AFETBILGI SOFTWARE REQUIREMENTS SPECIFICATION

Ceng 350

Cengizhan Deveci - 2448322

Osman Taylan İşleyici - 2448496

Contents

List of Figures

List of Tables

1 Introduction

This document is the Software Specification Requirements (SRS) of the website, afetbilgi.com, developed by a group of METU students and graduates after the Pazarcik Earthquake on February 6, 2023.

1.1 Purpose of the System

Afetbilgi.com is a website that tries to deliver accurate information to people. After the Pazarcik Earthquake, there was a lot of misinformation on social media platforms, and the infrastructure quality in the earthquake zone was terrible. Therefore people who needed help were having trouble finding the correct information. Thanks to afetbilgi.com, it delivers the correct information with accuracy, speed, and simplicity principles.

1.2 Scope

The website is named afetbilgi.com, and the users will be able to reach important telephone numbers and locations in a disaster situation.
The scope of the system can be listed as

- The system provides users with essential locations as a map view, and users can filter the places such as hospitals, food delivery places, and temporary accommodation locations. When selected, it is navigated using the google maps navigation system.
- The system provides users the valid active hospitals, evacuation points, safe gathering places, and temporary accommodation places in the disaster area to download as a pdf format. Moreover, in the file for all locations, they validate whether the information is correct and google maps navigation links.
- The system provides users to select the city where they live so that it filters the information accordingly.
- The system provides users with valid solidarity campaigns, monetary donation links, and blood and stems cell donation places.

1.3 System Overview

This section of the document will provide detailed information about the system with its components.

1.3.1 System Perspective

The purpose of the development of afetbilgi.com is mainly to help people who are affected by disasters like earthquakes. For this purpose, the website can be used by all people, not just limited to people in a disaster area. People who are affected can use this application to get any sort of help. The other people can find helpful links or locations to help people who are in need. Thanks to this application, a general mobilization can be achieved within the region; therefore, the reach of aid can be accelerated, and a wider environment can be easily reached.

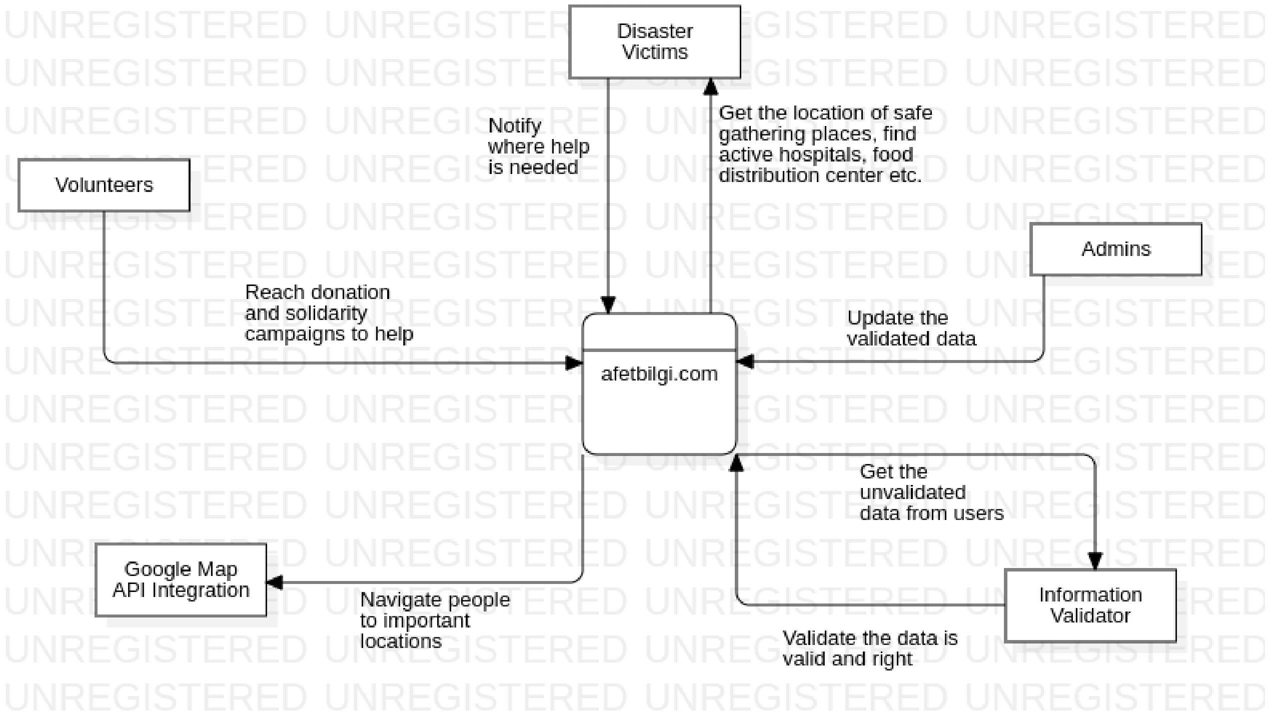

Disaster Victims
Notify where help is needed
Get the location of safe gathering places, find active hospitals, food distribution center etc.
Volunteers
Admins
Reach donation and solidarity campaigns to help
Update the validated data
afetbilgi.com
Get the unvalidated data from users
Google Map API Integration
Navigate people to important locations
Information Validator
Validate the data is valid and right

Figure 1.1: System Context Diagram for afetbilgi.com

1.3.1.1 System Interfaces

- **Google Maps API:** Afetbilgi.com uses Google Maps API to navigate people to locations that are on the website to the user. This system shows users where they are, close evacuation points, emergency gathering areas, temporary accommodation places, food distribution centers, gas stations, active hospitals, and pharmacies. With this integration, in emergency cases, people can find where and how to go rapidly. Thus, it may increase the survival rate in vital situations.

