# Deliverable D3 – Architecture

The contents of this document must be inserted on the project website, in a clearly identified location. Do not "link" to a PDF document, but instead integrate this information in the website.

## 1   System Architecture

List the main system components, what is their nature, and what kind of information they exchange with the environment, the user, and other components.

In particular, you should identify:

- Which computational nodes you have (including both "central" components and "user" devices)
- Which sensors/actuators are used in the system (explain how where they are placed and how they will be interconnected)
- Which user interfaces need to be developed (on what devices, web vs. mobile, who are the target users).

Usually, the best way to give this information is to sketch a diagram of the various system components, with their main interconnections, and then detail in the next sections the characteristic and the function of each element in the diagram. Be consistent with the names (consistency across the names in the sketch, those in the description, and those used in Deliverable D2).

In the next sections, also try to map the various system functionalities (from Functional Requirements in D2) to the actual HW components (what component implements what functions) and SW components (what applications / server / interface / … implements what functions).

### 1.1   Hardware Architecture

Make a list of the required:

- Computational nodes
- Devices (sensors/actuators): identify types, function, location, but not yet brand & model
- User interface devices: identify type, function, location

Give information about each of these components. Most of these should appear in the general system architecture sketch.

### 1.2   Software Architecture

Make a list of the major software architectural modules. For example, web applications, mobile applications, gateways, computational nodes (e.g., computer vision, or signal processing, …), etc.

For each software component, list:

- what functions it implements (mapped to a subset of functional requirements)
- where are they running (deployment), taken from the "computational nodes" section above

- how they interact (which APIs they offer, which APIs they call)

They may be existing components, or new software to be developed. You may also include external 'cloud' services.

# 2   Selected components

Identify the actual products to populate the chosen architecture description.

This should be a "short" section with the list of needed material. Please mark what material can be used from the LADISPE, and what material needs to be procured somehow (to be discussed in person).

## 2.1   Hardware Components

The list (bill-of-material) of required devices. This section should be short and usually may be expressed with one table for 2.1.1. and one table for 2.2. On the other hand, section 2.1.2. will require more space (if needed, depends on your project).

### 2.1.1   Off-the-Shelf

List of existing OTS components. Include both computational nodes (e.g. Raspberries) and sensors/actuators and user devices. The list should "cover" all the requirements of the System Architecture.

If your system cannot be completely built (because of its size, for example), and you are planning to run a scaled-down demo, then list only the components needed for the demo.

### 2.1.2   AD-HOC

If you need to build (design and construct) some hardware devices (e.g., special sensors), then list them here, with a short description of their function and the technologies you will use for building them.

## 2.2   Software Components

The adopted libraries, frameworks and cloud services that you will use (refer to specific products and versions, they should match the components described in section 1.2).

# 3   Open issues

Continuation of the open issues in D2.