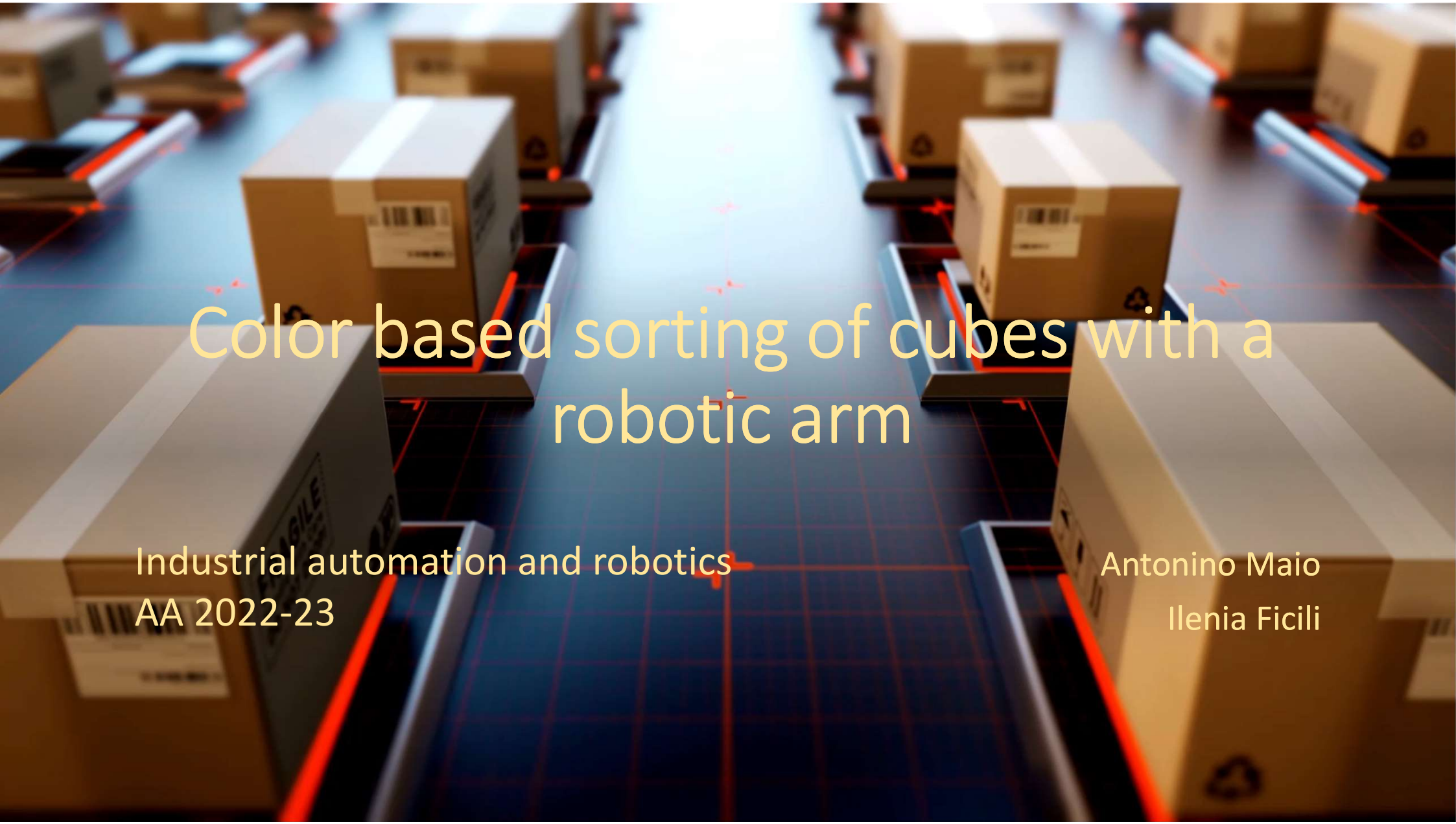


Color based sorting of cubes with a robotic arm

Industrial automation and robotics
AA 2022-23

Antonino Maio
Ilenia Ficili

IRB 140

- The industrial robot has 6 axis and it’s compact and powerful. The load capacity is 6 kg, and the reach reaches 810 mm. The robot can be mounted on the floor, wall or suspended and inclined at any angle. IRB 140 is easy to integrate and adapts to any environment
- Outstanding motion technology and excellent path accuracy, as well as being highly robust
- Multi purpose robot
- The end-effector used is the Robotiq 85 Gripper.