- **Database Management Interfaces:** Authorized persons validate the pieces of information in teams. Afetbilgi.com admins update the database with the validated information thanks to the validation teams and volunteers. With this mobilization, this system works with accuracy, speed, and simplicity principles. It also prevents disinformation. In addition to that, by the city filtering system, users can reach only the needed information in emergencies.
- **PDF Integration:** This system allows users to download the crucial information for the city they need since the communication and network systems may get damaged and not reachable. Therefore, downloading only the essential information may increase the speed of help.
- **Multi Language Support:** This system allows afetbilgi.com to reach a broader effect on the disaster situation. Foreigners in the area can reach the system more quickly.

1.3.1.2 User Interfaces

Users can use this application by using their internet browsers. When they reach the website, users can see that one of the features of the website is simplicity. All the submenus and filters are clear and straightforward. The backend and frontend of the website are lightweight; therefore, in a disaster area, users can reach the website with slow internet speeds.

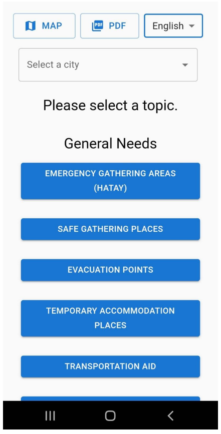


Figure 1.2: Main Menu in Mobile Devices of afetbilgi.com

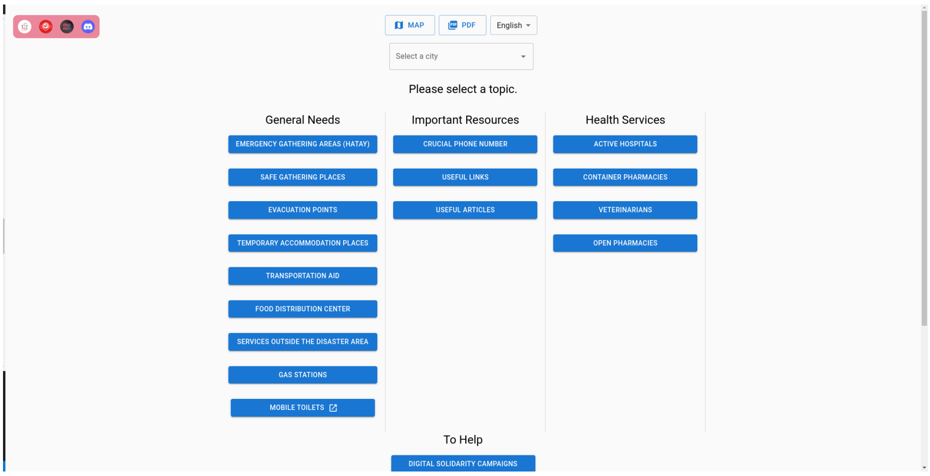


Figure 1.3: Main Menu in Desktop of afetbilgi.com

With the Google Maps API integration, users can see their exact locations. In addition to that, they will find essential locations which they are close to them. Also, the filtering setting increases the practicality and becomes task-oriented. When the user selects the desired locations, the website redirects them to the google maps navigation system.

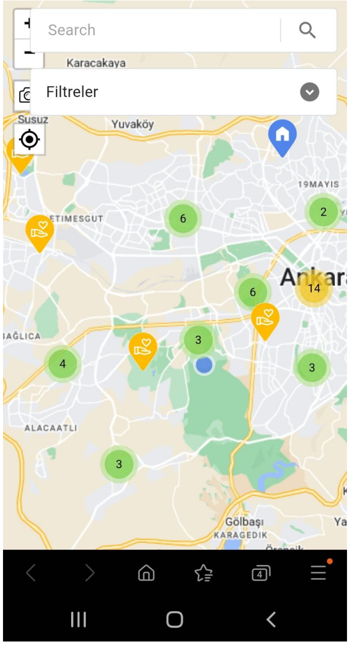


Figure 1.4: Maps Integration

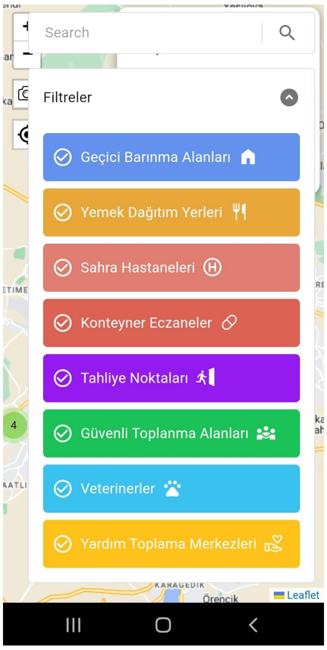
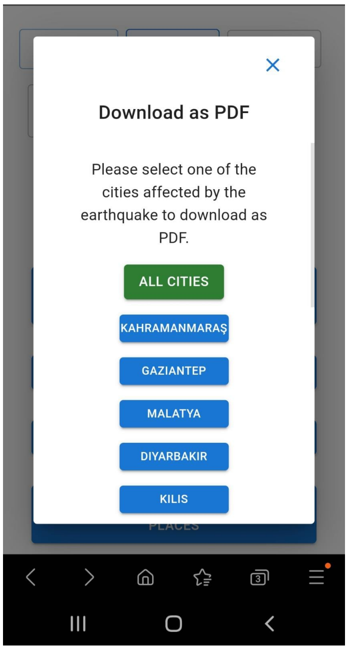


