Robotics Practical
Master TI

Summer Term 2020

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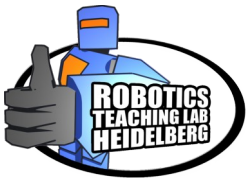


ORB

General things

- Elective module for „Robotics, Haptics & Biomechanics“ (formerly „Robotics, Biomechanics & Biomedical Engineering“)
- Working groups of 2 or 3 people
- An application with a project schedule has to be handed in at the beginning
- Oral presentation has to be given (approx. 30 minutes) at the end
- Documentation of the project has to be written at the end
- Language can be english or german

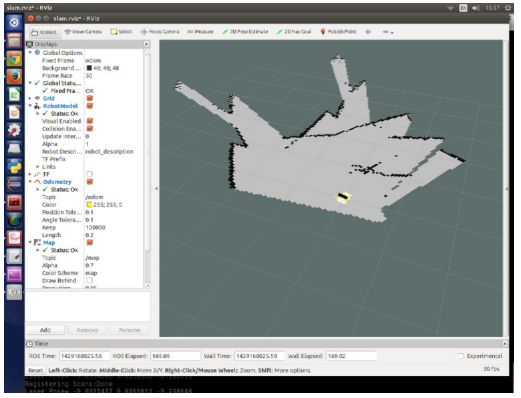
Project tasks and required skills

- You work independently and self-organized on the projects
- Interest in working with hardware
- Self-teaching of the required knowledge
- Work creatively and come up with your own solutions
- A regular progression update has to be given to your supervisor
- Expect changes in the project goals due to unforseen complications
- Of course you get support and help with you projects!

Special considerations (Corona)

- Limited amount of people in the robotics lab allowed
- Wearing of masks in the lab encouraged
- Fixed time slots for your working time in the lab
- Less time for the project than usual
- (Mostly) remote supervision

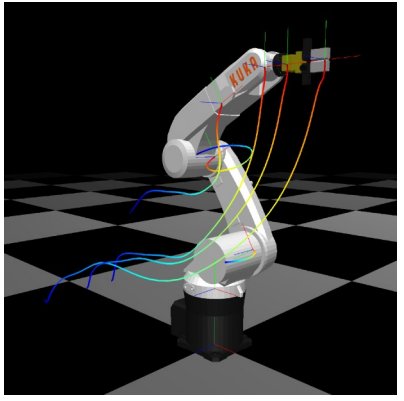
Project “Walking Nao”



- Control humanoid robot Nao
  - Gamepad, app, ...
- Scan his environment
  - Kinect, Cameras, …
- Use slam (simultaneous location and mapping)
- Teach him to navigate
- Programming skills required:
  - C(++), python, ROS (Robot Operation System)

Project “Ping Pong Kuka”

- 6-axis industrial robot
- Throw and catch a ping pong ball
- Design a catch/throw mechanism yourself
- Robot is “blind”
- Skills required:
  - Robotics 1 (Inverse Kinematics, meshup)
  - Preferably Robotics 2
  - C++



Project ???

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Your application

- Names and Matrikelnr.
- Pictures of yourself (just if you want)
- Academic semester and subject
- Prior knowledge and experiences (programming skills, hardware knowledge, relevant hobbies, other projects done)
- Motivation (Why do you want to do this project)
- Project outline with milestones

Important dates

- Hand in applications: 26.06.2020
- Safety briefing and lab introduction: 30.06.2020, 14:00h
- “Project finished”: 30.09.2020
- Project presentations: Beginning of October 2020

Important addresses

- roboter.uni-hd.de (robotics lab homepage)
- peter.wittlinger@ziti.uni-heidelberg.de

Questions?