# TFG-Localization Based Systems and Intelligent Spaces

## Instructions for the assignment CA2

The second Continuous Assessment Test is devoted to the **design phase** of your project. In this phase, you will describe the requirements, use cases and architecture of your application. You will also increase your knowledge of the technologies used to develop the application (finding and reading documentation, installing the necessary components, ...).

Your submission for this CAT2 should include at least the following (as the final version that will appear in your project's report):

* *Use cases/ User stories*: Definition of the features provided by the application from the point of view of the user. The detailed definition of a use case is only required for complex use cases.
* *User interface design:* Hand-drawn sketches of the different GUI elements and the navigation between them.
* *Database design*: Description of the entities and associations in the database, as well as the corresponding tables/columns.
* *Class and architecture diagrams*: Graphical description of the main components in the application front-end and back-ends, describing relevant architectural decisions.
* *Update to the project's schedule*: A critical discussion of the status of the project with respect to the planned schedule. If there are significant deviations from the original schedule, you should propose actions to get the project back on track.
* Any other deliverable or product that has been established in the project plan.

In addition to these design elements, it is important to start working on the implementation of your application.  It would be desirable if you can provide a working prototype of the login screen/main user interface of your application. In this way, you will ensure that are ready to start working on your implementation

## Learning resources CA2

### Contents and resources

Below are some guidelines that will try to guide you when writing your PAC.

### What is meant by State of the Art?

The State of the Art (or the Question) is an introductory part of any final work or doctoral thesis. Its usual location within the memory is the second chapter (after the introduction). However, it may be divided into more than one chapter if the work includes several topics or if the topic requires fragmentation.

Its content consists of reviewing how researchers have addressed, until now, the problem that the thesis wants to solve. Therefore, it can be seen as a photograph of the current state of a field of knowledge (or what is the same, knowing what other people have done). As can be seen, the State of the Art requires an exhaustive search of existing literature.

This section is essential mainly for the following reasons:

* It allows to have a global vision of the current situation of a research/work area. Therefore, it facilitates the definition of the scope, objectives, limitations (or scope), etc.
* The major task of bibliographic research is carried out in this phase (although it is not finished until the report is delivered). Therefore, the work carried out in this phase also serves in the following chapters of the report, such as: the design of the methodology, the implementation of a technique or the conclusions and future lines. Thanks to the bibliography, many of the decisions that have been made can be justified.
* It serves as a basis to explain, in the conclusions and future lines, the contributions made within the areas of knowledge related to the work carried out.

### Guidelines to make a good State of the Art

Making a good State of the Art is not an easy task. This one requires many hours of searching, reading and understanding. It is recommended to make a conceptual map of what you are reading to have all the interrelated concepts and, at the same time, define the best structure of sections within the State of the Art.

When searching for information about the area of knowledge of the job, it is worth remembering that there are in-person and virtual libraries (e.g. the UOC), the Internet (e.g. Google, Bing, Yippy, blogs, websites). , etc.), books, etc. It is important, especially in the case of the Internet, to correctly select the keywords used to perform searches. It is necessary to be attentive since, during the search, some book, article, etc. It can provide new keywords that can be used to improve the results obtained. Therefore, it is normal that in the first searches things are found that are far from (although related) to the work in question but, little by little, with various iterations, the quality of the findings will improve. In this sense, Yippy (http://yippy.com/) is a search engine that classifies results into several categories, and these can be used as keywords for a new search.

In the development of scientific works, taking into account the great variety of sources described, the use of two search engines is recommended, mainly: Google Scholar (https://scholar.google.es/) and Web of Science (https: //apps.webofknowledge.com/). Both search engines have their quirks, but the biggest difference is that Web of Science is a private Service provided through Thomson Reuters and is generally considered a reliable (and official) source of information. Even so, the searches in both services are usually quite similar. To use the Web of Science service you must validate yourself through "Institutional Sign In" where you must select "Federation of Spain FECYT", then select the "Universtiat Oberta de Catalunya" and finally validate yourself.

Below is a proposed list of items that you can search for (for each of them it is necessary to evaluate their suitability for the job in question):

* Subareas within the scope.
* Successes achieved within the field.
* Problems that are currently being worked on (and their degree of achievement).
* Possible applications in a field (e.g. medicine, education, etc.)
* Similar software: private programs, open source, API's, etc.
* Related hardware

The types of resources that can be found are:

* Final Degree/Master's Projects or Doctoral Theses from the UOC or other universities.
* Articles from magazines and scientific conferences
* Books
* Websites
* Software

### How to perform effective searches on Google?

When searching on Google, you have to remember some of its features:

* Find a specific file type (e.g. filetype:file\_type)  
  >> natural language processing filetype:pdf
* Find a website that contains an exact string, for example a title (“” command)  
  >> “Identification of emotions from text using semantic disambiguation”
* You can combine text between and without quotes  
  >> "student-centered learning" UOC Minguillón
* You can also use Google advanced search
* Finally, Google has a special article search engine called GoogleScholar that can also be of help: http://scholar.google.com/