Figure 1.5: Filter Settings for Map

Users can download all the information by selecting the specific cities or all cities in PDF format to access the information more quickly in a disaster situation. The application was developed for the Pazarcik Earthquake, and the system shows the cities affected by these earthquakes.

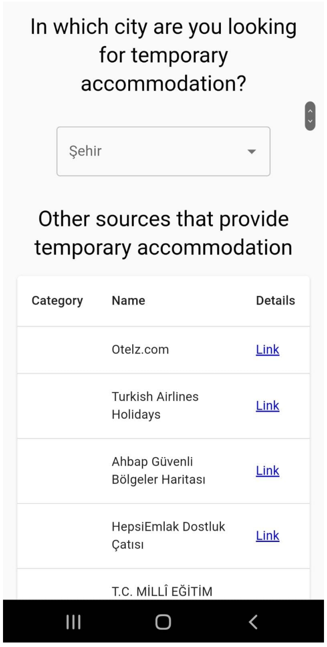
There is a lot of different submenu in the application. These menus are under the subtopics, which are general needs, essential resources, health services, and to-help topics. Some of these submenus can be seen in Figure 1.7 and Figure 1.8. According to the information users search, it lists the desired information on the screen. Also, it allows filtering like the other functions.



Download as PDF

Please select one of the cities affected by the earthquake to download as PDF.

Figure 1.6: PDF Download Menu by Selecting Cities

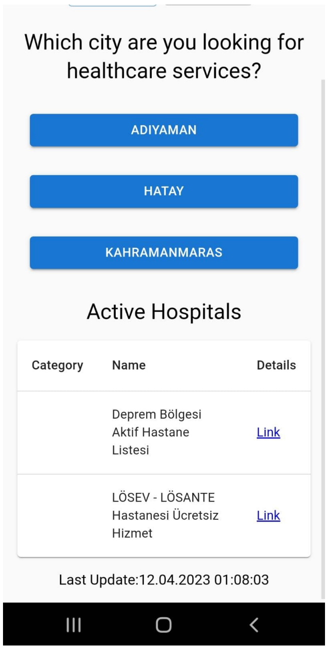


In which city are you looking for temporary accommodation?

Other sources that provide temporary accommodation

Category	Name	Details
	Otelz.com	Link
	Turkish Airlines Holidays	Link
	Ahbap Güvenli Bölgeler Haritası	Link
	HepsiEmlak Dostluk Çatısı	Link
	T.C. MİLLÎ EĞİTİM	

Figure 1.7: Accommodation Menu



Which city are you looking for healthcare services?

Active Hospitals

Category	Name	Details
	Deprem Bölgesi Aktif Hastane Listesi	Link
	LÖSEV - LÖSANTE Hastanesi Ücretsiz Hizmet	Link

Last Update:12.04.2023 01:08:03

Figure 1.8: Healthcare Services Menu

1.3.1.3 Hardware Interfaces

The system requires a device that has internet access. If the user wants to use Google Maps API, it should also have a GPS on its device.

1.3.1.4 Software Interfaces

- **Database:** The system uses JSON files to store the data. This system does not require a complicated database system.
- **Operating Systems:** The system can be reachable by any device which has an internet browser and access.
- **Google Maps:** The system uses Google Maps to show the essential locations and where the user is on the map and allow them to reach them.

1.3.1.5 Memory Constraints

There is no issue with memory constraints in the system. The system should have enough memory to hold necessary information; however, it requires a very low memory which can be sustainable easily.

1.3.1.6 Operations

The operations provided by afetbilgi.com can be partitioned into:

User operations:

- Reaching important resources
- Seeing Location of Healthcare Services
- Reaching other websites to help victims
- Seeing contact info and location places associated with general needings
- Filters the info by cities
- Seeing data of website on a Map
- Contacting with Developers and Maintainters

Admin operations:

- Validate the information
- Update the information

System Operations:

- Creating a PDF document which includes info
- Multi Language Support

All details of these operations will be explained in Functions Section (3.2).