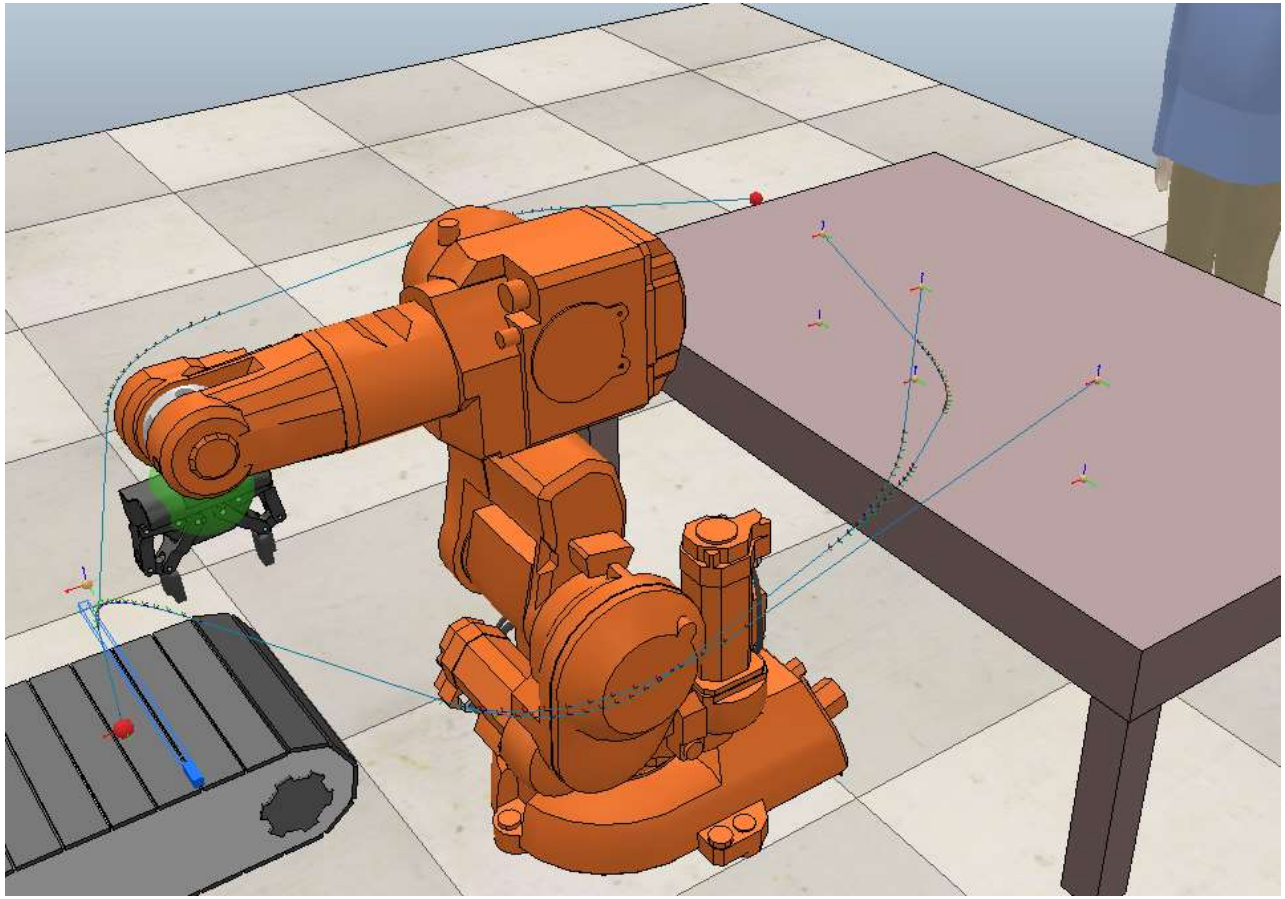
Goal of the project:

