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Project full title: **Going on line: my social Life**

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D3.2 First prototype design

Author: Idoia Olalde (Andago)

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Author(s):	Idoia Olalde (Andago)
Participant(s):	Andrew McDonough (ATOS) Fabio Tumiatti (ATOS) Jose Gato (URJC) Ioannis Kouris (ICCS)

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Abstract
This document contains the design and architecture of the first prototype of the Go-myLife platform that will be tested and evaluated during the pilots with end users. It describes the different components that compose the platform in more technical details: LibreGeoSocial framework as the Social Network Engine, the Social Connector Manager and the Web Application through which the user will interact with Go-myLife. It includes the design of the user interfaces.

Keywords
Prototype, architecture, design, layout

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1 Introduction

1.1 Summary

WP3, Architecture design, has as main objective the creation of the basic architecture and design of the Go-myLife platform. In the previous task of the WP3, *T3.1 Platform Architecture and Design 1*, the overall design of the architecture of Go-myLife was defined. In the current task, *T3.2 First prototype architecture and design*, the functionalities from the first version of *D2.4 Technical Requirements Analysis* are analyzed to design a prototype and the architecture that was designed in *D3.1* is specified in more technical restraints. A study of the different technologies to develop each component was carried out and the most appropriate one was selected. In this deliverable, the details for the first prototype of this project are described.

This deliverable collects the expected functionalities of the Go-myLife platform that will be implemented in an iterative process with various cycles of development to reach the final prototype for the project. There will be a first prototype with a subset of functionalities that will be used in the pilots with end users to validate and verify the Go-myLife platform. With their feedback and the analysis made about its use and functionalities, a new set of requirements will be identified and applied for the final design of the architecture that will lead to the final prototype of Go-myLife.

This approach allows a better control about the anticipated progress versus achieved progress to be better controlled by applying corrective measures and have a design adapted to the real needs of the end users.

The prototype of Go-myLife will be a web application developed with the Google Web Toolkit (GWT) with a mobile and desktop version. Through it, the clients of Go-myLife will access to a set of functionalities that will help them to maintain the social contact and foster their inclusion in the active life participating and being active members of their social networks. As the core of Go-myLife platform, there will be a social engine based on the framework *LibreGeoSocial* that will be the responsible for the management of the users and the contents.

1.2 Role of this deliverable

This deliverable *D3.2 First prototype design* is the result of the task *T3.2 First Prototype architecture and design* of WP3. In this task, it has been defined, in greater detail, the technical specifications and it has been decided the design of the first prototype of Go-myLife, which will be tested with end-users in the pilots that will be carried out in United Kingdom and Poland as part of WP6, *Evaluation and validation through scenarios.*

This task has taken as starting point, the deliverable *D3.1 Initial Platform Architecture and Design* where the overall architecture was defined and *D2.4 Technical Requirement's Analysis* where the functionalities were specified.

The analysis made during *WP2 – Application driven requirement & common technical problems* to extract and identify the user needs and communications patterns is reflected in the design of the prototype.

This deliverable will be the basis for the *WP4 - Prototype development and integration*, where the prototype will be implemented. A second version of *D2.4* will lead to the second iteration of the design that will be carried out in *T3.3 Platform Architecture and Design 2*.

All technical partners have contributed to this deliverable.

2 Functionalities of the prototype

The main objective of Go-myLife is to facilitate and motivate the social contact of the elderly with the members of their social networks. During WP2, it was made a depth analysis of the user needs from a social point of view. Different workshops were carried out to detect patterns of behavior and communication of the elderly in the social networks and analyze their limitations with ICT in order to clarify the requirements and the design of the Go-myLife platform. For a fully description of the findings, please refer to *D2.3 Synthesis report on target group analysis and user needs and requirements*.

This analysis and the technical requirements described on *D2.4* leaded us to a definition of a set of functionalities that will be offered by the final prototype of Go-myLife. A new version of *D2.4* as well as the output of the trials will be analyzed and integrated in the final architecture design.

With the passage of the years, people have different social networks composed by different people and with which they interact in a different way. One of the conclusions extracted from the user's patterns analysis on social networks is that the elderly' relationships with the different roles of the members are not homogeneous. The information they exchange has a specific target group and varies from one to another. Go-myLife consortium found as a key value, to provide a unique place where the elderlies could have all the content organized by groups and where they could share and post information, controlling to who they share with and show their social content (messages, comments, photos, etc.).

For this reason, the content of each functionality of Go-myLife will be organized and displayed to the user by groups.

The final prototype will offer the following functionalities.

News (Wall): A user will be able to post comments, events, links, photos or videos in his/her wall. Other members of his/her social network will be able to see what they post (sharing) and make comments about the shared content.

Media: A user will be able to update media content such as photos and videos providing some information about it (place, date). The members of his/her network will see the shared media and could comment on it.

Events: Users will be able to create events selecting the place and date and invite members of his/her network.

My network: Through "My network", users will be able to arrange their contacts in groups such as close family, neighbors, friends, etc. The rest of the content in Go-myLife (news, photos, etc.) will be displayed by these groups, so users don't feel overwhelmed by excessive information as the content is categorized and organized and they share their photos, news, etc. with a selected group.