1.3.2 System Functions

1.3.3 Stakeholder Characteristics

1.3.4 Limitations

1.4 Definitions

2 References

3 Specific Requirements

3.1 External Interfaces

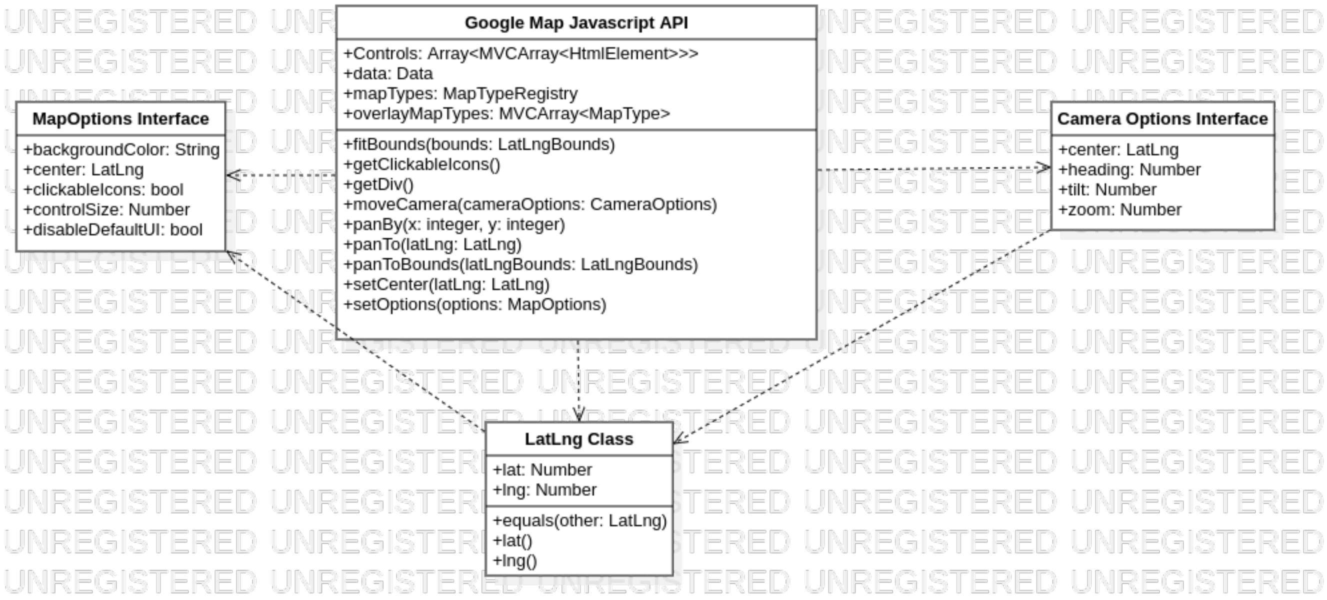


Figure 3.1: External Interfaces of Afetbilgi.com

3.2 Functions

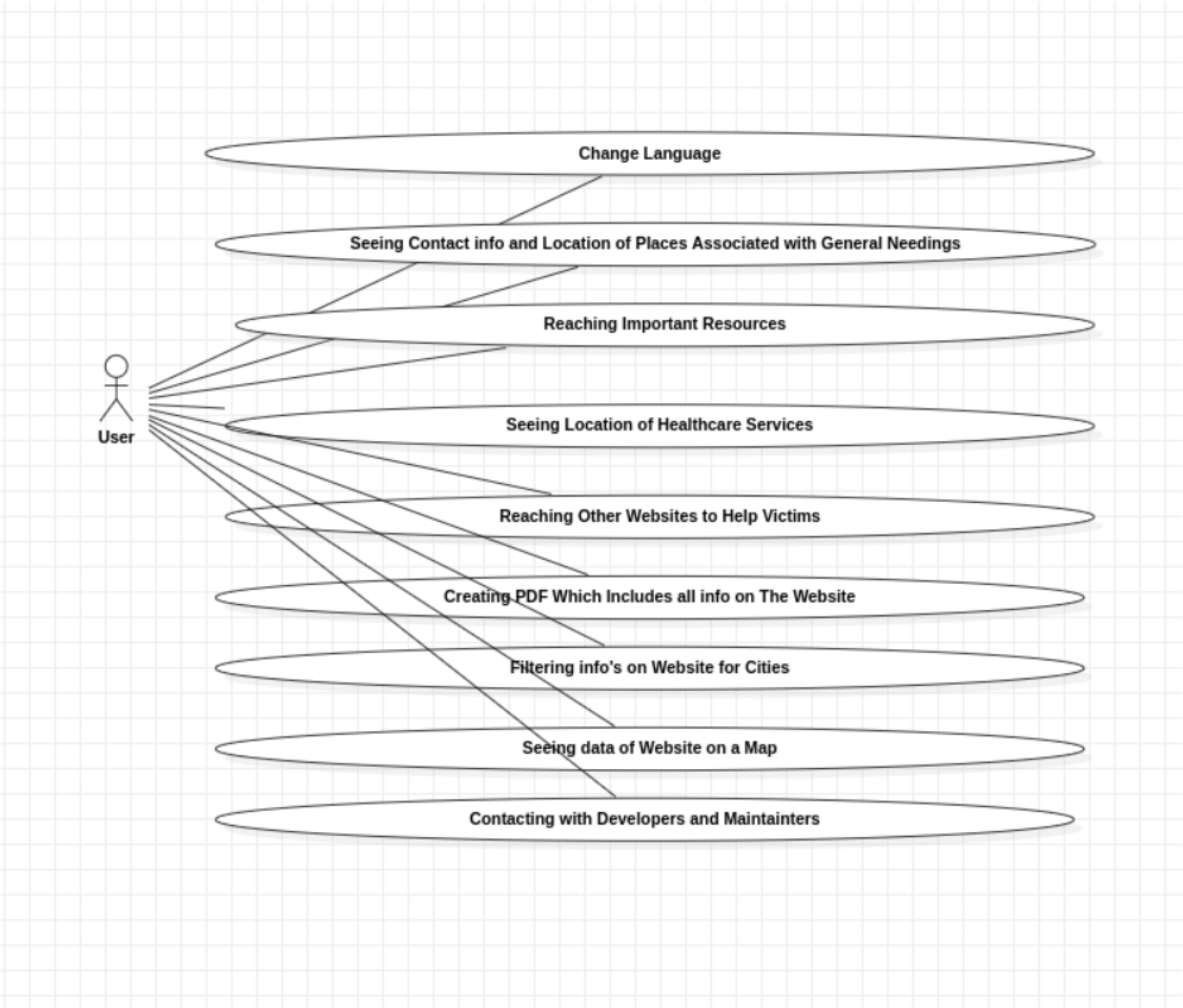

Change Language
Seeing Contact info and Location of Places Associated with General Needings
Reaching Important Resources
User
Seeing Location of Healthcare Services
Reaching Other Websites to Help Victims
Creating PDF Which Includes all info on The Website
Filtering info's on Website for Cities
Seeing data of Website on a Map
Contacting with Developers and Maintainters

Figure 3.2: Use case diagram.

Use case name	Change language
Actors	User
Description	Users can use change button drop menu to change the language of Afetbilgi.com between Turkish, English, Arabic and Kurdi.
Data	-
Preconditions	User should be in main page.
Stimulus	User tries to change language.
Basic flow	Step 1 - User opens the languages dropdown menu. Step 2 - User select the language. Step 3 - React changes the language of page. With selected one.
Alternative flow	-
Exception flow	If an error is thrown by react.js it's written on browser console.
Postconditions	-

Table 3.1: Change language

Use case name	Seeing Contact info and Location of general needings
Actors	User
Description	Users can find location and contact info (website, phone number etc.) for their general needs like safe gathering places, gas stations, and evacuation points.
Data	Selected city
Preconditions	-
Stimulus	User tries to get information about their needs.
Basic flow	Step 1 - User clicks one of the eight buttons on main page Step 2 - User selects a city. Step 3 - Site returns the table of suitable locations table. Step 4 - User clicks one of the links to find further info about location.
Alternative flow	Step 1 - User clicks map to open map from main page. Step 2 - User finds the desired location from map. Step 3 - User clicks the location to get further info.
Exception flow	If an error occurs on map side, google map API throws an error.
Postconditions	-

