Robotics: Final Project

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Overview

- Motivation: practical experience with real hardware
- Team of two students
- Two options for the project
  - Clean the workspace: pick-and-place with 6 DoF robot and vision
 - Drawing with a robot: draw polygons with 4 DoF robot

Option #1: Clean the workspace

- ▶ External camera, 3 robots
- ▶ Cubes with AruCo markers on top
- ▶ Goal: transfer all cubes into boxes

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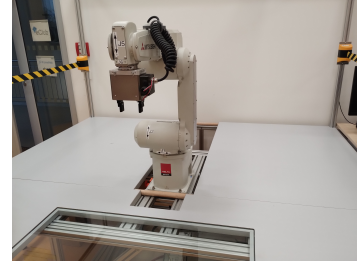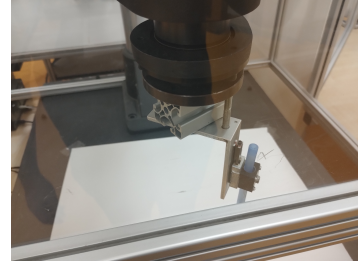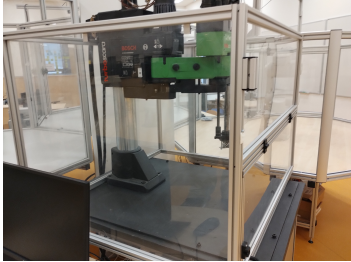
Option #1: Clean the workspace, variants

- ▶ Variant A: planar problem, separated cubes (max 10 points)
- ▶ Variant B: planar problem, touching cubes (max 15 points)
- ▶ Variant C: non-planar problem (max 20 points)
- ▶ Variant D: non-planar problem in ROS (max 23 points)
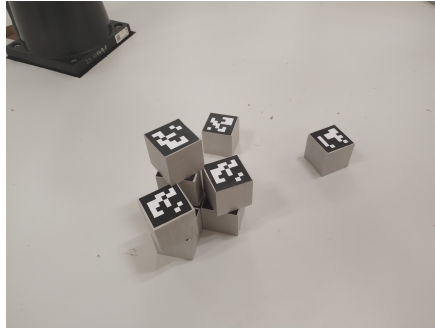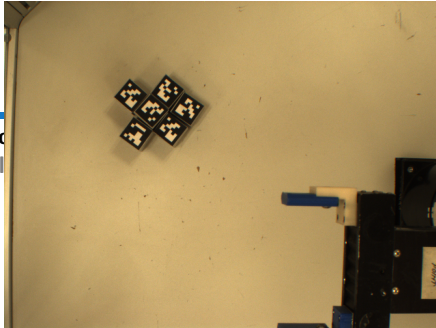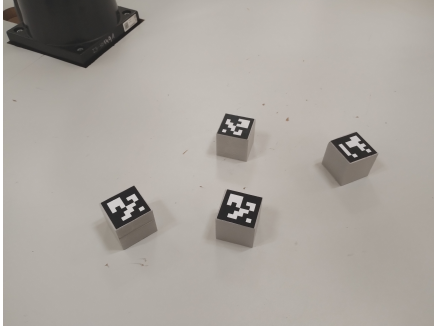
Option #2: Draw with a robot

- ▶ Draw polygon on a given pose
- ▶ No vision

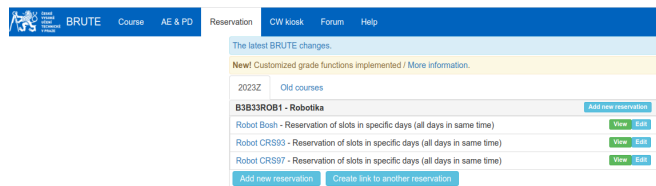

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Option #2: Draw with a robot, variants

- ▶ Variant A: polygon fits into intersection of the red and green (max 5 points)
- ▶ Variant B: polygon fits either to the red or green (max 7 points)
- ▶ Variant C: polygon fits into union of red and green (max 10 points)
- ▶ Variant D: polygon fits into robot workspace (blue) (max 15 points)

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Laboratories
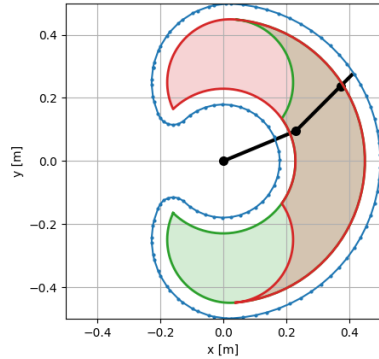
▶ Sharing the resources: reservation system in BRUTE
▶ Consultations
  ▶ during the labs: one of TAs (Krsek, Smutny, Petrik) is prepared on a phone
  ▶ other timeslot: contact all TAs by email

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Delivering final project

- ▶ Technical report and demonstration
- ▶ Report needs to be uploaded in advance
- ▶ Reservation system for the last week of the semester and exam-period
- ▶ **Contact us if you want to deliver sooner**