ZIG-C REQUIREMENTS SPECIFICATION

Version 1.0

APRIL 11, 2017

1.Project description

This project is being created for a software engineering course.

We decided, due to the nature of the GIZ project of the project to make a dual platform, both desktop and mobile application. Because the project is divided in regions, the mobile application will be used by the regional coordinators and the desktop application mainly by the central office.

The work will begin on the desktop version of the application. It will be developed as an application that deals with all the operations of the company, including project submissions, financial statements and on-the-spot control. These files can be accessed only by the project evaluation office and the person who submits them.

The mobile version of the application will deal only with on-the-spot control. On-the-spot control includes GPS data to be registered, photo submissions, the completion of a form and additional remarks made by the field commissioner that will register the data. An additional feature that we may add is an internal chat that will connect people of the same project.

2.1 Product Context

The software that we want to develop will be only for one company and it is adaptable to similar projects with similar activities. The software will be self-contained, as it does not need to interact with other platforms, but just between themselves.

2.2 User Characteristics

Costumer profiles:

- Regional coordinators – will use both the desktop and mobile version of the application. In the desktop version, these employees need to complete forms, keep track of their financial expenses and upload files. Meanwhile in the mobile version they need to store the location, upload photos and to complete other forms.
- Financial office – will use the desktop version of the application. These employees need to complete spreadsheets, based on the expenses of the regional offices and the central office. These spreadsheets will be shared with all the offices.

- Administrator – will give access to new employees or modify the privileges of the existing ones.
- Organization supervisor – will be responsible for the evaluation of the files submitted by the regional coordinator.

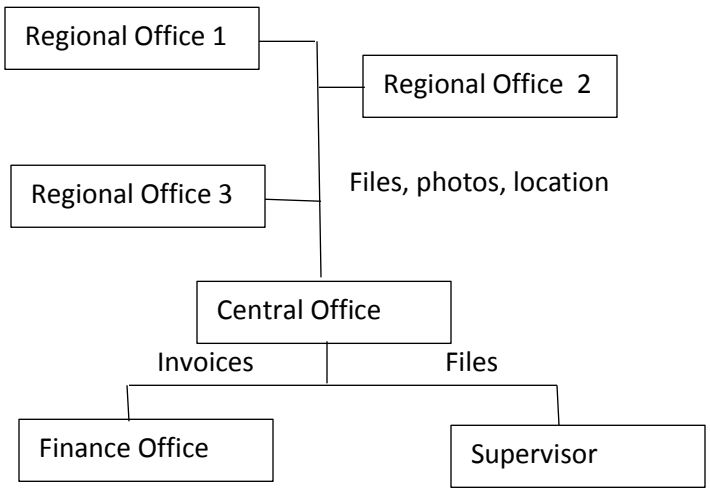
2.3 Assumptions

The mobile app that we'll develop will be on android platform, so iOs and windows phone users can't access it. On many rural aereas there may not be phone reception so we'll have to come up with a good solution to save GPS data and photos and make it available to upload them when finding the proper reception.

2.4 Constraints

Both version will be developed from scratch, so employees will not have to use any old version or systems. Transaction will not be included in the software, but the financial office will be able to supervise any expenses by checking the invoices that will be uploaded by the regional coordinators. Access will be divided in levels, according to the funcionality of each employee and the administrator will be able to manage all the other users. Regarding security, the access of each user will be restrained by an encrypted password and to secure database connection from possible injections. Graphic interface will be simple and user friendly, so there is no need for large proccesing capacity.

2.5 Dependencies



3. Requirements

3.1 Functional Requirements

- BR_F01- Business requirements_Functional#nr

Nr.	Requirements	Comment	Priority	Date	Reviewed / Approved
BR_F01	The system should connect regional offices with coordinators.	Top functional requirement from the clients. (same database)	2	04/04/2017	Noel Boçi/ Livja Papuçiu
BR_F02	All users have their profiles protected by passwords.	Security will be provided by encrypted passwords.	2	04/04/2017	Noel Boçi/ Livja Papuçiu
BR_F03	The system should handle a large number of data since many files will be uploaded.	Large server space should be provided.	2	04/04/2017	Eixhan Gruja / Livja Papuciu
BR_F04	Human Resouces (administrator) should be able to add new users according to their positions.	Changes may occur in the companys employees, they might hire/fire people.	2	04/04/2017	Megi Bezhani / Livja Papuciu
BR_F05	The system should give partial acess to employees according to their position.	Employees do not need to see each others files.	2	08/04/2017	Megi Bezhani / Livja Papuciu
BR_F06	Regional coordinators can save location, in order to send it when they get phone reception.	This will be helpful, as these employees work in rural areas, where there's no phone reception.	3	08/04/2017	Urim Ahmetaj / Livja Papuciu
BR_F07	The files must be sent to a state supervisor who will approve or reject them.	It is a legal procedure part of these operations.	1	08/04/2017	Noel Boçi/ Livja Papuçiu
BR_F08	The financial office will have all costs registered and will also have invoices to prove these expenses.	This is necessary to make a transparent balance sheet.	1	08/04/2017	Eixhan Gruja / Livja Papuciu

BR_F09	There will be helpful labels to aid users.	Onhover labels will be added to help users identify icons.	3	08/04/2017	Urim Ahmetaj /Eixhan Gruja
BR_F10	The coordinators should be able to store files as drafts.	This is a work process that allows coordinators to save but still be able to make changes.	2	08/04/2017	Livja Papuciu / Noel Boci

Priority Definitions

- Priority 1 – The requirement is a "must have" as outlined by policy/law
- Priority 2 – The requirement is needed for improved processing, and the fulfillment of the requirement will create immediate benefits
- Priority 3 – The requirement is a "nice to have", which may include new functionality

3.2 User Interface Requirements

There will be a menu in all the pages of the application, beside the respective buttons in the scenes, so that it is easier for users to navigate.