Table 3.2: Seeing contact info and location of places

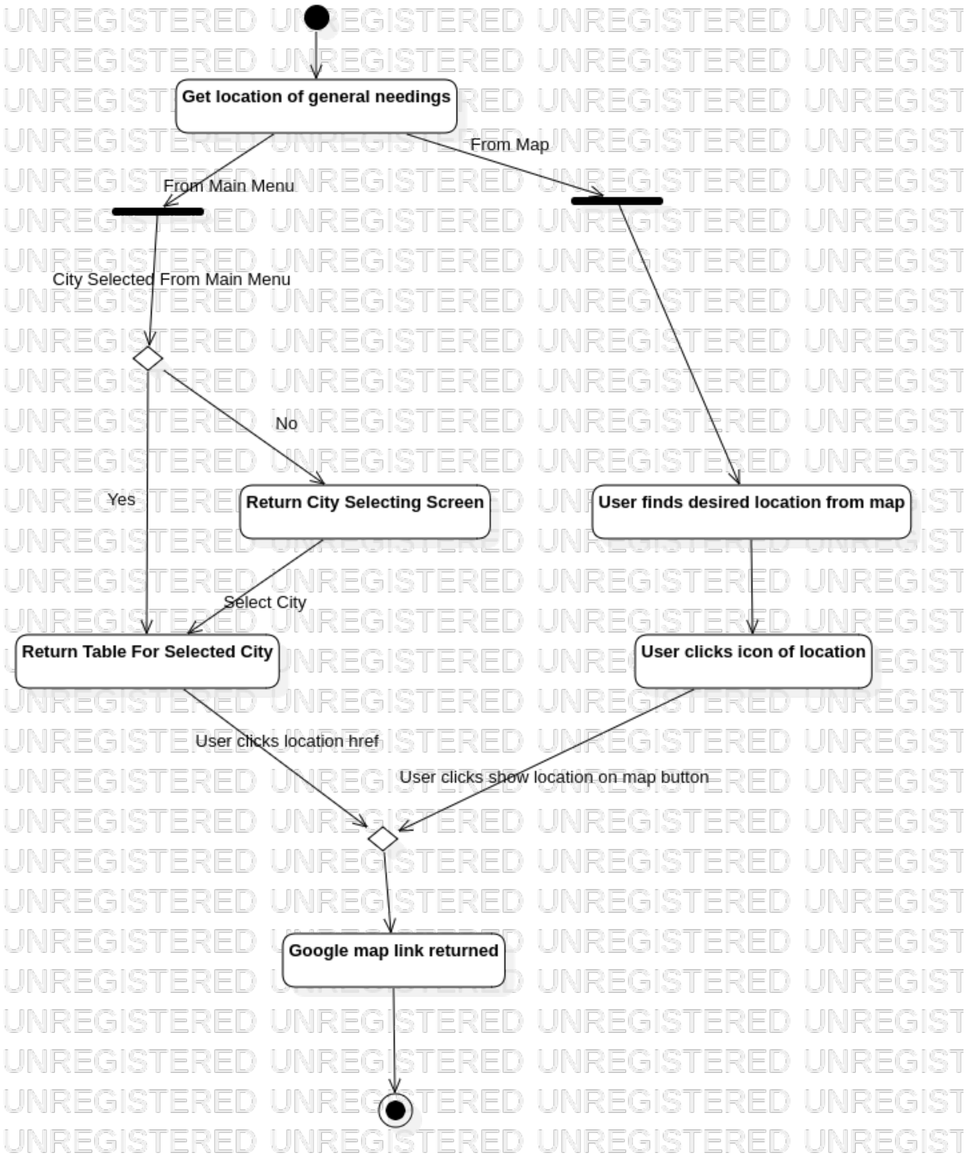

Get location of general needings
From Main Menu
From Map
City Selected From Main Menu
No
Yes
Return City Selecting Screen
User finds desired location from map
Select City
Return Table For Selected City
User clicks icon of location
User clicks location href
User clicks show location on map button
Google map link returned

Figure 3.3: Activity Diagram of Seeing Contact info and Location of general needings

Use case name	Reaching important resources.
Actors	User
Description	User reach important resources (crucial phone numbers, useful links & useful articles) from the middle panel.
Data	-
Preconditions	-
Stimulus	User tries to get general information about disasters.
Basic flow	Step 1 - User clicks one of the three buttons on main page Step 2 - Site returns table of desired information. Step 3 - User can call the desired phone or go to desired website.
Alternative flow	-
Exception flow	-
Postconditions	-

Table 3.3: Reaching important resources

Use case name	Seeing location of healthcare services.
Actors	User
Description	User can find get the location and some other information about health services (hospitals, pharmacies, veterinarians) from website.
Data	Selected city, (if there is).
Preconditions	-
Stimulus	User tries to get information about health services based on their needings.
Basic flow	Step 1 - User clicks one of four buttons from the right frame. Step 2 - Site returns a general table if there is no city selected from main menu. If there is a selected city site returns location links of services in this city. Step 3 - If user didn't filter cities from main menu, now he/she can. Step 4 - User can reach the location by clicking the location button.
Alternative flow	- Step 1 - User can get the location link from map, by filtering by category, by searching or by finding it in map by hand.
Exception flow	-
Postconditions	-