Local Life: The workshops also remarked the importance for the elderly of participating in the social life of the neighborhood. This could be done through "Local Life" section, where the user could access to local associations/groups organized by general categories (Sports, Politics…). Each group will have its own news, media, events, etc

Messages: Users of Go-myLife will be able to exchange messages among them.

Search: Elderlies sometimes find overwhelming the content that people upload to the social networks. In order to help them in that task, there will be a search field.

Me: a profile section where the user could edit his/her personal information.

Location: A key factor of Go-myLife project is the geolocated information. The content shared by users and even the own users will have a location associated, so content could be displayed in a map. Sections such as "Who is around" will display relevant information near the user.

Privacy Settings: A section to define the settings of sharing and private information exchange.

Help: To assist the elderly to navigate through the application, there will be a "Help" section with tutorial videos or explanations of the screens and workflow.

Other social networks: The content from other social networks (such as Facebook and Twitter) will be integrated in the existing sections. For example, photos/videos will appear in "Media" section, posts/feeds en "News" section and so on.

LibreGeoSocial framework, which Go-myLife will be based on, gives the possibility to consume the content of third-parties. Go-myLife will take advantage of this featuring to provide to the users a greater experience. In that way, in mobile section, there will be a special section for Panoramio, displaying the photos in a map to show interesting information around the user.

The different functionalities will be adapted to the media that the user is using: mobile or desktop. In that sense, although the main functionalities will be accessible from any device, it can exist slightly differences in the behavior of the application due to the restricted screen size of mobiles. For the first trial, a subset of the functionalities here described will be implemented. In chapter 4.3.2, there is a description of the different screens for both environments of the selected functionalities for the first trials.

In future prototypes, new functionalities could be included as a result of T2.4 and the existing ones will be refined in order to fulfill the users' expectations in terms of usability and functionality.

3   Architecture of the prototype

In the deliverable *D3.1 Initial Platform Architecture and Design*, a first version of the overall architecture was described. This first version is described with more detail in this deliverable to design an implementable prototype selecting the most appropriate technologies and approach for each component.

The following figure describes the architecture of this first prototype of Go-myLife.
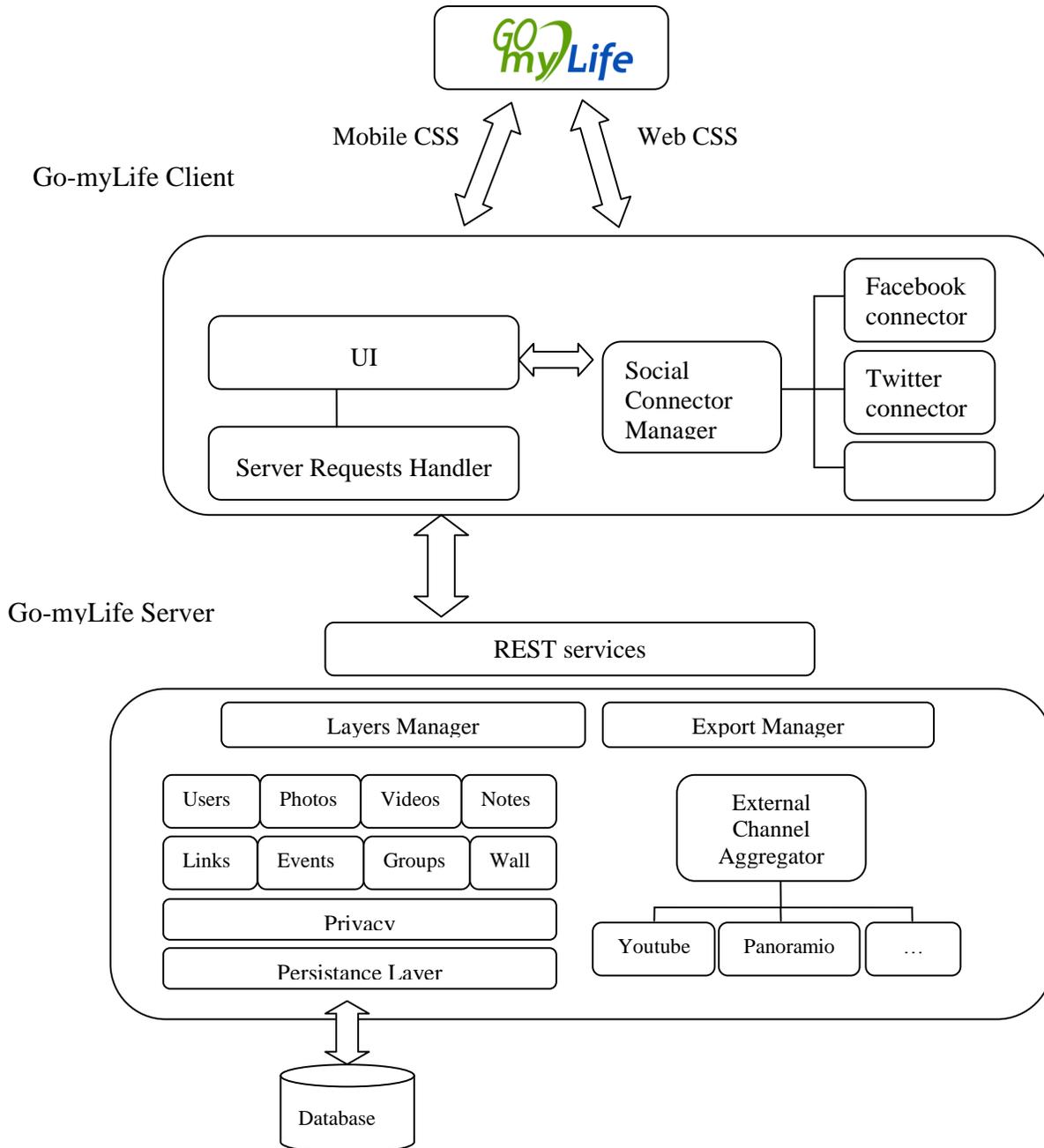
Illustration 1 Go-myLife architecture diagram

A Go-myLife user, through a web application, will be able to have access to the different services that Go-myLife offers.

