Weekly Presentation

Week 38

Luleå University of Technology

September 13, 2020

Group members

- Y-students
  - Martin Blaszczyk - Project leader and object detection
  - Edward Cedergård - Gripping tool
  - Niklad Dahlqvist - Gripping tool
  - Måns Norell - Movable base
- D-students
  - Edward Källstedt - Object detection
  - Albin Martinsson - Arrowhead and Git

Robotic arm

What we have done and what we are working on:

- Servos
- Representation (DH-parameters)
- Kinematics
- Workspace
- Chosen arm, 4DOF

Servos

- Dynamixel
  - Feedback; position, torque, temperature, etc
  - Serial communication
  - Chainable
  -

Figure: Dynamixel AX-12A servo.

Representation

- Denavit–Hartenberg parameters
- Joints
- Degrees of freedom

Figure: Representation of the robotic arm.

Kinematics

- Forward kinematics
- Backward kinematics
- Numerical or analytical solution

Workspace

Chosen arm

Overall timetable

Sep	Oct	Nov	Dec
Concept generation	Evaluation	Evaluation	
Theory	Prototyping	Evaluation	Finishing up
Simulation	Evaluation	Evaluation	
Prototyping	Final Design	Evaluation	

Time plan for September

Subproject	Week 1	Week 2	Week 3	Week 4
Arrowhead	Reading	Setup	API	Prototyping
Movable base	Reading	Modeling	Simulation	Implementation
Arm and grip	Reading	Kinematics	Simulation	Prototyping
Object detection	Reading	Testing	Prototyping	Evaluation

Questions?