Official Requirements Document

Authors: Enrico Alberti

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# Abstract

EZGas is a very useful service for all driver. In particular, that service shows in a map some possible gas stations in a definite area and for each gas station the relative fuel price.  
Thanks to this service an user can choices the cheapest gas station or the closest from him/her.

# Summary

[1.0 Abstract 1](#_Toc36291345)

[2.0 Summary 2](#_Toc36291346)

[3.0 Stakeholders 3](#_Toc36291347)

[4.0 Context diagram and interfaces 4](#_Toc36291348)

[4.1 Context Diagram 4](#_Toc36291349)

[4.2 Interfaces 4](#_Toc36291350)

[5.0 Stories and personas 5](#_Toc36291351)

[6.0 Functional and not functional requirements 6](#_Toc36291352)

[6.1 Functional requirements 6](#_Toc36291353)

[6.2 Not functional requirements 6](#_Toc36291354)

[7.0 Scenario, Use case diagram and use cases 7](#_Toc36291355)

[7.1 Use case diagram 7](#_Toc36291356)

[7.2 Use cases 8](#_Toc36291357)

[7.3 Relevant Scenarios 9](#_Toc36291358)

# Stakeholders

*Table 1: List of stakeholders (People or roles with an interest in using EZGas system)*

|  |  |
| --- | --- |
|  |  |
| Name | **Description** |
| Driver | Uses the application to see the list of gas stations in an area and for each one, the fuel price |
| Gas station owners | Uses the application to monitor other concurrent (gas stations) |

# Context diagram and interfaces

## 4.1 Context Diagram

The context diagram allow to understand the entire EZGas system and specifies which are the interfaces to use to interact with the external world.

Driver

**EZGas System**

Gas Station Owner

Fuel price system

Map system

## 4.2 Interfaces

|  |  |  |
| --- | --- | --- |
|  |  |  |
| Actor | **Logical Interface** | **Physical Interface** |
| Driver | GUI | Screen, keyboard |
| Gas station owner | GUI | Screen, keyboard |
| Fuel price system | Data exchanged, XML | Internet connection |
| Map system | API | Internet connection |

*Table 2: Actor of the context diagram with relative interfaces*

# 

# Stories and personas

A persona is someone who typically uses the EZGas system. For each persona, we define a possible life scenario building a story.

Mrs. Jennifer 30, teacher, mother of two children. (registered user)

Jennifer go to work by car. Usually she drives 15 minutes before arriving at school. When she ends up to work, before returning at home, once a week she goes to gas station to buy some fuel because she lives in a little village without any gas station in it. From few days, she is looking for a new gas station near her school because she heard that it’s cheaper than the one she usually goes.

Mr. Daniele 25, student in a trip (unregistered user)

Daniele, rented a car to do a trip with her girlfriend. Since he arrived in Pisa, he’s searching for a “methane” gas station for his car. Unfortunately, he doesn’t know those streets. Moreover, he finds really stressful search a “methane” gas station in there because all of gas station he found were not able to deliver “methane”. In particular, he found three gas station and two of them didn’t have “methane” and another one was temporary out of service.

Mr. Owner 52, owner of a gas station

Mr. Owner decided to open a new business. To be more specific, he decided to open a new gas station that contains all possible fuel also electricity for electric car. The problem is that this gas station is not in a good position, so he’s searching a solution for advertising it.

# Functional and not functional requirements

## 6.1 Functional requirements

|  |  |
| --- | --- |
|  |  |
| ID | **Description** |
| FR1 | Record that an owner registers his gas station and the relative fuel prices |
| FR1.1 | Find gas station address in map system and insert it in EzGas system |
| FR1.2 | Insert new fuel type and relative price |
| FR2 | Handle that someone signals something concerning a gas station |
| F2.1 | Someone signals that gas station is out of service |
| F2.2 | Someone signals a change in fuel price in a relative gas station |
| FR3 | Display all gas stations and the relative fuel price given an initial point and a range area |
| FR3.1 | Retrieve gas station name and its fuel prices |
| FR3.2 | Calculate target area |
| FR3.3 | Handle to display information to driver |
| FR4 | Authorize and authenticate |
| FR4.1 | Handle Log in driver and owner |
| FR4.2 | Handle Log out driver and owner |
| FR4.3 | Define an account |