Error messages will appear as a user inputs the wrong type of data or wrong password. They will make it easier for users to operate in this software and will also help developers keep track of errors and eliminate them.

The screen format we have thought of is organized in three horizontal tabs, for the desktop version and three vertical tabs for the "on the spot control". When one of them is selected it opens a separate functionality. There will be easy steps to follow to each sector.

3.3 Usability

Accessibility - only users that are approved by administrator can access the system. Each user level, can access only files and profiles it needs to, there are restrictions on the transparency level.

Learnability - The user documentation should be complete, and the system will be easy to learn. Most functions will have icons and when moused over the name will appear.

3.4 Performance

The software should be available to be used by all users simultaneously. All the data should be stored in the database in less than a second after they're submitted by the users. The type of information that will be stored will be the basic data about the user

that will submit them, date of the submission, images of the area and different files attached with the project (example excel work files used for transactions).

3.4.1 Capacity

Every user has its own autonomy even though they work in the same database they don't load at the same time. The transactions will usually be lightweight transactions. The maximum number of users simultaneously is all of them, which is approximately 100.

3.4.2 Availability

The software will be used on average 8-10 hours per day, but it will be available 24 hours per day. The mobile application will probably have a bit of trouble working in every zone because the internet provided by communication companies doesn't fully cover Albania. In order for our application not to be impacted by this problem the mobile version will have an option to save the GPS data gathered and then send them to the database. Impact of downtime will not be very crucial because all the data can be saved on the mobile or pc separately.

3.4.3 Latency

There will be no limit on the maximum acceptable time.

3.5 Manageability/Maintainability

3.5.1 Monitoring

In order to detect errors, we will use error detection schemes such as hash function (or checksum algorithm). A hash function adds a fixed-length tag to a message, which enables receivers to verify the delivered message by recomposing the tag and comparing it with the one provided. Repetition codes scheme can be used also.

3.5.2 Maintenance

The design of the software in the desktop version will be simple in order for it to be as fast as possible and useful even in computers with low graphical interface. When it comes to the mobile application it must be a smartphone and have an incorporated GPS.

3.5.3 Operations

The administrator will be responsible for back-ups at least one time per month since he has privilege to get and see all the data.

3.6 System Interface/Integration

Our software will store its data on a database. The database will be accessible by the mobile version, to store the data from on the spot controls and by the desktop version to process form, add financial statements and store other necessary data in the database.

3.6.1 Network and Hardware Interfaces

Both the mobile and desktop version will use ASYNC task to communicate with the server-side. This will provide a continuous stream of information and let the user perform other operations while the data is transferred.

3.6.2 Systems Interfaces

The main system will be the desktop version of the application. The mobile version will be a sub-system, available only to the regional coordinators, that will help in data collection for the main system.

The sub-system to main system interface

The sub-system will store GPS data and photos from on the spot control. Based on the region the on the spot control is made an ID will be provided for the data collected. The data will be stored to a file and attached to a specific form, according to the regional coordinator needs. The file will then be sent to the main system, where the user can make further remarks about his observation for the on the spot control.

3.7 Security

3.7.1 Protection

Each individual firstly must sign up at our application by giving some personal information about themselves and later could use the program by logging.

The application will have a login page where each user must write his/her email address and their password which will be protected by MD5 algorithm.

We are going to secure the database connection with specific credentials.

3.7.2 Authorization and Authentication

Authorization is going to be given to users based on a System-level authorization.

We will follow a System maintenance authority which is designed for users to

maintain databases within a database manager instance that contains sensitive data. Not every user is not allowed to have access in specific files, so a hierarchy of users is created in the moment of Authentication when everyone is asked to give some personal information and also the type of the job they have.

3.8 Data Management

Information that is going to be placed into the database includes:

- Text
- Photo
- GPS data such as latitude and longitude
- Spreadsheets used by the department of the finance

3.9 Standards Compliance

The financial office will trace all the expenses of all the regional offices and the central office, then creating a joint financial statement. The statements will be issued quarterly and an audit semi-annually, so a trace file will be created to store the before values for each account.

3.10 Portability

- The mobile version of the application will run on any Android device.
- The mobile version will be developed entirely with 'Android studio' and will not contain any code of the desktop version.
- The mobile application will be developed for Android versions 4.4 and up (Android API 19).
- Cellular data is recommended, but the mobile application will store the data to be sent until a network connection is established.
- The mobile version will not be available on Windows phones and iOS.