# Sistemas de Computação Móvel e Ubíqua (2017/18)

The goal of this project is to build a system comprising a mobile application that interacts with an (or more) Arduino controllers that sense and act upon the real world. The application's field and purpose is for you to define, taking into account the previous published list of requirements.

## Deliver

You should deliver the **report** on the Moodle system until the **4th of June**.
The **software** should be delivered via Google Drive. Create a folder with the numbers of the group members separated by underscore (sorted from lowest to highest), then share the folder with cpm@fct.unl.pt.

## Final Report (suggested structure)

The final project report should follow the structure described bellow. Note that you can use or base you text on the previous delivered document.

### 1. Introduction

Present the context of your work, why it is interesting and useful, and how it fits on the Mobile and Ubiquitous Computing course.

### 2. General Overview

Present which functionalities your system will provide, from the end-user's perspective. Present an eagle-eye view of your system, describing its key software and hardware elements but without going into implementation details. Points as the following must be made clear:

- Your solution is for one or more mobile clients?
- It requires a server?
- How many Arduino (or other) units you need?
- Which sensors you use and how many of them?
- Which are the interactions between the system's elements?

### 3. System Architecture

Present a technical description of your system's architecture, with:

- The overall architecture, including all its the components, e.g. mobile application, service running in the Cloud (if you need one — note that, for proof of concept, this service may run in your laptop), Arduino controller(s), sensors and actuators;
- How the system's components communicate and interact with each other (protocols);
- How you will implement your mobile application, including the server counterpart (if such element exists).

## 4. Mobile Application

Explain how you have implemented your mobile application, including the server counterpart (if such element exists). You must present screenshots of your application and all relevant implementation details.

## 5. Sensing and Reacting

Explain how the system sensors and actuators are integrated within your application. Present a simple and short explanation of their behaviour and the electronic schema of the connections. You must also explain the more relevant details of the code where the sensors and actuator signals are handled and how they interact.

## 6. Experiments

Report the experiments you have conducted to assess the correctness and usability of your solution. For each experiment, always indicate its purpose, the assumptions made, and the test bed.

## 7. Conclusions and Lessons Learned

Describe some of the aspects that, in your opinion, should be addressed in a real world implementation of your project. Present the more relevant lessons that you learned from this work and some final remarks.