**HARDWARE INTERFACES**

This is a software application whose main function is to plan daily meetings and a way of transportation

to reach them. It is not using any hardware interfaces; however, it requires using a smartphone or a web

browser that can use GPS services. Bluetooth might also be required for some of the functionalities (for

example, using an external service as Mobike requires Bluetooth to unlock a bicycle).

The Cluster Management System is independent from the physical hardware meaning it only manages the cluster hardware that is put in place. The hardware platform this software requires to run on must have a web server with PHP enabled. The database, MySQL, can be installed on a machine of its own or the same machine as the web server. The client must have JavaScript enabled.

Maybe smartwatches or smartphones with a wifi/Bluetooth connection?

Since the application must run over the internet, all the hardware shall require to connect internet will be hardware interface for the system. As for e.g. Modem, WAN – LAN, Ethernet Cross-Cable.

**SOFTWARE INTERFACES**

1. Google maps to send the position of the user for the SOSs
2. Google maps to select the track for the run and to show the position of runners
3. The GPM interacts, either directly or indirectly, with the following significant client software:
4. **Browser, which is the software tool that runs on employee and user personal computers that allow them to communicate over the networks with the GPM.**

**COMMUNICATION INTERFACES:**

The proposed methodology for implementing the GUI Subsystem is Asynchronous Javascript And XML (AJAX). This technology uses client-side JavaScript, cascading style sheets (CSS), and HTML for the actual user interface with a server-side scripted back-end. The combination of the front-end and back-end allows for a near seamless user interface experience. The overall goal is to present a more standard application feel versus the typical page loading of traditional web applications.

**2.2. Product functions**

Summing up the goal of the application, the functions that TrackMe offers are the following:

1. Monitor an individual

This function permits a third party (an association, an hospital, a company, etc) to ask for the data of a single user. More in detail, the third party can select a user by his/her SSN and send him/her a request to be allowed to access his/her data. If the user accepts it, then the third party will receive his/her data. The third party can request to keep monitoring the individual also after the request and it will receive the data as soon as they are ready. The user can decide to deny the permission at any moment.

1. Anonymous aggregation of individual data

Third party can access anonymized data of a group of users enrolled in TrackMe. After a third party sends this kind of request by specifying some restrictions about users’ attributes, like age and residence, the system will collect the data of the target users, anonymize and send them to the third party if the number of users is greater than 1000 in order to guarantee the anonymity. The third party can request to keep receveing new data of the group after the request and it will receive the data as soon as they are ready until the group size will not be lower than 1000.

1. SOS assistance

The system keeps under control the health status of a user by monitoring the values of the health parameters acquired by external devices (smart watches or similar devices). If at least one of the parameters goes under a fixed threshold, the system generates an SOS within 5 seconds starting from the moment of the evaluation of the dangerous parameter. The SOS communicates to the ambulance the position of the user.

1. Organization running events

The system offers to a third party to organize a running event. The third party must specify the timing, the track and the maximum number of participants for the run.

1. Partecipate or follow running events

The user can select an available run and participate by sending a simple request. Furthermore the system permits a user to track the position of the runners involved in a run. The user can check the list of available runs and, after selecting of among them, he/she can watch the map of the track filled up by points representing the runners in their actual position.