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Data4Help

Requirement Analysis and Specification Document

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Authors:	Luca Alessandrelli, Andrea Caraffa, Andrea Bionda
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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 user's location an ambulance as soon as the recorded values are anomalous, for example when some health parameters are below certain thresholds.

Finally, Track4Run is a service-to-be that tracks athletes participating in a run. The service, allows organizers to define the 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 Collect users' position and health status.

  G.2 Provide to Third Parties, the users' position and heath status.

  G.2.1 Provide data on-demand to non-subscribed third parties.

  G.2.2 Provide data in real-time to subscribed third parties.

  G.3 Allow third parties two different ways to get users' data.

  G.3.1 Allow third parties to get data of a single person.

  G.3.2 Allow third parties to get data of a group of people.

  G.4 Provide data in an anonymous way, to protect users' privacy.

- AutomatedSOS

  G.5 Retrieve user's position and health status.

  G.6 Allow health-interested third parties the access to data detected by AutomatedSOS.

  G.7 Monitor user's health parameters.

  G.8 Send an ambulance to users' location whenever certain parameters are below the threshold.

- Track4Run

  G.5 Retrieve user's position and health status.

  G.9 Allow promoters to manage a run.

  G.9.1 Allow promoters to define a path for the run.

  G.9.2 Allow promoters to invite athletes to the run.

  G.10 Allow athletes to enroll on a specific run.

  G.11 Allow spectators to watch in real time the position of every athletes in a specific 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

