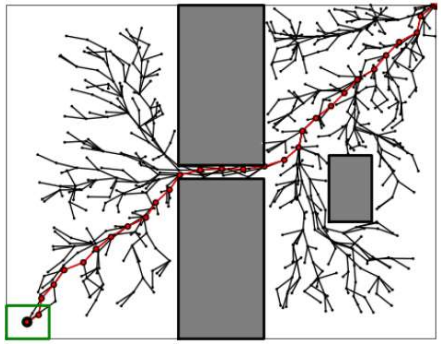
Paid Master Thesis

Sampling Based Trajectory Planning

To enable a robotic system to move from a start point to a destination point, a geometric path and its time dependency must be defined to generate a trajectory. This master thesis focuses on sampling-based trajectory generation considering dynamic constraints such as maximum velocities and actuator forces or torques. Based on a literature review of trajectory planning, existing algorithms will be compared using a robotic system in a simulation environment like Gazebo, with simulated actuation and measurements exchanged via ROS2. Programming will be done in Python and C++. The thesis is conducted in cooperation with KNAPP Systemintegration.



[1] M. Elbanhawi and M. Simic, 'Sampling-Based Robot Motion Planning: A Review', IEEE Access, vol. 2, pp. 56–77, 2014

- ### Overview:
  - Literature research about sampling based trajectory planning
  - Implementation in ROS2 and Gazebo
  - Financial compensation
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KNAPP