Master Thesis Project

Control Design and Implementation for Dual Arm Robotic Manipulator Tasks

Description:

The control of robot manipulators is an established research area in the fields of Robotics and Controls. When it comes to multiple manipulators operating simultaneously for a given set of tasks, decentralized asynchronous solutions for control seem favorable since they employ manipulator autonomy and are more tolerant to potential faults.

An experimental platform of dual arm robotic manipulators has been built at the Centre for Autonomous Systems, KTH. The centre does research in (semi-) autonomous systems including mobile robot systems for manufacturing, domestic and field applications. The purpose of these thesis is the design, analysis and implementation of control algorithms for decentralized cooperative dual arm robotic manipulator tasks.

Some candidate tasks for the dual arm platform include, but are not limited too: cooperative grasping and manipulation, object surface painting, surface cleaning; a necessary safety specification that should be integrated in the overall framework is collision avoidance between the arms as well as with obstacles in the environment.

Useful prerequisites:
Courses in Robotics, Control, Matlab/Simulink, C++ and general programming skills

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