As it can be shown in the Illustration 1, Go-myLife platform is based on a client-server architecture. The client and server part can be running on a single machine or running over a network. In the case of a network, the client/server model provides a convenient way to interconnect applications that are distributed efficiently across different locations. This kind of architecture will allow separating both parts and selecting the most appropriate technology for each one.
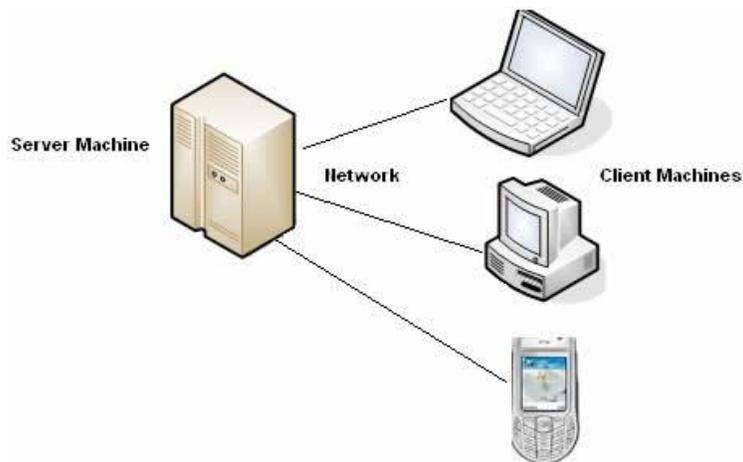
Illustration 2 Client-Server architecture

- **Go-myLife Server Core:** The server core of Go-myLife is composed by the social network engine that will be in charge of Go-myLife social network management. More concretely, the Go-myLife Server Core will cover the following functionalities:

  - The management of the social network's users, contents and their relationships and privacy

  - Provision of geolocation over contents and users in the social network

  - Access to external contents (3rd parties information sources)

  - API to fulfill all the client's needs.

  - Ability to export the information in different formats

  To develop this social core, it will be used the *LibreGeoSocial* framework. It is an open source framework that allows creating geolocated social networks and exports a REST API to manage all the functionalities.

- **Go-myLife Client:** The client part of Go-myLife will be a web application. This client will be the responsible to:

  • Manage the user interface

  • Access to Go-myLife services, making calls to the Go-myLife server core and transform the responses.

  • Manage the Social Connector Manager to provide access to other social networks.

  To develop this web application, it will be used the Google Web Toolkit framework. Different styles will be applied for the mobile and desktop version.

In the following chapter, the different components of the architecture are described in more detail.

4 Components

Next, the main components which make up the Go-myLife platform are described, that is, Social Network Engine, Social Connector Manager and the client application.

4.1 Social Network Engine

The social network engine will be built using the Open Source framework *LibreGeoSocial*. This framework allows creating geolocated social networks and multimedia contents management.

LibreGeoSocial manages the information as nodes with geolocated information (latitude, longitude and altitude). Each concept (user, photo, video, etc.) is represented by this way. Adding new data types will be follow this model.

LibreGeoSocial engine support the management of information using layers through a Layer Manager. Layers are containers of social nodes. The contents can be added through a friendly API providing an abstraction of layers/channels that allow integrating geolocated information in *LibreGeoSocial*.

New features will be developed in this framework to support the expected functionalities of Go-myLife project.

4.1.1 New features

Regarding to the specifications in the architecture and the outcomes of other deliverables in the project, the following, currently not supported, functionalities will be added to the social network engine:

- ⅄ *Group management*
- ⅄ *Wall*
- ⅄ *Events*
- ⅄ *Links nodes*

Next, a few description of how this new functionalities will work in the social network engine:

Group management

Groups will be managed through the layers manager with the special feature that groups will contain users. A special REST interface will be exposed to support the group management:

http://host/social/group/list

http://host/social/group/id/info

http://host/social/group/id/search

http://host/social/group/id/users

http://host/social/group/id/delete

http://host/social/group/create

http://host/social/group/id/user/id/add

http://host/social/group/id/user/id/delete

Wall

Walls will be also supported thanks to the layer manager. In fact, a wall will be a container of social nodes more focused on a time line than the geolocated information. Every user created in the social network will have his own wall. A special REST interface will be exposed to support the walls features:

http://host/social/wall/list

http://host/social/wall/id/search

Events

To support events, a new social node model will be necessary. This new node will inherit from the main *LibreGeoSocial* class with all the special features. The social network engine will be in charge of store and list the events. A REST interface will be exposed with this proposal:

http://host/social/layer/id/search?type=event

http://host/social/layer/id/node/id_event/info

All the social nodes in *LibreGeoSocial* are stored regarding layers abstraction. By default, if you don't have any special layer where store a social node, you can use the User Virtual Layer. A layer that all users own and it could be used to store personal nodes.

