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Data4Help

Requirement Analysis and Specification Document

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1 Introduction

1.1 Purpose

The following Requirements Analysis and Specification Document examines a possible solution for a specific system-to-be provided by the TrackMe company. Therefore, this document contains the description of the scenarios, the use cases that described them, and the models describing requirements and specification for the system-to-be.

Data4Help is a location-based health information service-to-be that allows third parties to monitor the location and health status of individuals. The given problem is to design and develop this service and other two services, AutomatedSOS and Track4Run, which exploit the features offered by Data4Help.

AutomatedSOS is a service-to-be thought to help elderly people. Constantly monitoring the health status of the subscribed customers, this service sends to the location of them an ambulance as soon as the recorded values are anomalus, for example when some health parameters are below certain thresholds.

Finally, Track4Run is a service-to-be to track ahtletes participing in a run. The serive, allows organizzers to define path for the run, participants to enroll to the run and spectators to see on a map the position of all the runners during the run.

1.2 Scope

1.2.1 Goals

- Data4Help
  - G.1 Locate users' position on demand and in real time.
  - G.2 Retrieve users' health status on demand and track it in live.
  - G.3 Allow third parties registered to retrieve information about users with single and group requests.
  - G.4 Ensure users' privacy.
  - G.5 Allow third parties to retrieve historical data and statistics about users.
- AutomatedSOS
  - G.1 Monitor in real time users' health status.
  - G.2 Allow only health-interested third parties the access to data detected by AutomatedSOS.
  - G.3 Provides to send an ambulance if certain parameters are below critical values.
- Track4Run
  - G.1 Allow races organizer to promote into the system a new race and specify all the useful information about the race.
  - G.2 Allow users to enroll on a specific race.
  - G.3 Allow users to watch in real time the position of every athletes in a specific race during the run.

1.2.2 World Phenomena

... what are world phenomena???

1.3 Definitions, Acronyms, Abbreviations

- Definitions

(a) Single request: request of data from a specific registered individual.

(b) Group request: request of data from many individuals.

(c) Live acquisition: third parties can access to data as soon they are ready, through service updates.

(d) On demand acquisition: third parties can access to data when they request them.

(e) Subscribers: third parties allowed to receive live acquisition about preselected user/group.

(f) User credentials: information that an individual has to provide to become a registered user: name, surname, date of birth, address, email, telephone number, job, marital status and fiscal code.

(g) Third parties' credentials: information that a company has to provide to become a registered one: company name, p.iva.

(h) Race information: all the information about the run: name, date, promoters, maximum number of participants and race path.

