

# **Domotic Room Smart City Process Report Template**

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## **1 Introduction**

This is the template of the project of the smart city course at university of Bologna. Here you can find all the process of analysis of the project: models, problems and resolutions, interaction with the environments, sensors and other.

Feel free to use this project as you want. We hope to be an inspiration for others.

## **2 Vision**

Our vision is to reach rapidly the dream of a smart city: with an environment full of augmented reality and capable to communicate directly to the user, take decision and made actions in order to deal especially with crisis or simply to facilitate the life of every day.

We want especially to be ready in design and build systems embedded in this context and fulfill the gap between hardware and software because recently the hardware had an exponential growth in terms of sensors, elaboration capacity and availability of resources due to the decrease of the hardware itself.

If also you share the same vision

You are in the right place.

## **3 Goals**

Our goal is to explain a concrete and free implementation of a domestic application and face all the problems in order to let the development of future application of the same type more easily.

In the same way we want to explore this field and learn the theory of the smart city with the concepts explained in the course and the basics of how to deal with sensors, external input made from environment and not directly from the user.

## **4 Requirements**

### **4.1 Step 1**

Is required to design and build a system that manage the status of a room in terms of temperature, humidity, pressure and light.

The user can interact with the system through a web interface and insert in input the ranges of every parameters above. The system have to monitor the room in realtime through specified sensors and check if some of the parameters goes off the range inserted from the user. When this happen the system must show a notification of the exception in the web interface.

The user can change the ranges dinamically when the system is running and also watch, from the web interface, the realtime data and the historic data, with particular emphasis when the environment goes out of the range and when the ranges changed.

### **4.2 Step 2**

Implement an android application that allow to interact with the system in the same way as the web interface and implement a special notification if the android device, with the GPS enables, is near the room (fixed range, 1KM).

## 5 Requirement Analysis

### 5.1 Use cases

### 5.2 Scenarios

### 5.3 (Domain)model

### 5.4 Test plan

## 6 Problem Analysis

### 6.1 Logic architecture

### 6.2 Abstraction gap

### 6.3 Risk analysis

## 7 Work Plan

## 8 Project

### 8.1 Structure

### 8.2 Interaction

### 8.3 Behavior

## 9 Implementation

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## References