*Table 3: Functional requirements that describe the behaviors provided by EZGas*

## 6.2 Not functional requirements

*Table 4: Not functional requirements that are implicit to make useful the EZGas system*

|  |  |  |  |
| --- | --- | --- | --- |
|  |  |  |  |
| ID | **Type** | **Description** | **Refers to** |
| NFR1 | Usability | Application should be used with no training | ALL FR |
| NFR2 | Efficiency | All function should be complete in < 0.5 sec. | ALL FR |
| NFR3 | Portability | The application runs on PC and smartphone | ALL FR |
| NFR4 | Reliability | The system is down 3h for maintenance once a month |  |
| NFR5 | Localization | Decimal number use .(dot) as separator |  |
| NFR6 | Localization | Fuel price are in EUR |  |

# Scenario, Use case diagram and use cases

## 7.1 Use case diagram

EZGas System

Gas Station Owner

<<include>>

Map system

<<include>>

Fuel price system

<<include>>

Driver

<<include>>

<<include>>

## 7.2 Use cases

A Use case is a set of scenarios with common user goal. Use case purpose is to understand how system works.

|  |  |
| --- | --- |
|  |  |
| Actors Involved | Gas station owner |
| Preconditions | Owner exists in EZGas system |
| Postconditions | List\_gas\_station++ |
| Nominal scenario | The owner tries to insert its gas station |
| Variants | Wrong address; owner not registered; insert new fuel type |

*Table 5: Use case 1****, UC1*** *– F1 –* ***Owner registers new gas station***

|  |  |
| --- | --- |
|  |  |
| Actors Involved | Driver |
| Preconditions | Driver exists in EZGas system |
| Postconditions | <map: fuel-price>; Alert on gas station owner |
| Nominal scenario | A driver views the list of gas station; click on one to see fuel and prices; |
| Variants | Signals fuel price changed; signals problems to use gas station |

*Table 6: Use case 2,* ***UC2*** *– F2, F3, F4 –* ***Driver uses a gas station in the system***

## 7.3 Relevant Scenarios

|  |  |
| --- | --- |
|  |  |
| Scenario ID: SC1 | **Corresponds to UC1** |
| Description | An owner registers his gas station |
| Precondition | Owner account is registered; address exists |
| Postcondition | New gas station in the map |
| Step # | Description |
| 1 | Launch EZGas application |
| 2 | Log in |
| 3 | Insert a new gas station |
| 4 | Log out |

*Table 7:* ***Scenario 1, Sequence of events done by a gas station owner***

*Table 8:* ***Scenario 2,*** *Sequence of* ***typical events to interaction with EZGas system from a driver***

|  |  |
| --- | --- |
| Scenario ID: SC2 | Corresponds to UC2 |
| Description | Someone is searching gas stations information |
| Precondition | Driver has an account in EZGas |
| Postcondition | Driver knows where is his destination |
| Step # | Description |
| 1 | Launch EZGas application |
| 2 | Log in |
| 3 | Insert range area and initial point |
| 4 | Click on a gas station to see fuel price and availability |
| 5 | Log out |

|  |  |
| --- | --- |
|  |  |
| Scenario ID: SC3 | **Corresponds to UC2** |
| Description | A Driver signals something concerning a gas station |
| Precondition | Driver has an account in EZGas |
| Postcondition | Alert on gas station owner |
| Step # | Description |
| 1 | Launch EZGas application |
| 2 | Log in |
| 3 | Insert range area and initial point |
| 4 | Click on a gas station to see fuel price and availability |
| 5 | Signals something concerning a gas station |
| 6 | Log out |

*Table 9:* ***Scenario 3,*** *Sequence of* ***events to signal something in a gas station***