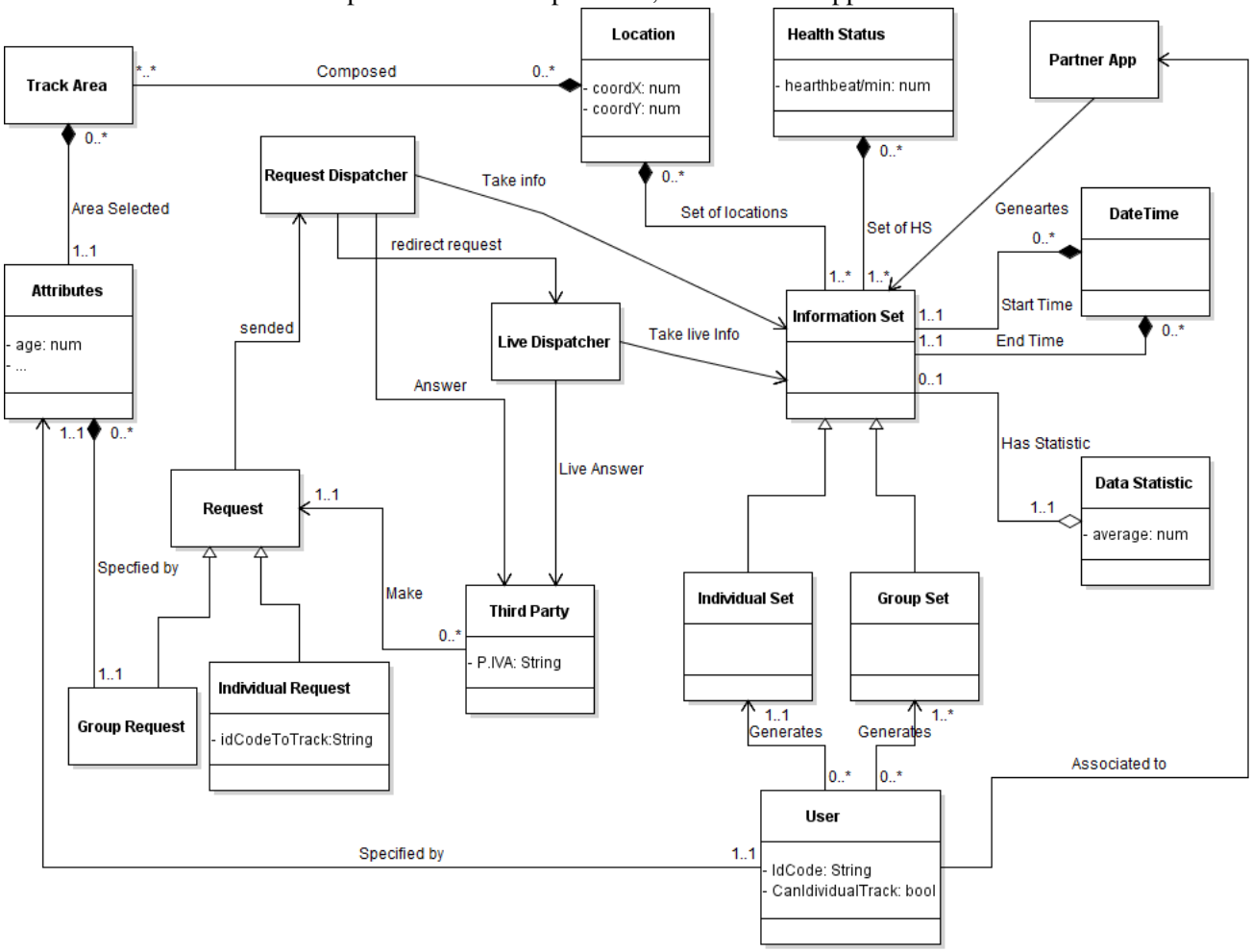
1.6 DocumentStructure

... Here you see a subsubsection

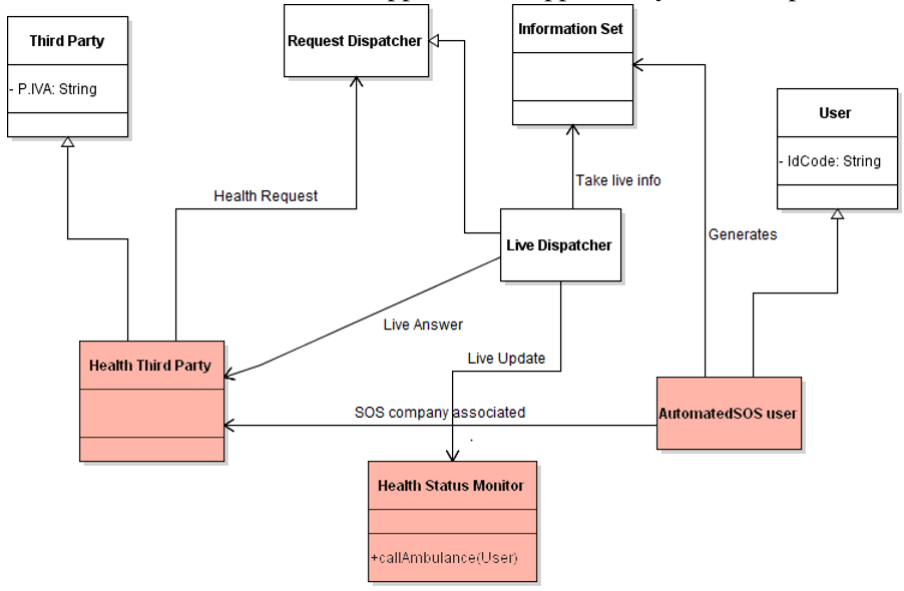
2 Overall Description

2.1 Product perspective

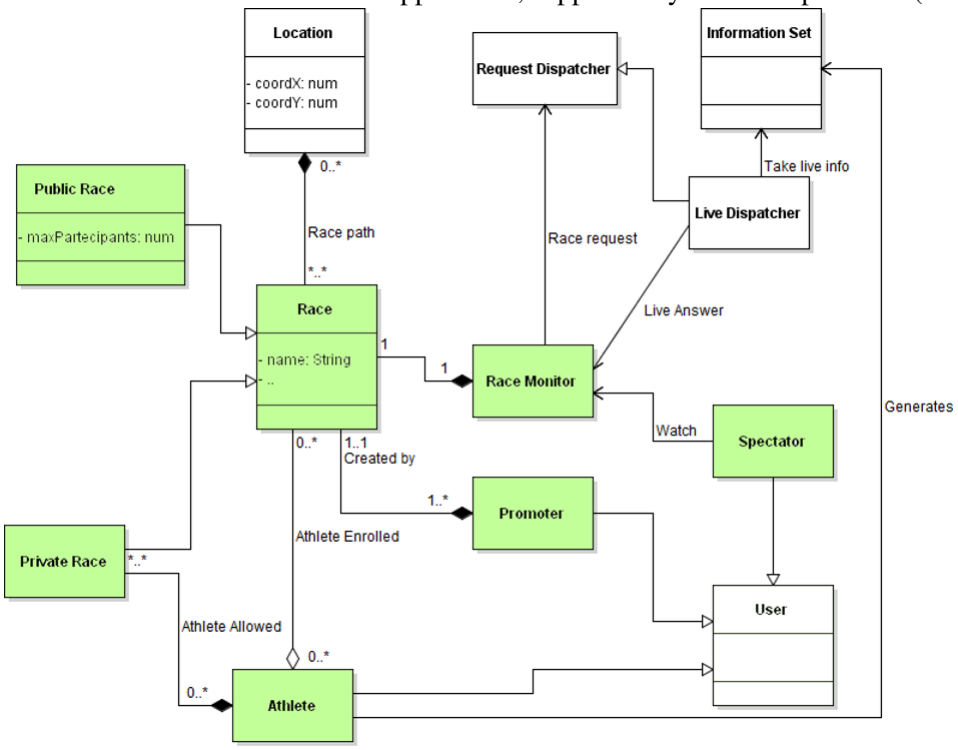
White class are dedicated to perform Data4Help service, the other two applications are listed below.