Table 3.4: Location of healthcare services

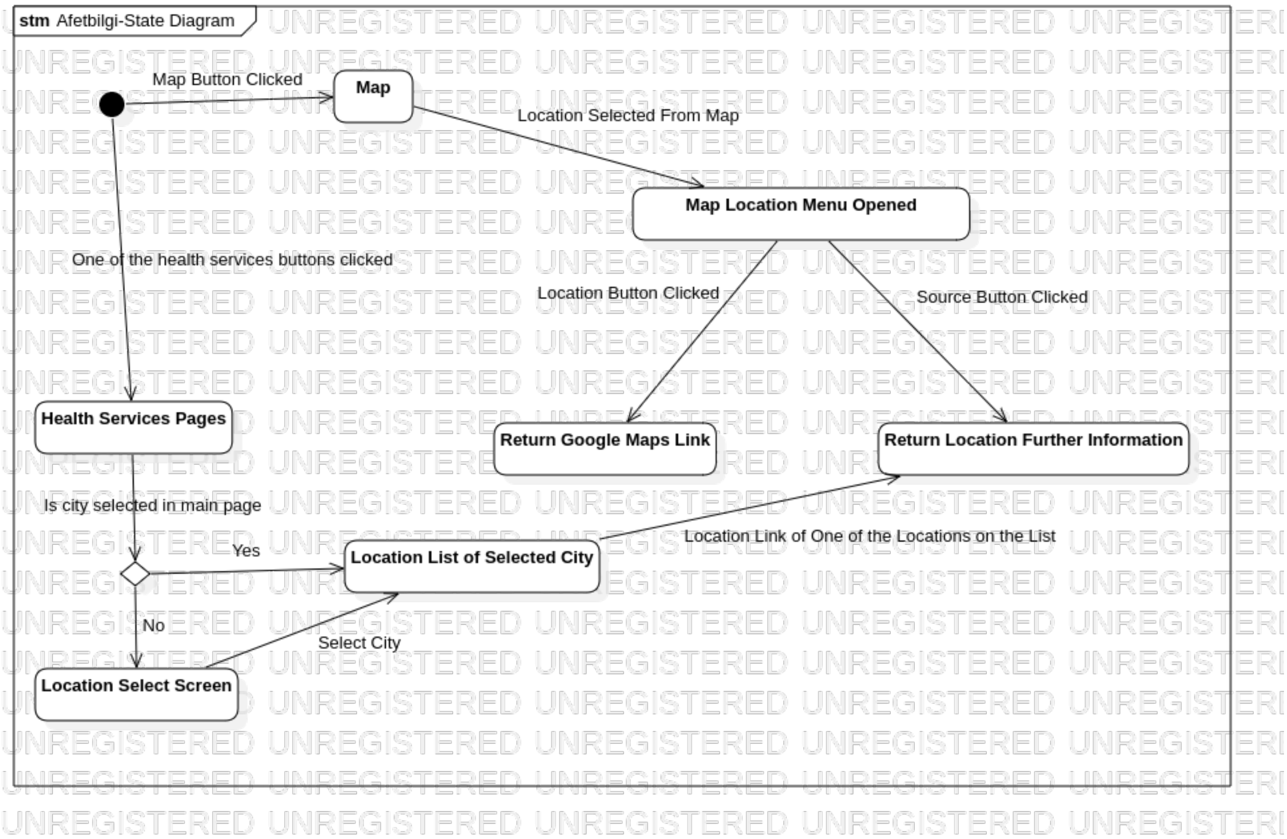

stm Afetbilgi-State Diagram
Map Button Clicked
Map
Location Selected From Map
Map Location Menu Opened
One of the health services buttons clicked
Location Button Clicked
Source Button Clicked
Health Services Pages
Return Google Maps Link
Return Location Further Information
Is city selected in main page
Yes
Location List of Selected City
Location Link of One of the Locations on the List
No
Select City
Location Select Screen

Figure 3.4: State Diagram of Getting Locations of Healthcare Services

Use case name	Reaching other webistes to help victims.
Actors	User
Description	User can reach other websites for donating money, blood, stem cell.
Data	-
Preconditions	-
Stimulus	User tries to find places or websites to help victims of earthquake.
Basic flow	User clicks one of the 5 buttons on bottom frame of website.
Alternative flow	-
Exception flow	-
Postconditions	-

Table 3.5: Reaching other websites

Use case name	Creating pdf which includes all info on the website.
Actors	User
Description	User can create a pdf containing the information on website to reach the info offline, or any other purpose.
