

FIWARE Tour Guide Try & Tweak App .- Functional Specification

Introduction

This document is intended to enact requirements for a FIWARE App to be linked to the FIWARE Developers Tour Guide. The work will be divided into two phases corresponding to version 1 and version 2 of the application. Separate sections for each version are provided in order to facilitate work planning.

Overall description of the application

The proposed tutorial application is a smart, context-aware application which allows to manage large Restaurant chains which are operating worldwide. You can think off Starbucks or McDonalds as examples. Those businesses usually operate as a franchise. The application is intended to both franchise managers and to customers. To this aim, the main functionalities that will be provided by the application are:

- Admit Customer reservations in accordance with current occupation and reservations made
- Register customer reviews according to different criteria (service, food, etc.).
- Real-time control of different parameters at each restaurant location (occupation, temperature (at cuisine and at the dining room), light conditions, noise levels, stocks, energy consumption, state of the refrigeration system, ...)
- Short time historic data of the different parameters monitored
- Publication of open data concerning the most relevant information about the different restaurant locations, grouped by different properties, namely location.
- Data analytics intended to determine the most efficient and effective restaurant locations and to suggest improvement actions
- Data analytics intended to determine / predict optimal food stocks in each restaurant location per date or time of year

Detailed description of functionalities (v1)

A detailed description of functionalities to be implemented for v1 is provided below.

User profiles

- Three different user profiles are identified:
 - **End users** who are restaurant customers. They can book seats and publish reviews about the service received at specific restaurant locations belonging to the franchise.
 - **Franchise managers**. They are managers / owners of one or more specific restaurants adhered to the franchise
 - **Global Managers**. They are managers at the origin organisation and can get access to all the information about reviews and restaurant locations. They use the information provided by the application in order to monitor the performance of the different restaurants

Users will enter into the application by introducing login and password. Depending on their profile they will have different functionalities available.

Customer Reservations and Reviews

A customer will be able to apply for a reservation (day, time and number of people). The system will decide if the reservation can be granted or not.

Once the service has been provided the customer can register a new review about the restaurant covering the following aspects:

- Service quality
- Food quality
- Place conditions

A review will include a general comment and a punctuation between 1 and 10 (maximum), for each aspect. Once a review is posted the system will recalculate the average score of the restaurant.

At any point in time a customer can get access to a map with restaurants and ratings and consult the different reviews made by other customers.

Real time Management of Restaurants

At any point in time a manager will be able to get access to the restaurants under his duty. He will have two different kind of views:

- The map view which will allow him to see where his restaurants are located and nearby points of interest, etc.
- A control dashboard which will allow him to visualize and manage the different facilities

From the Map View a manager will be able to obtain a summary of relevant information about each restaurant:

- Average score
- Current State (open, closed, on vacation)
- Current level of occupancy

Once a specific restaurant is chosen, from the Map view the manager can get access to the Control Dashboard. In order to speed up the process of finding a restaurant a search facility will be provided.

The Control Dashboard will provide the following applications:

- **Dining Room Control.** Allows to monitor different ambient parameters at the dining room. For v1 only temperature and ambient humidity will be controlled. With regards to temperature A desired temperature can be set. As a result the system will automatically actuate over the air-conditioning or the heating system. Manual control over these systems will be available as well. Short time historic graphs will be provided.
- **Cuisine Control.** It allows to control relevant parameters at the cuisine. At this stage temperature and ambient humidity will only be monitored. Short time historic graphs will be provided.
- **Occupation monitoring.** Allows to know the current state of the different tables. A 3D model will model the dining room, tables, seats, etc. so it will be easy to see the real time status of the place. Graphs about occupation in short time history will be provided
- **Customer Satisfaction.** It will allow to query reviews, know about average rates, etc.

Publication of data as Open Data

The following information will be published as open data (per restaurant location, per hour and date):

- Occupancy levels.
- Dinning room temperature and ambient humidity

Big Data Analysis

That will be part of v2.

Real time analysis of streaming sources (cameras)

That will be part of v2.

Non-Functional Requirements

For v1 the front-end will be a (web) desktop application capable of being consumed from tablet and mobile devices as well. An specific mobile experience is not required for v1, although it might be required for v2.

Implementation technologies outside FIWARE must be open source.

In order to facilitate comprehension by developers who might use different technologies and libraries, the software must implemented using as less external libraries as possible. Particularly, the Web Application must be implemented using vanilla HTML5, Javascript and CSS. Javascript frameworks (jQuery, Angular, etc.) are not allowed. The application must work on modern Web Browsers, namely Google Chrome and Mozilla Firefox (including iOS and Android devices).

Simulators to create a big number of data are going to be required and will be specified separately.

Wireframes will be provided with suggestions about the specific UX to be implemented. Final visual designs for the tutorial application might be provided by Ogilvy (TBC).

The application must be deployable as local Docker containers or in the FIWARE Lab.

The expected FIWARE GEs to be used are those present at the FIWARE Developers Tour Guide, namely:

- Orion Context Broker
- IDAS
- PEP Proxy
- Key Rock / Access Control
- Complex Event Processing
- Short Time Historic (STH)
- Wirecloud
- 3D GEs