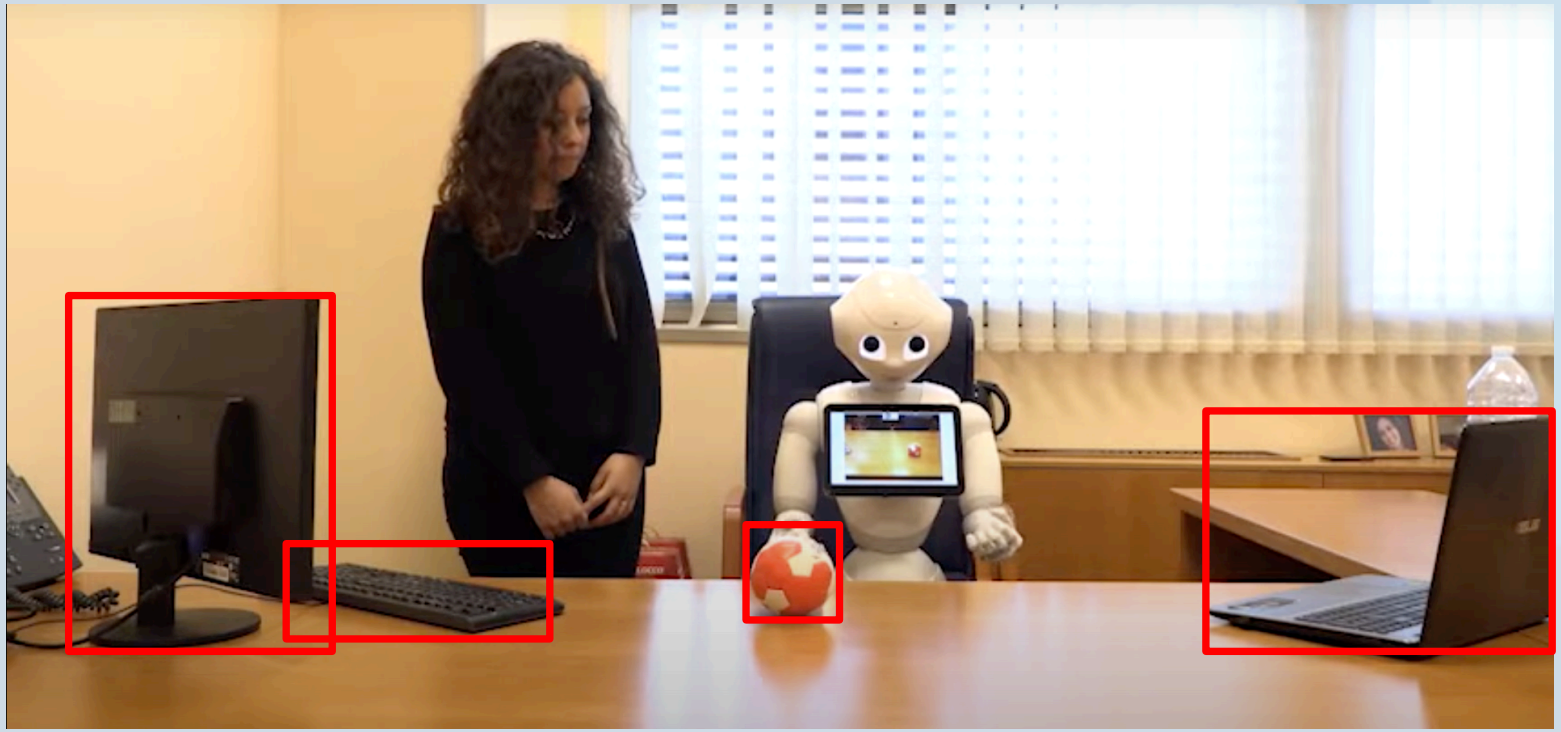
PROJECT

Cognitive Robotics @Computer Engineering, UNISA

The task

- Pepper will be able to recognize the objects inside the scene and to describe the scene itself, by listing the different objects it has seen.



What do you need?