1.4 Revision History

... Here you see a subsubsection

1.5 Reference Documents

... Here you see a subsubsection

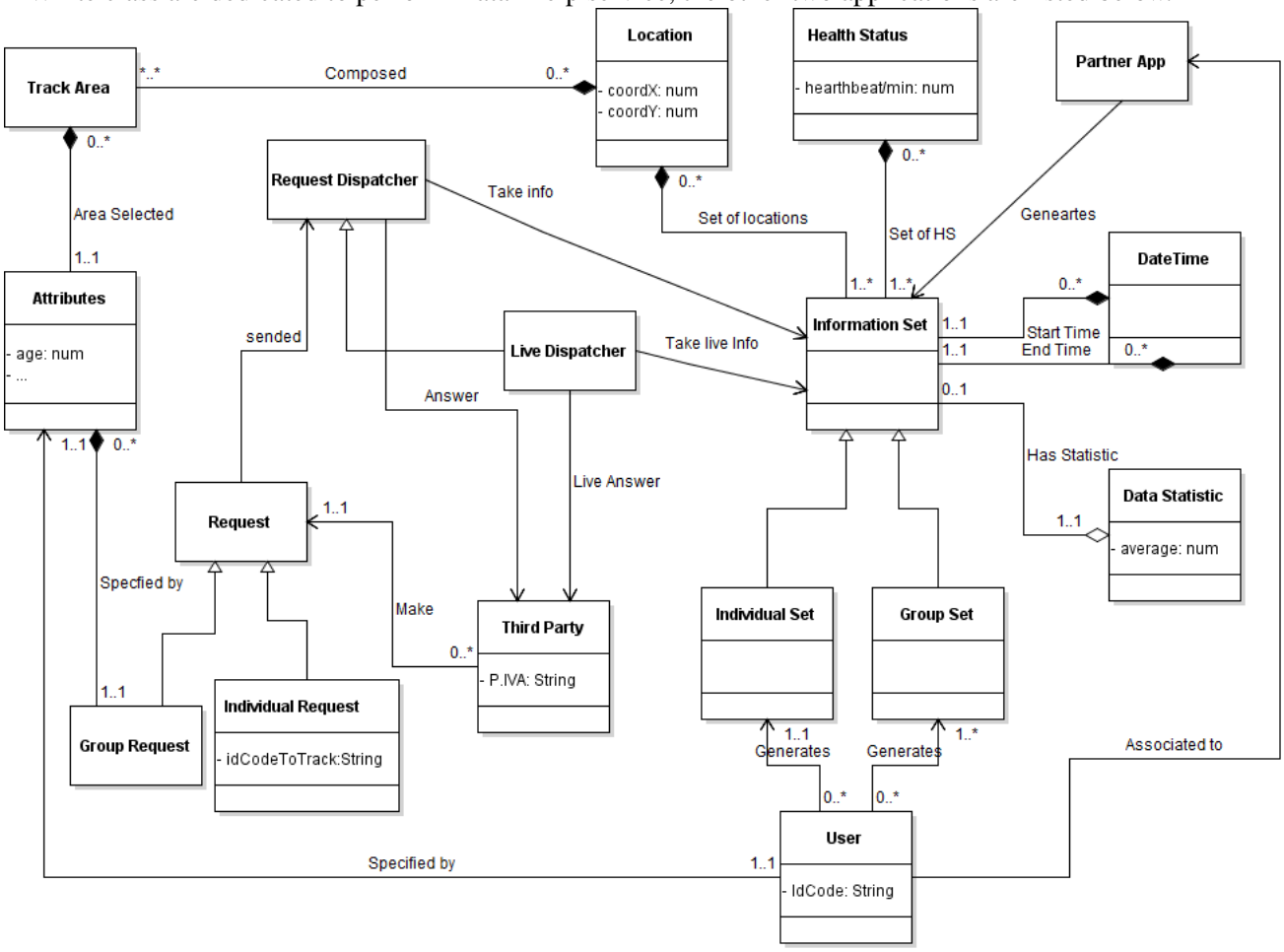
1.6 DocumentStructure

... Here you see a subsubsection

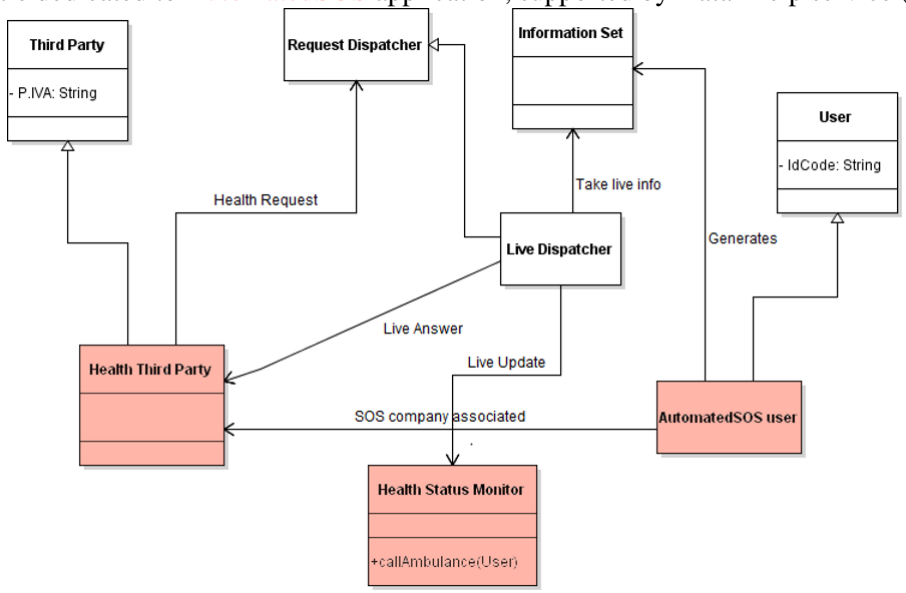
2 Overall Description

2.1 Product perspective

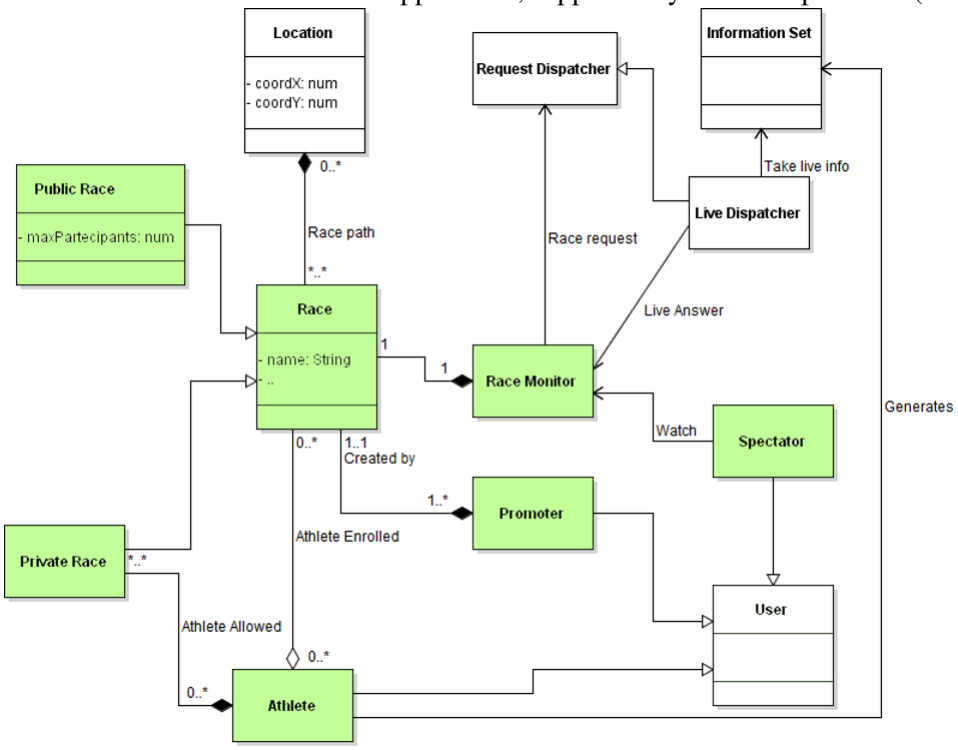
White class are dedicated to perform Data4Help service, the other two applications are listed below.



Red classes are dedicated to AutomatedSOS application, supported by Data4Help service (White ones).



Green classes are dedicated to Track4Run application, supported by Data4Help service (White ones).



2.2 Product functions

Here we include the most important requirements in word

2.3 User characteristics

1. Third Party: Registered company interested in retrieve useful data from TrackMe's users. Usually this information can be useful for marketing strategy.

   (a) Health Third Party: Non-Profit Company interested to monitor individuals in order to prevent critical diseases.

2. User: Individual that provides information about himself. His privacy must be protected by the system.

   (a) Athlete: Track4Run's user that is enrolled in one or more race.

   (b) Promoter: Track4Run's user that is the promoter of one or more race.

   (c) Spectator:Track4Run's user that want follow athletes in one or more race.

2.4 Assumptions, dependencies and constraints

In the specification document certain parts were not specific and were ambiguous. So we decided to make the following assumptions.

2.4.1 Text Assumptions

- Data4Help

  (a) Users' information are collected from partner applications on users' devices.

(b) For example all the fitness application developed for smartwatch can be partner applications, also AutomatedSOS and Track4Run can be them as well.

(c) Only registered third parties can request monitoring service.

(d) Groups are characterized by its member's attributes (age, gender, city, etc. . .).

(e) Discriminative attributes are all the credentials inserted by user (i.e. age, job etc...), their location more or less precise (country, region, city, neighbourhood ..) and the period of time interested (days, weeks, months..).

(f) Third parties in group mode are interested in number of users that match attribute specified, their location statistics and the statistics of group health status.

(g) Group mode acquisition can be performed without user's agreement.

(h) Third parties in single mode are interested to retrieve the sequence of position and health status information, detected from a certain users during a selected time period.

(i) Single mode acquisition cannot be performed without user's agreement.