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

"Track4Run" The main function of Track4Run is to define the path for the run and

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.

3. Partner Application: Application installed on users' device, not necessarily developed by TrackMe, that is in charge with retrieve location and health status.

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 or from the other two TrackMe applications installed on users' devices.

  (b) All the partner applications require to submit user credentials.

  (c) When the partner application is installed and credentials are submitted the user is required to accept privacy policy, composed in two parts:

    i. The first, mandatory, user accept to be tracked in group mode.

    ii. The second, optional, user accept to be tracked in single mode.

  (d) Individual monitoring requests are not accepted or denied one by one by the specific user. If the user agreed on the treatment of his data as information of an individual (second part of privacy policy) all Individual request by third parties are automatically accepted.

  (e) Only third parties that are registered to Data4Help can request the monitoring service.

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

  (g) Health status parameters that can be acquired are all the ones supported by a standard smartwatch as: Heart Rate, Blood Pressure, Pedometer, Calories Calculation.

- AutomatedSOS

  (a) AutomatedSOS exploit only smartwatches devices to retrieve all the information needed.

  (b) AutomatedSOS is an application that needs to be installed into the user's device.

  (c) All data retrieved by AutomatedSOS are sent to Data4Help.

  (d) In order to keep under systematic review the user's health status all the historical information about the user are received by Data4Help's Database.

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

  (f) Users can see all his personal information that are sent to the Data4Help service.

- Track4Run

  (a) When the user register to the application he's asked to accept or deny the treatment of his data by the Data4Help service.

  (b) The application has three functions:

    i. Promoter: allow the user to manage a run.

    ii. Athlete: allow the user to participate to a run. In order to be an athlete the request of data treatment by the Data4Help service need to be accepted.

    iii. Spectator: Allow the user to watch in real time the positions of all the athletes in a given run.

  (c) Any user can organize an event.

  (d) All the events can be spectated by users.

  (e) All users invited to a run can accept or discard the request.

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

2.4.2 Domain Assumptions

- Data4Help

D.1 Users' information are collected from partner applications or from the other two TrackMe applications installed on users' devices.

D.2 The identification (fiscal code, social security number) and the secondary data (attributes) given by the individual during the registration are correct.

D.3 Devices used to monitor individuals always report correct values.

D.4 Partner application always report correct values to Data4Help.

D.5 In order to perform an individual request, third parties has to know the user's fiscal code or security number.

D.6 Security number and fiscal code are not information given to third parties by Data4Help.

- AutomatedSOS

D.3 Devices used to monitor individuals always report correct values.

D.9 The user always dresses a smartwatch on which AutomatedSOS is installed.

D.10 The ambulance system is always up and ready to receive messages from AutomatedSOS.

D.11 The ambulance successfully reach the location of the individual.

D.12 The ambulance always get to the location in the minimum amount of time.

- Track4Run

D.3 Devices used to monitor individuals always report correct values.

D.13 During a run athletes always dress a smartwatch on which Track4Run is installed.

D.14 The path defined by the organizer actually exist.

D.16 If an athlete enroll to a run then he also participates to the run.

D.17 All athletes have their tracking devices with them for the entire duration of the run.

D.18 Athletes never go out of the defined path.

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

- Data4Help

G.1 **Retrieve users' position and health status.**

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

R.1.1 Allow individuals that install partner application to take a look at TrackMe's privacy policy.

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

R.1.2 Allow individuals to become registered users when policy is approved. Registered users, now, can be tracked in group mode request.

R.1.3 Allow individuals to specify, during registration, if they are also interested to be tracked in single mode request.

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.

D.1.6 Partner application always report correct values as well.

R.1.4 The system, when a request is performed, has to correctly receive data from partner applications installed on users' device.

G.2 **Provide to Third Parties, the users' position and heath status.**

R.1.5 Allow third parties registration to Data4Help service, where they have to specify all their credentials.

R.1.6 Allow third parties to perform request on-demand and in real time

G.2.1 **Provide data on-demand to non-subscribed third parties.**

R.1.7 For each user registered ,the system has to automatically retrieve and store data with a resolution of 10 minutes.

R.1.8 The system has to collect inside his database all the useful information that match the request.

R.1.9 The system has to send to applicant all the data already collected

G.2.2 **Provide data in real-time to subscribed third parties.**

R.1.10 Allow third parties subscription to interested group in order to receive live data.

D.1.11 Real-time requests last 24 hours in order to avoid waste of resources.

R.1.12 When a real time request is performed the system has to collect and store specific users' data with a resolution of 1 minute.

R.1.13 Provide to subscribed third parties data as soon as they are available by the system.

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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