POLITECNICO MILANO 1863

POLITECNICO DI MILANO

SOFTWARE ENGINEERING 2 PROJECT
A.Y. 2020-21

Customers Line-up
**Requirements Analysis and Specifications
Document**

Version 0.0

BANFI Stefano Alessandro, 853195
BRESCIANI Matteo, 944638

Referent professor: DI NITTO Elisabetta

October 19, 2020

Contents

Chapter 1

Introduction

1.1 Purpose

The main scope of this document is to define requirements for the application development, in order to make a correct project planification. To do this, we will analyze:

- System;

- Functional and unfunctional requirements;

- Constraints;

- Relationships between stakeholders;

- Possible scenarios and tests;

These will be shown using different types of languages, starting from the natural language to the structured languages such as Alloy and UML. Below, we will define the context in which our application will be developed. During Sars-Cov-2 emergency, several countries imposed the lockdown in order to hinter the virus diffusion. People had to change their habits, in fact they could go out only for necessary needs, such as going to the supermarket or pharmacy. A lot of rules were introduced: not only using the masks or clean your hands but also keeping a social distance. For instance people must pay attention while they're entering in the market due to the long queue, which could increase the possibility of virus diffusion. This fact obliged people to stay for a long time standing up and waiting their turn losing a lots of time.

1.2 Scope

The aim of the project is to develop an application which, thanks to an intuitive interface, will avoid a long waiting outside the market. The application will provide a QR code as a virtual ticket on your own smartphone and to wait easily at home or everywhere instead of doing the physical queue for minutes or hours. In addition it will provide the position in queue and the time estimation of your turn. The system will generate a QR code for the authentication at the entry, in order to verify the position in the queue. Moreover, the application gives the possibility to "book a visit" for who indicates the approximate expected duration of the visit and how many products they'll buy.

Although the reservation is made entirely with your smartphone, the market gives anyway the possibilities to provide the ticket locally on site, acting as proxies for the customers. This is mostly for aged people who are technologically backward or has no smartphone. Once this procedure is completed, a SMS will be sent to the customers for noticing their turn. [todo]

In order to achieve the goal, we define the World, Machine and Shared Phenomena.

1.2.1 World

It's the portion of system to be developed. The main **World Phenomena** are:

- Punctuality;

- Loss of connection;

- Respecting social distance;

- Shopping duration;

- Checking temperature;

- Respecting social distance;

1.2.2 Machine

It represents the portion of system to be developed. The main **Machine Phenomena** are:

- Average of shopping time;

1.2.3 Shared Phenomena

They're phenomena shared between the World and the Machine which are controlled or observed by the system. In this scenario mainly are:

- Book/delete a visit;

- Take a virtual ticket;

- Send a notice;

- Send a SMS;

1.3 Definitions, Acronyms, Abbreviations

1.3.1 Definitions

1.3.2 Acronyms

1.3.3 Abbreviations

1.4 Revision history

1.5 Reference Documents

1.6 Document Structure

G.1 Avoid to generate a long queue (Max 10 people) G.2 Grant the possibility of respecting social distance

Chapter 2

Overall Description

Chapter 3

Specific Requirements

3.1 External Interface Requirements

3.1.1 User Interfaces

3.1.2 Hardware Interfaces

3.1.3 Software Interfaces

3.1.4 Communication Interfaces

3.2 Functional Requirements

3.3 Performance Requirements

3.4 Design Constraints

3.4.1 Standards compliance

3.4.2 Hardware limitations

3.4.3 Any other constraint

3.5 Software System Attributes

3.5.1 Reliability

3.5.2 Availabilitys

3.5.3 Security

3.5.4 Maintainability

3.5.5 Portability

Chapter 4

Formal Analysis Using Alloy

Chapter 5

Effort Spent

Chapter 6

References