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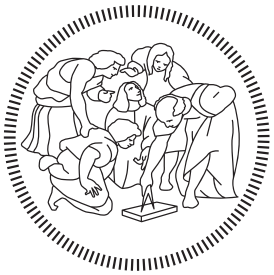

Politecnico di Milano

RASD: Requirement Analysis and Specification Document

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1 Introduction

CLup (Customers Line-up) is an easy-to-use application which intent is to limit as much as possible the number of accesses to grocery shopping.

Due to the recent worldwide spread of SARS-CoV-2 (COVID-19), many countries are imposing lockdowns and strict regulations about social distancing such as: the closure of restaurants in the evening, limitations on public transports, curfews, etc.

In particular, citizens are experiences difficulties in accessing supermarkets because of their limited capacity.

1.1 Purpose

The aim of the product is to avoid gatherings outside grocery stores, improving the safety of the customers.

This is achieved through monitoring accesses to the buildings, managing time slots for visits and optimizing people flows inside the stores.

The application will be operable freely, widely available and very intuitive because

complete are

The userbase is expected to be both people with an Internet access and ones without it, from young people to elderly.

1.2 Scope

The product shall be called CLup and will let users to plan their shopping session in two different ways:

- **ASAP**: the user will claim the first available ticket and receive an estimated queue time.
- **Reservation**: the user will choose a time slot from a list of available ones, in order to book his visit to the structure.

Every customer can choose one of these modes **remotely** via an official app or through a web browser, or **in presence** by asking to a staff member, who will act as an intermediate between the customer and the system.

When a customer makes a reservation, the system allows him to choose the duration of his visit and insert a list of possible purchases, in order to optimize his stay.

In addition, the user can change time slot/store based on system's suggestions and enable periodically notifications of available slots in a day/time range.

1.3 Goals

The main objectives of our system are the following:

- **G1: Allow customers to retrieve a unique queue number**
  This is the main feature of the application, through which customers are forced not staying outside the structure. Through an appropriate estimation of each customer's permanence time, the user is given an estimated queue time to let going to the supermarket when needed. The number is guaranteed to be unique.

- **G2: Allow customers to generate a QR Code**
  A QR Code would let store managers to monitor entrances, scanning a customer's code upon entering.

- **G3: Allow shops to offer this service**
  This goal can be split into the following:

  - **Allow shops to offer the remote queue function**
    Each shop can register to the service and offer its customer to Line-Up from home.
  - **Allow shops to generate tickets on the spot**
    If someone does not have access to the required technology, they can still take advantage of the system by getting their queue number directly at the store.

- **G4: Allow customers to "book a visit"**
  Customers can book a slot providing the expected duration of the visit and, also, they can provide a list of categories in which the items they want to buy belong. In this case, they will occupy different slots and so there is the possibility of optimizing visits.

- **G5: Let the system infer a visit duration**
  For long term customer, system should provide an estimation of visit duration, relying on their previous shopping sessions.

- **G6: Allow customers to receive a suggestion of alternative slots**
  The aim of this goal is to balance out the number of people in the store. The suggestion could be on the same shop chain or also on different chains.

- **G7: Allow customers to receive notifications on free slots**
  Customers could enable notifications in order to receive the first available slot and, if needed, to book it.

2 Overall Description

3 Specific Requirements

4 Formal Analysis

5 Effort spent