Data	Selected city. (If there is one).
Preconditions	-
Stimulus	User tries to get all information of website.
Basic flow	Step 1 - User clicks download pdf button at the top of the page. Step 2 - Site returns a preformed PDF containing all information about the city (if selected) selected by the user, in the selected language.
Alternative flow	-
Exception flow	-
Postconditions	-

Table 3.6: Creating pdf

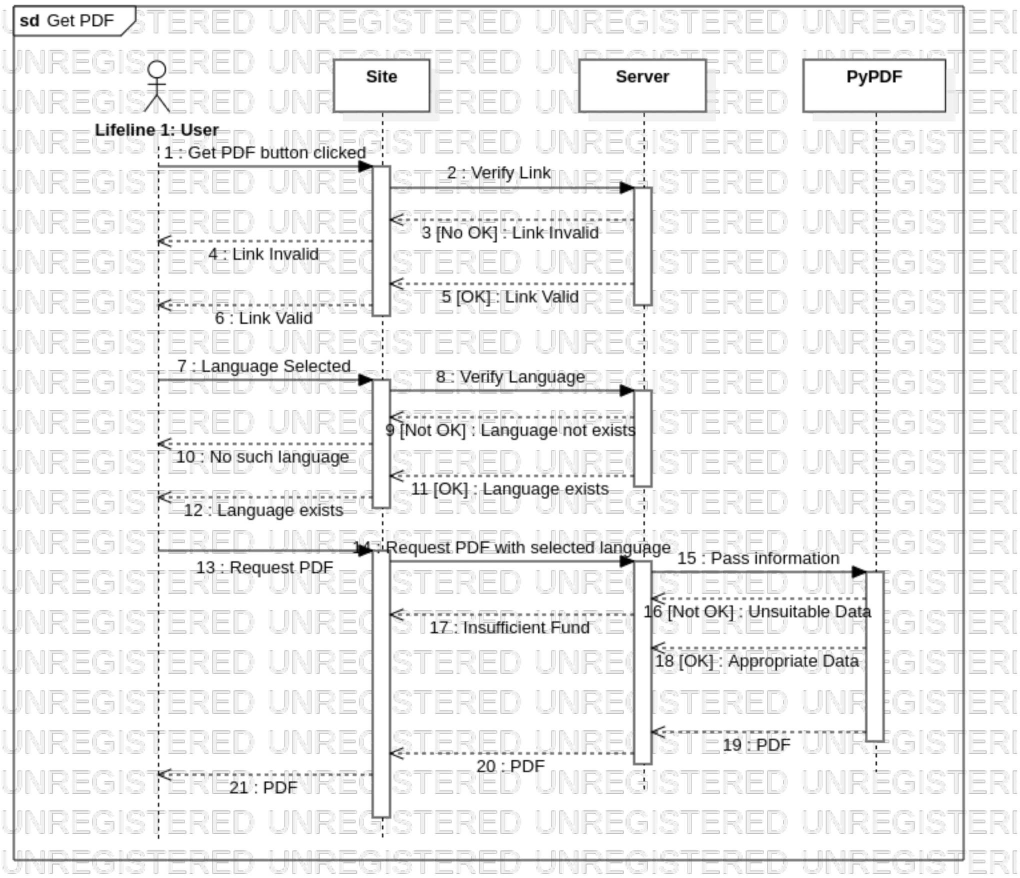


Figure 3.5: Sequence Diagram of Creating PDF

Use case name	Filtering info's on website for cities.
Actors	User
Description	User can filter menus and info's on website to include a selected city.
Data	Selected city.
Preconditions	User should select a city from main menu.
Stimulus	User tries to find relevant information about a city.
Basic flow	Step 1 - User selects a city from main page. Step 2 - Site filters the main menu. (For example if there is no veterinarian in selected city, user removes the veterinarians button.) Step 3 - If user goes another page in website, site continues to filter information for the selected city.
Alternative flow	-
Exception flow	-
Postconditions	-