Link nodes

To support link nodes a new social model will be necessary. It is the same case as events, and also a new REST interface will be exposed:

http://host/social/layer/id/search?type=link

http://host/social/layer/id/node/id_link/info

As same as events, link nodes will be stored under layers management.

More technical instructions will be given during the implementation and setup of the prototype.

4.2 Social Connector Manager

As it has mentioned in previous deliverables related to the Go-myLife's architecture, the Social Connector Manager will have the following schema:
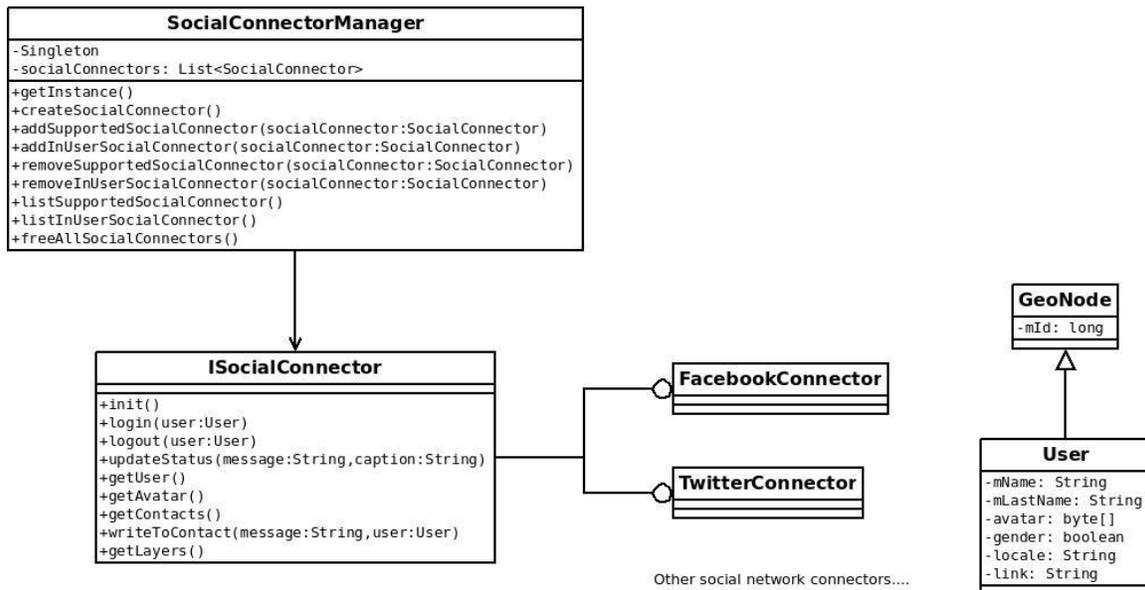
Illustration 3 Social Connector Manager diagram

With this approach, the inclusion of new social networks will be easy to integrate inside Go-myLife just implementing the interface ISocialConnector.

The Social Connector Manager will be developed inside the client part of Go-myLife platform. In that way, Go-myLife client will make the corresponding calls to the social networks to retrieve or post the contents.

In *D3.1 Initial Platform Architecture and Design*, we made a depth analysis of the Facebook and Twitter API in order to understand the possibilities of integration. Taking this study into account, in the following sections, we describe the possible functions to integrate in Go-myLife.

For more information, refer to *D3.1 Initial Platform Architecture and Design*.

4.2.1 Facebook Connector

The heart of the Facebook's API is the social graph. This is a graph that is formed out of the people and their connections and all the objects they like. All the objects can be retrieved using a unique ID that Facebook provides and all the responses are JSON objects.

Depending on the level of authentication, either public data or private data can be accessed. When a request is made without a provided access_token, the contents that are returned are those that are public. If a valid access_token (OAuth) is provided then the private data are also returned.

A list of possible Facebook functionalities that can be used to enhance the Go-myLife platform are:

1. Initial Setup

   It will be useful to allow users that already have a Facebook account to create the Go-myLife account without a need to rewrite all the info about them. By allowing the Go-myLife platform to connect with the user's Facebook account, all the needed data can be fetched automatically. Some of the information that can be retrieved is listed below.

   - name
   - age
   - gender
   - locale
   - timezone
   - biography
   - birthday
   - education
   - home town etc.

2. Photos

   - Upload a new photo from Go-myLife to Facebook
   - See photos of Facebook in Go-myLife
   - Post a comment on a Facebook photo from Go-myLife
   - Like a photo on a Facebook photo from Go-myLife

3. Status Messages

- Get friends' status messages from Facebook

- Change user's status message

4. Friends Handling

- Get a list of the friends of the Go-myLife user

- Cross check ids to see if they are also Go-myLife users and connect them to form a social Go-myLife graph

4.2.2 Twitter Connector

Similar to Facebook, Twitter needs an access_token to retrieve user's information (OAuth autenthication).

A list of possible Twitter functionalities that can be used to enhance the Go-myLife platform are:

1. Initial Setup

   In the same way as Facebook, it will be useful to allow users that already have a Twitter account to create the Go-myLife account without a need to rewrite all the info about them.

