TECHNISCHE HOCHSCHULE LÜBECK

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Project Task Industrial Robotics 2023: Camera-based Pick-&-Place

The aim of this project is to use the robot to implement a method for camera-supported gripping of a Lego Duplo brick.

For this purpose, the following devices are available to each group:

- Tinkerbot Braccio
- Webcam (Logitech C270 or similar)
- Lego Duplo brick

The following subtasks are to be implemented:

1. Setup the inverse kinematics of the Braccio, here you can refer to the results of our lecture.
2. Programming of image processing for object recognition using a self chosen python-library.
3. Establish a common world coordinate system for camera and robot
4. Simple hand-eye calibration
5. Implementation of a program in python to grip the building block
6. Test execution, evaluation of the success rate of the gripping tests

The implementation of the subtasks is done with Python.

Documentation, submission and evaluation

- Each group shows its results as practical documentation in the last week of lectures.
- The evaluation is based on a report in which the essential steps to achieve the project goal are documented. The shares of each group member in the preparation of the report must be traceable so that an individual assessment is possible.
- The programs are attached (digitally) to the project report.
- The report will be submitted in the last week of lectures (following the screening).