UNIVERSITAT POLITÈCNICA
DE CATALUNYA
BARCELONATECH
UPC

Course 2017-18

UPC - FIB
CIR

Briefing

Subject	Cognitive Interaction with Robots
Lecturers	Cecilio Angulo/Marta Díaz
Project	Design and implementation of smart interactive behaviors in real robots

General Aim

Implement and test an interactive behaviour in a Robot

Specific goals

- Determine system requirements
  - Exploit the potential of robot's embodiement
  - Implement strategies to enrich communication
  - Proceed according to User Centered Design principles
  - Take into account interpersonal socials rules in communication and space management
  - Fix goal standards and its metrics.
  - Define an Evaluation Plan
  - Test the system
  - Recommendations for redesign

Main parts

- Requirements Analyses

  - Contexts analyses. Physical scenarios, social environment. Other identified constraints.
  - Target users' profile
  - Purpose
  - Activity
  - Robot's behaviours (communication and motion)
  - Robot's cognitive skills

- Benchmarking. Evaluation of existing solutions. Pros and cons.

- Description of the proposed solution

  - Thorough description of the implementation and tests
  - Any decision must to be justified according to theoretical framework or previous works

Teams

- The students will work in groups of up to 3 students
- Every student should know in depth and be able to explain and discuss any part of the Project.

Delivery

The files must be uploaded in the Campus Digital in ONE compressed file containing the following files in pdf (or similar) format:

- **Report**
- Slides for the oral presentation
- Annexes

Any other support or way to deliver the material to be evaluated must be allowed by the course coordinator.

The report must be written in DIN A4 vertical format.

The organisation of the content must follow this :

- Index
- Abstract
- System Requirements
- <u>Description</u>
- <u>Tests</u>
- Conclusions
- References
- Anexes

Evaluation

Students will be evaluated individually according to the quality of the report, the oral presentation and the performance during the discussion and the demo.

Issues to be evaluated:

Report
- Structure and organisation of the report and other written outcomes (i.e. slides)
- Text correctness and clearness
- Relevance, extension and correct citation of references

Dissertation and discussion
- All students should take part in the oral presentation
- It is hardly recommended not to read during the presentation
- Communication skills and fluency will be evaluated
- The defense and further explanations during the discussion will be evaluated

Demo
- The functionality of the behavior(s) implemented must be showed in a *in vivo* demonstration
- The acceptance of other outcomes such simulations or video-recorded performance must be discussed previously with the course coordinator

Weighted evaluation
- Work Defense (30%)
- Final report (70%)

  Evaluation criteria:
  – Course contents
  – Experimental setup
  – Workload
- Demo