- Hardware:
  - *Pepper*

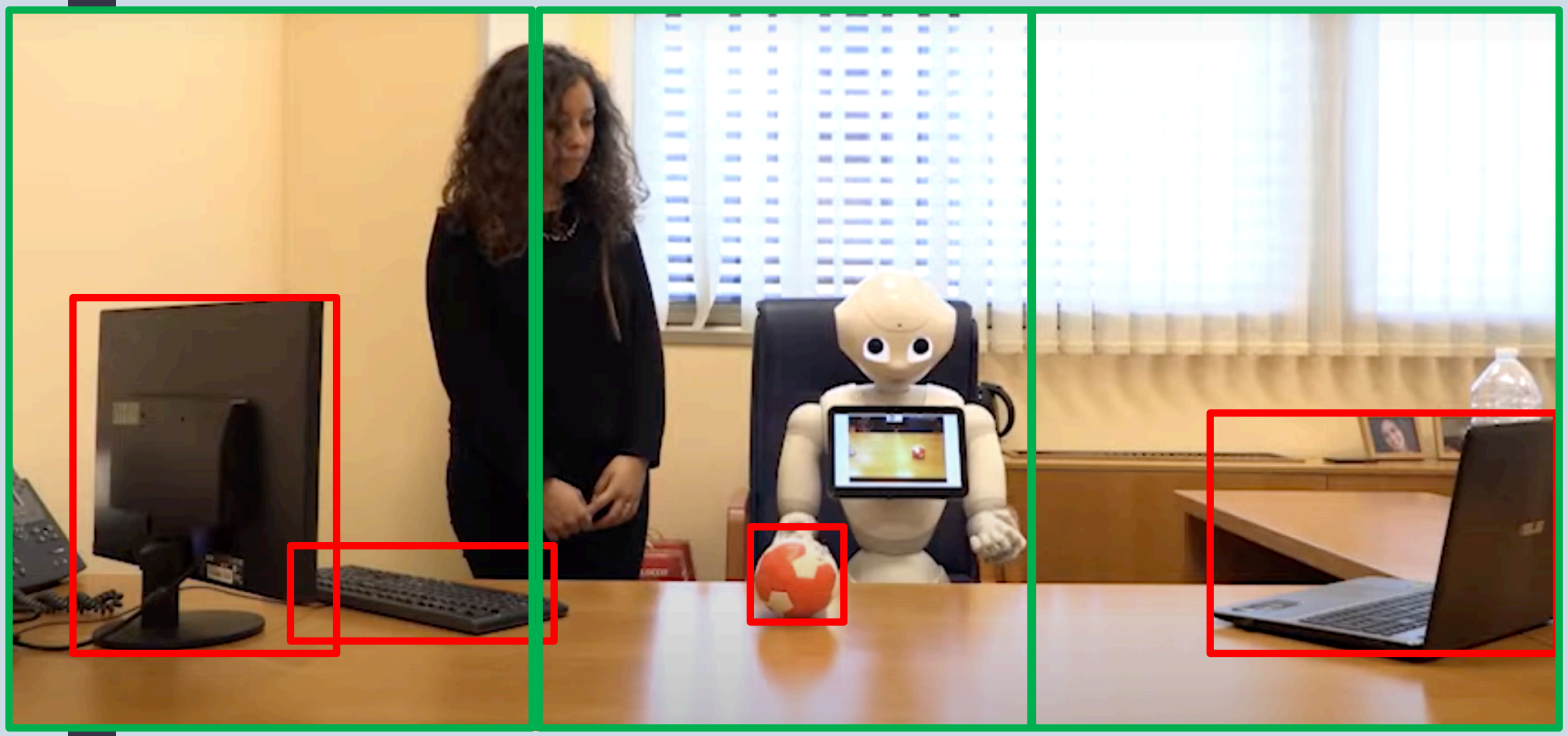
- Software
  - *Your **ROS** architecture has to also include:*
    - Node1: Pepper acquires the stream from its camera
    - Node2: Pepper moves his head in three different positions (in front, on the right, on the left) so as to look the whole desk
    - Node3: Object Recognition module (for each position)
    - Node4: Pepper says what it saw, by specifying where it saw what

An example

RIGHT

FRONT

LEFT



Keybord, Monitor

Ball

Laptop

I can see
A keybord and a monitor on the right

A ball in front of me

And a Laptop on the left

Let’s come back to the lectures

- *Node1: Pepper acquires the stream from its camera*
  - ***Lecture 7-10 (NaoQi libraries into ROS)***
- *Node2: Pepper moves his head so as to look at different locations*
  - **Lecture 7-10 (NaoQi libraries into ROS)**
- *Node3: Object Recognition module (for each position)*
  - **Lecture 11-12 (Object Detection & Recognition)**
- *Node4: Pepper says what it saw*
  - **Lecture 7-10 (NaoQi libraries into ROS)**

Object Detection & Recognition

- *You can integrate a detector already pretrained over the COCO dataset*

Access to Pepper

- We will provide access to two different Pepper robots, located in the MIVIAlab
- The access to the laptop connected to Pepper is available under booking
- Pepper will be in front of the desk
- Some objects are located on the desk and will be **changed dayly based**

Organization

- Each group has to be composed by **4 persons** (there are about 25 groups).

- Before the end of the day you have to fill the GROUPS page in the shared excel file, with the persons of your group

	Student 1	Student 2	Student 3	Student 4
GROUP1				
GROUP2				
GROUP3				
GROUP4				
GROUP5				
GROUP6				
GROUP7				
GROUP8				
GROUP9				
GROUP10				
GROUP11				
GROUP12				
GROUP13				
GROUP14				
GROUP15				
GROUP16				
GROUP17				
GROUP18				
GROUP19				
GROUP20				
GROUP21				
GROUP22				
GROUP23				
GROUP24				
GROUP25				

Organization

- We will allocate the groups on the slots once make definitive the number of groups
- You will find a shared excel file for inserting the group and visualizing you bookings:
  - https://drive.google.com/file/d/1_4Cv3926q-66AG4PehrkJxv7pFVYlVY2/view?usp=sharing

		12-nov		13-nov		14-nov		15-nov		16-nov	
Dalle	Alle	ID-Gruppo	Nominativi	ID-Gruppo	Nominativi	ID-Gruppo	Nominativi	ID-Gruppo	Nominativi	ID-Gruppo	Nominativi
8	9										
9	10										
10	11										
11	12										
12	13										
13	14										
14	15										
15	16										
16	17										
17	18										
18	19										
19	20										
20	21										
21	22										
22	23										

Project organization

- Since the access to Pepper is limited… We will suggest to proceed in two different steps:
  - *Your **ROS** architectures*
    - Node1: Pepper acquires the stream from its camera -> Process a Video/Image or acquire from the webcam
    - Node2: Pepper moves his head so as to look at different locations
      - *Node3: Object Recognition module (for each position)*
    - Node4: Pepper says what it saw -> Write something