(j) Health status parameters acquirable are all the ones supported by a standard smartwatch as: Heart Rate, Blood Pressure, Pedometer, Calories Calculation.

(k) Geographic location can be retrieved either by smartwatch or smartphone.

- AutomatedSOS

(a) For this service individuals subscribe to a single Third Party and not the other way around.

(b) Third parties interested in this type of service are only non-profit organizations that want to rescue individuals in a faster way.

(c) Different third parties cannot receive information from the same user (Otherwise both send the same SOS request).

(d) This service can be used only by elderly people (70+) or by who really need it, to avoid useless waste of resources.

- Track4Run

(a) Any user can organize an event.

(b) An event can be public or private.

(c) If the event is private then, the organizer need to know the security number or the fiscal code of the athletes to invite.

(d) If the event is public then the only restriction is in the number of athletes admitted.

(e) All the events can be followed by everyone as spectator.

(f) All users invited to an event can accept or discard the request.

(g) Race path are always composed by citizen routes (never in private circuits or stadiums)

2.4.2 Domain Assumptions

- Data4Help

D.1.1 Users' information collected are coming from installed app on users' smartphone/smartwatch, that are partner of TrackMe.

D.1.2 Whenever an individual download a partner application and through registration accepts its policy, he agrees to TrackMe's policy too.

D.1.3 The identification (fiscal code, social security number) and the secondary data (attributes) given by the individual during the registration are correct.

D.1.4 Individuals must always dress a smartwatch that retrieve health parameters and user's positions.

D.1.5 Devices used to monitor individuals always work and report the correct values.

D.1.6

D.1.7 In order to perform single mode acquisition, third parties has to insert fiscal code of tracked user (aka: nor security number neither fiscal code are visible on the application).

D.1.8 In order to perform group mode acquisition, third parties have to select attributes of individuals in which they are inserted.

- AutomatedSOS

D.2.1 All devices used to monitor the health of the individual always work and report the correct values.

D.2.2 The ambulance successfully reach the location of the individual.

D.2.3 The ambulance always get to the location in the minimum amount of time.

D.2.4 As soon as the parameters get below the threshold, the ambulance gets notified

D.2.5 Third parties that want to exploit this service need to enable the individual registration function.

D.2.6 Users' interested must equip with smartwatch that supports health status acquisition and install AutomatedSOS application on it.

- Track4Run

D.3.1 The path defined by the organizer actually exist

D.3.2 If an athlete enroll to a run then he also participates to the run.

D.3.3 All athletes have their tracking devices with them for the entire duration of the run.

D.3.4 Athletes never go out of the defined path defined.

D.3.5 Users' interested must equip with smartphone that supports location acquisition and install Track4Run application on it.

3 Specific Requirements

Organize this section according to the rules defined in the project description.

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

1. Data4Help

   G.1 Locate user's position on demand and in real time

   G.2 Retrieve user's health status on demand and track it in live

   D.1.3 Individuals must always dress a smartwatch (or a smartphone) that retrieve health parameters and user's positions.

   D.1.4 Devices used to monitor individuals always work and report the correct values.

   R.1.1 The system automatically has to collect and store data, for every tracked user, with a resolution of 10 minutes.

   R.1.2 The system has to update statistic whenever a data is collected

   R.1.3 When a real time request is performed the system has to collect and store data, for the specific users, with a resolution of 1 minutes.

   G.2 Retrieve user's health status on demand and track it in live

3.3 Performance Requirements

3.4 Design Constraints

3.4.1 Standards compliance

3.4.2 Hardware limitations

3.4.3 Any other constraint

3.5 Software System Attributes

3.5.1 Reliability

3.5.2 Availability

3.5.3 Security

3.5.4 Maintainability

3.5.5 Portability

4 Formal Analysis Using Alloy

Organize this section according to the rules defined in the project description.

5 Effort Spent

In this section are provided information about how much effort each group member spent in working at this document.

5.0.1 Luca Alessandrelli

Date	Task	Hours
18/10/18	Goals	1
19/10/18	Domain Assumptions	3
	Total	4

5.0.2 Andrea Caraffa

Date	Task	Hours
18/10/18		
19/10/18		
	Total	

5.0.3 Andrea Bionda

Date	Task	Hours
18/10/18		
19/10/18		
	Total	

6 References

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