.5 Overview

2 Overall Description

2.1 Product perspective

2.2 Product functions

2.3 User characteristics

2.4 Constraints

2.5 Assumptions and Dependencies

Domain Assumptions

D1: Users are uniquely identified by their ID number or fiscal code. [G1, G2]
D2: Information provided by the user during the registration process are assumed to be true. [G1, G2, G3]
D3: User's position is available through GPS. [G1]
D4: User's health related data (heart rate and blood pressure) values are available through a wearable personal device [G1]
D5: A partner of TrackMe provides an ambulance service 24/7. [G4]
D6: The risk threshold is obtained through a preventive hospital check. [G5]
D7: There is an external provider offering a map service [G8]

Commentato [DP1]: We need to decide a format for what is bold, what is in brackets etc.

3 Specific Requirements

(the IEEE standard suggests 8 different templates for this section, we may have a look at them)

3.1 Functional requirements

3.1.1 Data4Help

Users: source users and third-party services.

G1: The user can be recognized by providing a form of identification
[D1]: Users are uniquely identified by their ID number or fiscal code.
[D2]: Information provided by the user during the registration process are assumed to be true
[R1]: The system must allow registration of individuals through the creation of a username and a password.
[R2]: The system must guarantee the unicity of usernames.
[R3]: The user must provide his personal data (birthdate, gender, residency address, ID number / fiscal code).
[R4] : The system should ask the user to agree to a policy that specifies that, by registering, users agree that TrackMe acquires their data.

G2: Allow third parties to monitor data about location and health status of individuals.
[D3]: User's position is available through GPS.
[D4]: User's health data (heart rate and blood pressure) are available through a wearable personal device
[R5]: The system must store past position and health data.
[R6]: The system must support of the registration of third parties.
[R7]: Third parties must be allowed to subscribe to new data and the system sends data as soon as they are produced. *[also in G3, G4]*

G3: Allow third parties to access data relative to specific individuals
[R7]: see above
[R8]: Upon every data collection request, the system must ask permission to the user, who can also deny it.
[R9]: The third parties must be able to retrieve a specific individual's data through his ID number or fiscal code. *(Not enough on how to actually provide the data?)*

G4: Allow third parties to access anonymized data of groups of individuals
[R7]: see above
[R10]: Grouped data collection must be allowed by the system only if the data can be properly anonymized . Anonymization is considered proper if the number of people is greater than 1000. *(Same comment as R9)*

3.1.2 AutomatedSOS

Users: elderly people and third parties.

G5: Allow third parties to offer a personalized and non-intrusive SOS service to elderly people so that an ambulance arrives to the location of the customer in case of emergency.
[D6]: The risk threshold is obtained through a preventive hospital check.

[R11]: Frequently enough, health parameters are monitored by the system and compared against the threshold to detect risk situations.
[R12-NF]: A reaction time of less than 5 seconds from the time the health parameters are below the threshold has to be guaranteed by the system.

3.1.3 Track4Run

Users: Runners, organizers and spectators

G6: Allow athletes to enroll in a run
[R13]: The system must allow participants to register to the system.
[R14]: The system must allow participants to check a list of available runs.
[R15]: The system must provide the ability to enroll to the desired run only to registered athletes.
[R16]: The system should allow enrolling only if the user has already agreed to share publicly his location for the duration of the run.

G7: Allow organizers to manage runs
[R17] Allow organizers to register to the system
[R18] Allow organizers to create and delete races
[R19] Allow organizers to add a path for the run
[R20] Allow organizers to check a participants list
[R21] Allow organizers to add or remove participants manually

G8: Allow spectators to see on a map the position of all runners during the run
[D7] There is an external provider offering a map service
[R22] The system provides a public list of live runs
[R23] The system must allow the user to see a map of the desired run, with live participants' position
[R24] Positions of the runners on the map must be updated by the system as soon as new data is received

3.2 Performance requirements

3.3 Design constraints

4 Formal Analysis using Alloy

5 Effort Spent

5.1 Piccinotti Diego

Description of the task	Hours
Purpose, Scope, Definition	8
Product Perspective	
Product Functions	
User Characteristics	
Domain Assumptions	
Functional Requirements	
Non-functional Requirements	
Formal Analysis Using Alloy	

5.2 Pietroni Umberto

Description of the task	Hours
Purpose, Scope, Definition	8
Product Perspective	
Product Functions	
User Characteristics	
Domain Assumptions	
Functional Requirements	
Non-functional Requirements	
Formal Analysis Using Alloy	

5.3 Rossi Loris

Description of the task	Hours
Purpose, Scope, Definition	8
Product Perspective	
Product Functions	
User Characteristics	
Domain Assumptions	
Functional Requirements	
Non-functional Requirements	
Formal Analysis Using Alloy	

6 References

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