2. Tweets

- Post a new tweet from Go-myLife to Twitter

- See friend's tweets from Twitter in Go-myLife

- Reply to friend's tweets

3. Friends Handling

- Get a list of the friends of the Go-myLife user

- Cross check ids to see if they are also Go-myLife users and connect them to form a social Go-myLife graph

4.3 Web application

As client application, it was decided to implement a web application in order not to limit the access of Go-myLife to only one platform. One key of success of social networks is the number of participants. Limiting the access to users of one specific operating system went against of what we considered a success criterion of the project.

4.3.1 Technology

After the study of different alternatives to the development of the web application, it was decided that the client for the first prototype of the Go-myLife will be developed using the open source Google Web Toolkit (GWT).

GWT is a development toolkit for creating JavaScript front-end applications written in Java. Its goal is to enable productive development of high-performance web applications that are optionally obfuscated and deeply optimized. The heart of GWT is a compiler that converts Java source into JavaScript, transforming a Java application into an equivalent JavaScript application.

GWT provide efficient solutions for Ajax, history management, bookmarking, internationalization and cross-browser portability.

UiBinder

GWT offers different tools for the UI development. Go-myLife consortium has decided to choose UiBinder as the UI development framework. The UiBinder framework allows building web applications as HTML pages with GWT widgets sprinkled throughout them.

UiBinder has been chosen because it offers substantial advantages for developers:

- It facilitates the transition from HTML mock-ups to real UI as declarative XML templates.

- It makes easier the creation of the UI, creating templates and reusable widgets.

- It allows the separation between the aesthetic of the application and the programmatic logic.

- It offers support for internationalization.

- It encourages more efficient use of browser resources by making it convenient to use lightweight HTML elements rather than heavier-weight widgets and panels.

4.3.2 UI design

The Go-myLife layout has been designed taking into account the usability criteria extracted from the end-users workshops (The findings are summarized in *D2.3 Synthesis report on target group analysis and user needs and requirements).*

The following figure collects the basic theme of the web application. The information/content inside the theme is only an example of how it will look like (the look and feel) and will not be used for the Go-myLife Social Network.
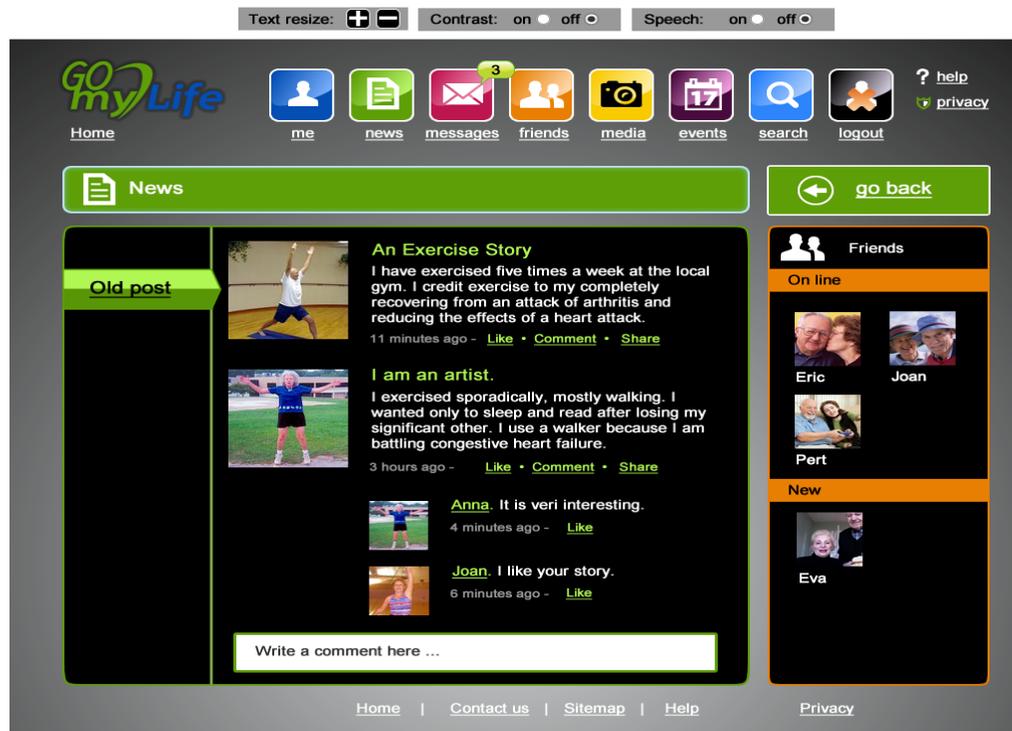
Illustration 4 Go-myLife theme

The layout will consist of:

o A header with icons for the different sections. A logo, a help link and a logout option will be also included to be accessible from any section.

o A right panel with a back bottom and a panel to provide relevant information for the current section.

o A left panel with a header and a main panel. The main panel itself will be divided into 2 sections: the left part will show the submenu (the groups in which the contacts are divided) and the right part the proper content for each section.

o A bottom section with links to project's information, help and management section.

Each section (me, news, media, messages, events, network and search) will follow the color scheme of its icon. This will help the user to identify the section where she or he is.

