1. Introduction
   1. **Purpose**

The purpose of this document is to provide a detailed description of the TrackMe systems. This will be done by a detailed presentation of the proposed solution and its purpose, listing its goals, and the requirements and assumptions through which they will be achieved. The document is meant to be used by the clients, users and also by the parties designated with the task of creating the specified system, mainly the system and requirements analysts, the project managers, software developers and testers.

The TrackMe system is designed as a software application used for collecting health data and providing access to it. Three services are managed by the application. The first one is called Track4Help. It can be useful for third parties such as health-interested organizations or insurance companies. The service collects the location and health data of the users and third parties which register to the Track4Help can request anonymous data of groups of individuals. The data is sent if the condition of anonymity is sufficient. Also, the third parties can subscribe to the data to come to receive it as soon as it is produced. The goal of the second service is to provide help to elderly people, by sending an ambulance as soon as possible when the data collected from them shows an immediate danger for their life. The application takes advantage of the device that sends non-stop data to offer a service that will save lives. The third service, Track4Run, is support to all the actors of runs. The run organisers can set up the path of the run and set up an enrolment process for the run participants, who are users of Data4Help with their own device. The application then shows to the spectators the real time map with the location of each participants.

* 1. **Scope**
     1. Description of the given problem

As already mentioned, the Track4Help service is expected to give anonymous health data to third parties requiring it. The anonymity should be always considered for the privacy of the users. That is to say that the application should not provide data which could be misuse by third parties, for instance if the specific category of persons whose data is required is too few.

The second service is meant to call help for elderly people if they need it. Thus the application should monitor the data continuously, and not just retrieve the data of the device once a day. In order to know when one’s situation becomes dangerous, AutomatedSOS should allow elderly to set thresholds in their parameters to determine their limits. Moreover, the system should manage to contact an ambulance facility quickly enough to be helpful.

For the Track4Run service in particular, but also for the others, TrackMe has to insure the interaction with the GPS integrated in the device, to monitor the location of the users.

* + 1. Goals

[G1] – Collect data (location, health status) from all registered users.

[G2] – Registered third parties can access data from individual users with permission.

[G3] – Registered third parties can request for anonymized data of groups of individuals.

[G4] – Registered first parties can subscribe and receive data.

[G5] – Registered elderly users can subscribe for a personalised and non-intrusive SOS service.

[G6] – Call an ambulance for subscribed elderly people if needed.

[G7] – Run organisers can set up a path for the run.

[G8] – Run organisers can set up enrolment process.

[G9] – Run participants can enrol for a run.

[G10] – Showing the situation of the run to spectators.

* 1. **Definitions, Acronyms, Abbreviations**
     1. Definitions
* Device: any device owned by the user which is able to collect the data and sending it to the application
* Third party: association or business interested in collecting anonymous health data
* Health status: cardiac rhythm, number of steps in a period of time
  + 1. Acronyms
* RASD – Requirement Analysis and Specification Document
* API – Application Programming Interface
* GPS – Global Positioning System
* RO – Run organisers
* RP – Run participants
  + 1. Abbreviations
* [Gn] : n-th goal
* [Rn] : n-th functional requirement
* [Dn] : n-th domain assumption
  1. **Document Structure**

Chapter 1 gives an introduction to the problem and describes the purpose of the 3 services managed by the application TrackMe: Data4Help, AutomatedSOS, and Track4Run. The scope of application is defined by stating the goals and description of the 3 services.

Chapter 2 presents the overall description of the project. The product perspective includes details on the shared phenomena and the domain models. The class diagram describes the domain model used, and the state diagram analyses the processes of providing data, sending an ambulance and managing a run. Here the majority of functions of the system are more precisely specified, with respect to the already mentioned goals of the system. In the user characteristics section the types of actors that can use the application are described.

Chapter 3 contains the external interface requirements, including: user interfaces, hardware interfaces, software interfaces and communication interfaces. Few scenarios describing specific situations are listed here. Furthermore, the functional requirements are defined by using use case and sequence diagram. The non-functional requirements are defined through performance requirements, design constraints and software system attributes.

Chapter 4 includes the Alloy model and the discussion of its purpose. Also, a world generated by it is shown.

Chapter 5 shows the effort spent by each group member while working on this project.

Chapter 6 includes the reference documents.