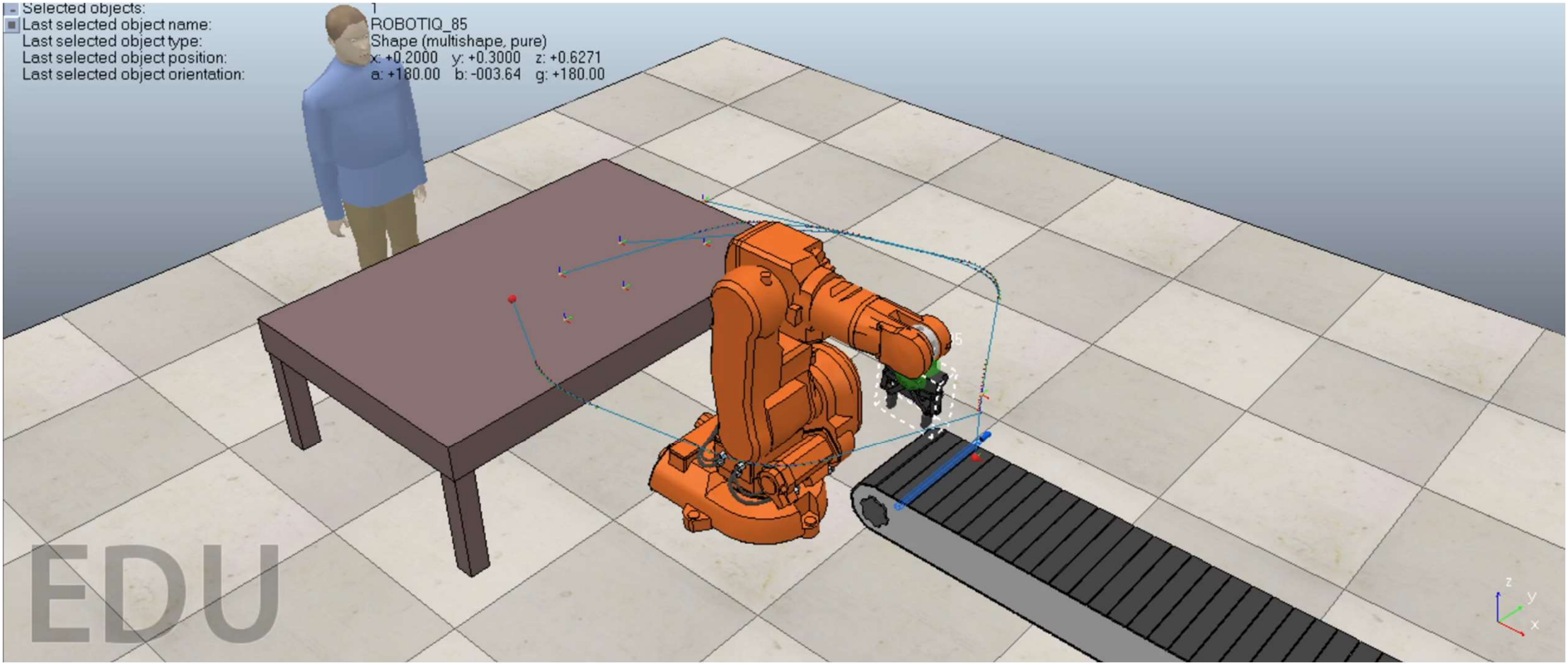
- In this project we want to use the robotic arm to pick up the boxes arriving in the conveyor belt and sort them by color (blue, red and green).
- Once done that, each time a box is in place, the human operator will be there to collect it and move on for further processing.
- The arm is being moved using inverse kinematis.
- Three paths are defined, one for each color, and thanks to the tecnique used all the joints are moved depending on the position of the end-effector.

The components used to create this scenario are:

- Conveyor belt
- Vision sensor
- IRB140

- In this image is possible to see a close up of the paths described to sort the object in 3 different position in the table





In this video it is possible to see the whole system functioning.