4.3.2.1 UI mock-ups

In this section, we present the mock-ups of the user interface for the desktop and mobile version for the first prototype that will be used in the pilots. Due to limitations of screen sizes in mobile phones, some functionalities such as create or edit content will be only accessible from the desktop version.

Login

The first step is to login in Go-myLife if the user hasn't done it previously. If it is the first time the user is visiting the social network, it is possible also to register from this screen (only available for the desktop version).

During the workshops with end-users, it was found valuable the existence of any kind of help that guide them through the application. Go-myLife will provide videos and explanations of how it works.
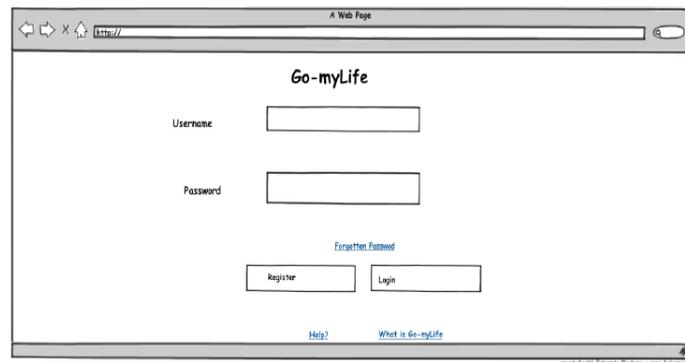
Illustration 5 Login desktop version
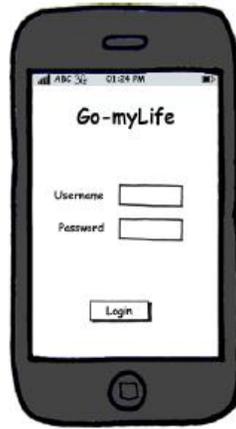
Illustration 6 Login mobile version

Home – My network

The home page in the desktop version will be the "My network" section. However, in mobile version, due to limitations of screens, a menu with the different sections will be displayed. This menu consists of a set of icons representing the different sections. These icons are the same that are shown in the header section of the desktop version to maintain the consistency of the application through the different styles.

The users are organized by categories. These categories (family, neighbors, etc.) will be used to display the rest of the content of Go-myLife.
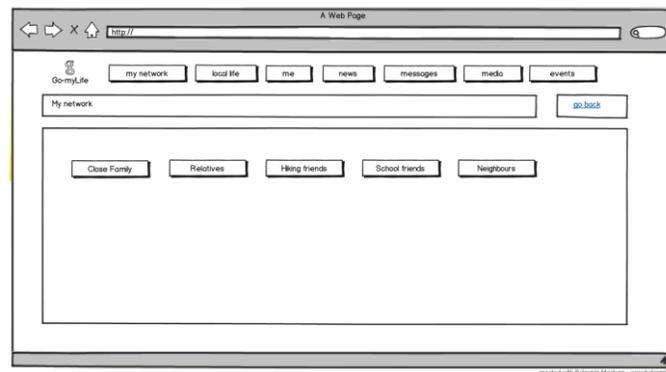
Illustration 7 Home desktop version (My network section)

Illustration 8 Home mobile version

To go to "My network" section, the user should press the "My network" icon.

In "My network" section the user could manage users groups, categorize users and access to the information of each one.
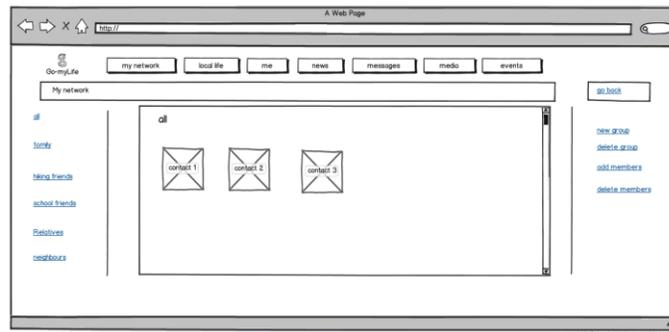
Illustration 9 My network desktop version
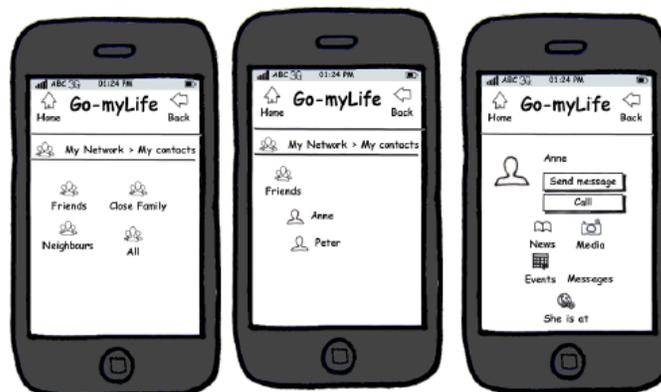
Illustration 10 My network mobile version