Table 3.7: Filtering information on site by city

Use case name	Seeing data of website on a map.
Actors	User
Description	Users can see all locations on website visually in a map and use the map to easily find needed services based on their needs and location.
Data	-
Preconditions	-
Stimulus	User tries to find locations easily.
Basic flow	Step 1 - User clicks map button at the top of the page. Step 2 - Site redirects to a map built using Google Map API. Step 3 - User clicks locations or balloons to navigate through map.
Alternative flow	-
Exception flow	-
Postconditions	-

Table 3.8: Seeing data of website on a map

Use case name	Contacting with developers and maintainers.
Actors	User
Description	Users can find contact info and links to source code and social media accounts of developers from a page.
Data	-
Preconditions	-
Stimulus	User wants to reach developers.
Basic flow	Step 1 - User clicks About Us / Contact button at the buttom of the page. Step 2 - Site redirect to a about us page with an Instagram, a twitter and a GitHub link. Step 3 - User can click on of these three buttons or click the mail address to send a mail to developers.
Alternative flow	-
Exception flow	-
Postconditions	-

Table 3.9: Contacting with developers

3.3 Usability Requirements

- Site must be usable on both mobile, and desktop browsers.
- Users, especially victims should be able to use the site without any background information.
- A new data should be added by admins, to the site with at most 3 steps.
- Users should be able to use map withoud any location info.
- Users should be able to recognize the icons on the map easily.
- Victims should be able to get locations and phone numbers without copy paste. Suitable browser APIs should be used.

3.4 Performance Requirements

- Site must be lightweight, users with bad internet connection should be able to use the site in at most 10 seconds.
- Required pdf should be downloaded in 3 seconds.

- PDFs should be updated simultaneously when a data is added, removed, or changed.
- Map should be lightweight to enable users with old phones to use it without any problem.

3.5 Logical Database Requirements

- Database should be designed in a way that enables admins to add and remove data's from site.
- Database should contain city, county and street information of locations.
- Database should contain geographical (WGS84) coordinates of locations to be able to show in map.

3.6 Design Constraints

- The site must not store any informations about users.
- Personal informations such as phone number and address' should be deleted completely after location becomes unavialable.

3.7 System Attributes

3.7.1 Reliablity

- Failure time of system should be less than 10 minutes in a day.
- Site and pdfs should be updated after at most 3 minutes of a database change.

3.7.2 Availability

- During a restart, the site should be available in 3 minutes.
- Data backups should be done in 3 times in a day to prevent a database error.
- Site should be available on any device with a browser.

3.7.3 Security

- Only admins and maintainers should be able to change database.,
- Only admins should be able to add a new kind of data to database.

3.8 Supporting Information

Even though Afetbilgi is firstly designed for 6 February earthquakes in Turkey, the source code of site is now available in GitHub for further disasters. Developers can download and use the source code of site without any permission.

4 Suggestions to Improve the Existing System

4.1 System Perspective

4.2 External Interfaces

4.3 Functions

4.4 Usability Requirements

- The mobile app should run on Android version 7.0+ since about 5 percent of android devices are still running on this version.
- The mobile app should run on IOS 15+ since 96% of IOS users are using IOS 15 and 16.
- The mobile app should support PDF view for users to be able to see the PDF they Downloaded without any issues.
- Mobile app shall support accessibility modes on Android and IOS for users with disablities.
- Mobile app shall work in sync with AI assistants; Google Assistant, Siri and Bixby.
- Size of the app must be less than 10 megabytes, so that users can download it less than a minute.

4.5 Performance Requirements

- Mobile app should start in 2 seconds after click, on a mid-level Android and old IOS device.
- Mobile app should cache datas to be able to show them during connection unstablities.

4.6 Logical Database Requirements

- A local database should be created for mobile app to cache data.

- This database should contain all data available for a selected city.

4.7 Design Constraints

- Mobile app should be designed in a way that it should not store, collect or send any inappropriate information about user.
- While app is being deleted, all data should be deleted to prevent data leak of users.

4.8 System Attributes

4.8.1 Reliablity

- Fails on mobile application should be less than 5 seconds in 10 minutes of use.
- The app should crash at most once in 20 uses.

4.8.2 Availability

- Users should be able to use old versions of app after updates for 30 days.
- App should be available for all 3 major operating systems; IpadOS, IOS, Android.

4.8.3 Security

- App should be running in sandbox mode, ie. It should not reach any data on users device.

4.9 Supporting Information

All the APIs of afetbilgi.com, and the mobile app Afetbilgi, will be open source and free forever.