**Product Functions**

Considering the previously mentioned goals, the overall requirements of TrackMe can be divided into several sub categories. These sub categories can be listed as;

Data Collection

Data Request

Monitor Health Status

Track Runners

*Collecting Data of Individuals*

Everything that TrackMe relies on is data and the flow data between third parties and individuals. So, one of the main requirement of TrackMe is to collect data; and by “data” it means collecting the health records and location of individuals.

To make the data collection possible, there are two important key points. The first one is, an individual must be registered for TrackMe and accepted a legalized statement for the collection of his/her data. During the registration phase, it is required from individual to provide some personal information. Like SSN/fiscal code, nationality, birth date, gender, chronicle disease etc. Then along with the health records and location, this will be used for data request and data monitoring.

The second key point of data collection is, each registered individual must hold a smart watch or similar device; because, the process of data collection will be performed via smart watches. Also, it is crucial to have all the smart devices connected and up to date because it is likely that there will be a continuous flow of data. For “Data4Help”, a quick loss of connection might be tolerable; but, especially for the “AutomatedSOS”, a successful connection is highly important.

The minimum time for collecting each data type might differ from one another. For example; to get the pulse of an individual at least “one” minute should pass, on the other hand, it is possible to get the number of steps in each second.

According to the service that is offered, the collected data can be used for multiple purposes. For example, for “Data4Help”, this data will be used whenever third parties request data. For “AutomatedSOS”, the collected data will be used to monitor the health status of elder individuals and to help them urgently in an emergency case. And finally for the “Track4Run”, data of the individuals (the location of the athletes) will be used to provide a mechanism for spectators to track the location of the athletes on a map.

*Data Request Of Third Parties*

The next important functionality of TrackMe is data request. By using TrackMe, third parties, who have been registered to TrackMe, can request data from system.

During the data request, third parties can state whether they want to have the data of an individual or a group of people (anonymous data).

Whenever, a third party request an individual data, it will be asked to provide the SSN of an individual, then this SSN will be controlled and if it is verified, the application will turn back to individuals for the approval of the request. The approval requests will be performed in two steps each can be called as *“indirect approval request”* and *“direct approval request”*. During the *“indirect approval request”*, the application looks at the *“Pre-Confirmed List”* of the user and if it encounters with the name of the third party, then it will automatically provide the requested data to the third party without waiting confirmation from individual. Then, application will inform individual about the usage of his/her data. On the other hand, if the name of the third party is not encountered, then TrackMe will make a *“direct approval request”* to the individual, if the individual accepts the request, then TrackMe shares data with the third party, if the individual refuses the request, then the third party will be informed about the unavailability of the requested data.

For the next case, whenever a third party request an anonymous data, TrackMe, searches the requested data and determines the number of individuals whose data has been used for obtaining the data that has been requested by third party. If the number of individuals whose data has been used is higher than 1000, then the anonymity constraint of the request will be established and the anonymous data is shared with the third party. On the other hand, if this number is less than 1000, since it will likely be possible to predict the individuals that contribute to the anonymous data request, the request is rejected.

*Monitoring the Health Status of Individuals*

Another important functionality of TrackMe, is monitoring the health status of elder people. This functionality is implemented under the AutomatedSOS service of TrackMe and in order to benefit from this service individuals must be first registered to TrackMe and then they need to activate the AutomatedSOS service.

During the monitoring phase, as soon as data came from an individual, it is compared with an predefined threshold value. If this value is lower than threshold, then the application will continue to collect data and monitor individual. However, if data is higher than threshold, then it is likely that something bad about to happen. So within seconds, the application finds the location of the individual via the GPS in his/her smart device. Then, locates the closest third party and notify it to provide an urgent help to the individual. After notifying the third party, TrackMe will save the current *“SOS firing”* data of the individual for possible future usages.

*Tracking the Athletes*

The last important point about TrackMe is its third service called as Track4Run. Different from the previously mentioned two services; Data4Help and AutomatedSOS, this service includes the *“Spectator”* s. To use this service firstly all of the actors must register to TrackMe.

A third party can use Track4Run for organizing a run. To make this, the third party, must select the time and location of the run. Then, system will save the given information and generate a unique for the run to be shared with the athletes and spectators.

Athletes (individuals) can enroll to the runs that are organized by third parties. Inside the Track4Run service, athletes can use the QR code of the run for enrolling to it. During the run, TrackMe will collect the health records and location of the athletes via their smart watches. The process of data collection in here is same as the data collection process which was mentioned above. During the run, the real-time location of the athletes will be simultaneously displayed on a map.

And finally, spectators can register for the runs by using the provided QR code. After successfully registering the run, they can simultaneously track the real-time location of athletes on a map.