News

In "News" section, the user could see and share news with his/her network. Other users could make comments about the posts.
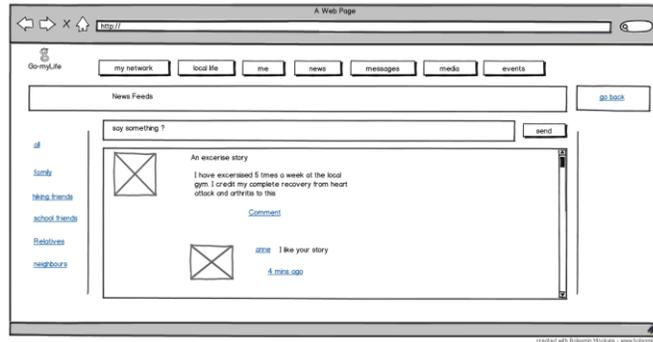
Illustration 11 News desktop version
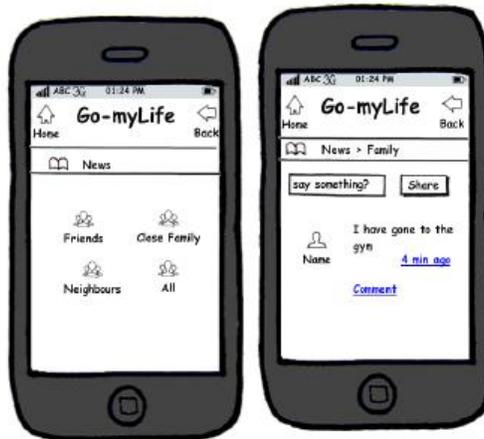
Illustration 12 News mobile version

Local life

"Local life" section will represent the local organizations/companies of the neighborhood. This section will be organized by general categories such us Sports, Politics, etc. Clicking in each group, the user will access to the information of that groups (news, events, etc.)
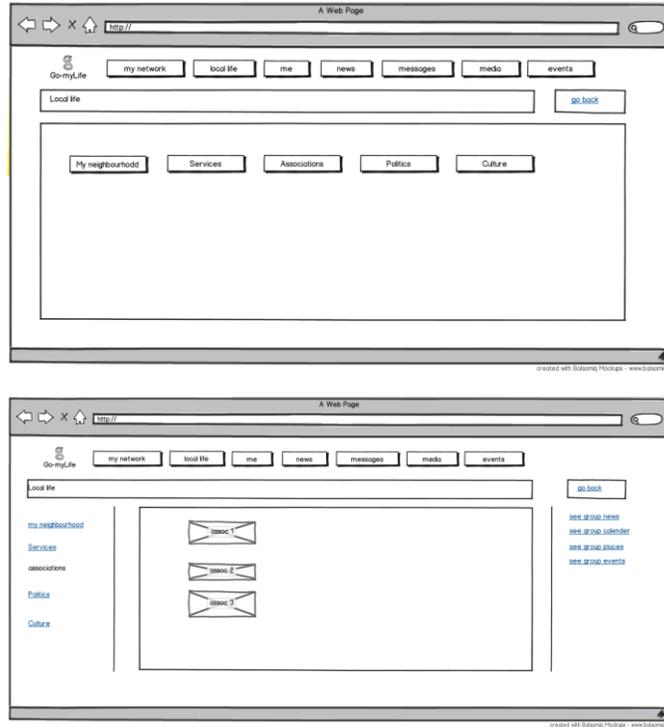
Illustration 13 Local life desktop version
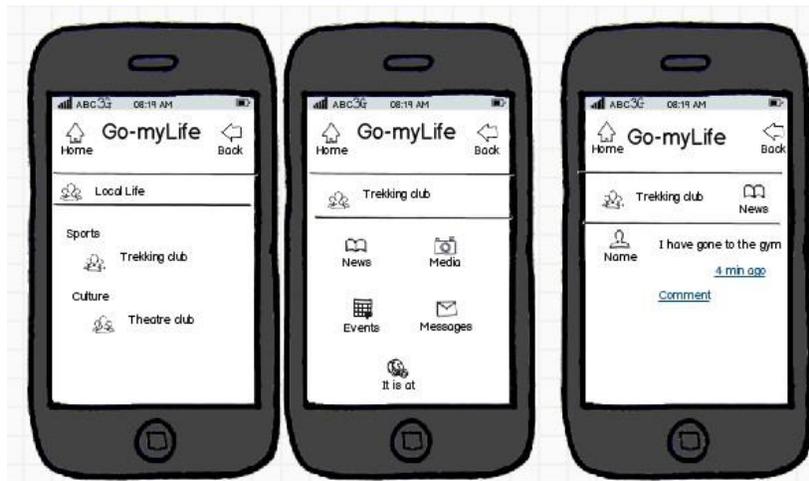
Illustration 14 Local life mobile version

Media

In this section, the user could share content such as photos or videos.
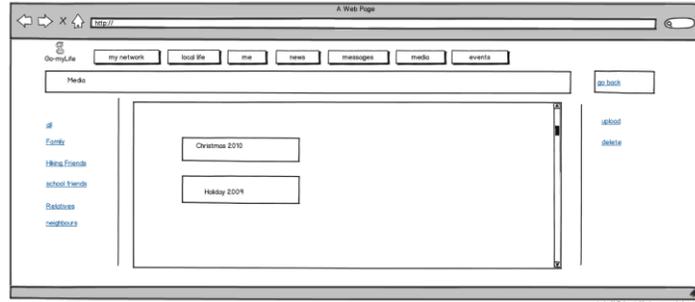
Illustration 15 Media desktop version
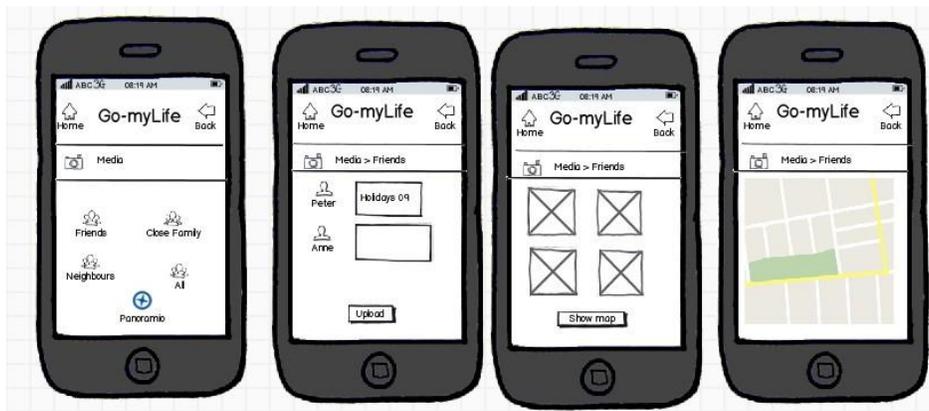
Illustration 16 Media mobile contacts

Events

In this section the user will manage the events.
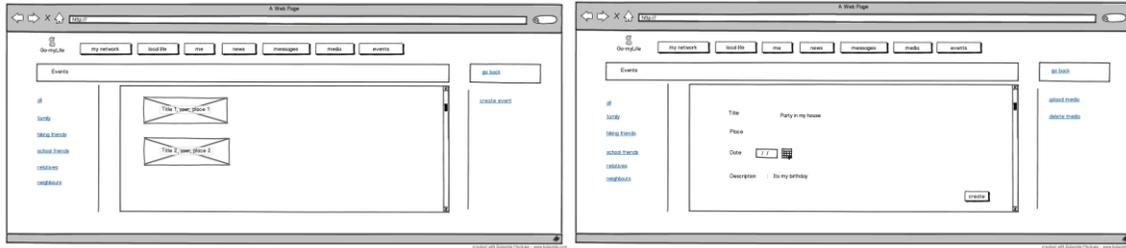
Illustration 17 Events desktop version
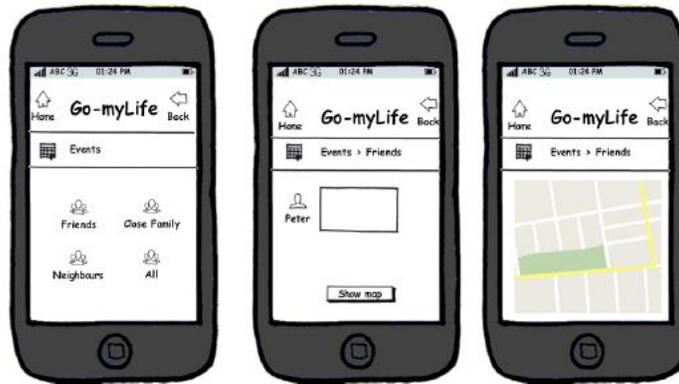
Illustration 18 Events mobile version

Me

"Me" is a profile section to manage all the personal information (profile photo, accounts in other social networks, etc.)
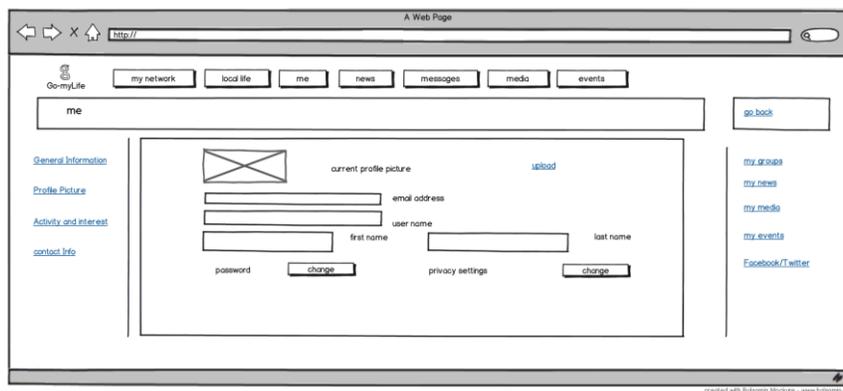
Illustration 19 Me desktop version

Illustration 20 Me mobile version

Around me

"Around me" will show the users that are near you. It will be a section inside each screen in desktop version but in mobile version will be in a separate screen.

Illustration 21 Around me mobile version

5 Conclusion

This deliverable describes the design and architecture for the first Go-myLife prototype, describing in detail the different components that compose the platform.

Go-myLife platform consists of a server core based on the *LibreGeoSocial* framework that acts as the social network engine and it is in charge of the management of users and contents. It offers a series of services in REST interfaces.

The Go-myLife Client will be a web application to guarantee that it can be used in any devices. This web application will be implemented using GWT framework and it will also integrate the Social Connector Manager to interact with the content of existing social networks such as Facebook and Twitter.

Prototypes of the user interfaces have also been designed taking into account the findings of the analysis in user needs and communication patterns and the workshops with end users.

This first prototype will be used for the first version of the pilots. The feedback after the trials will lead us to detect limitations in design or functionalities of the application that will be the basis for the final architecture design and it corresponding prototype.