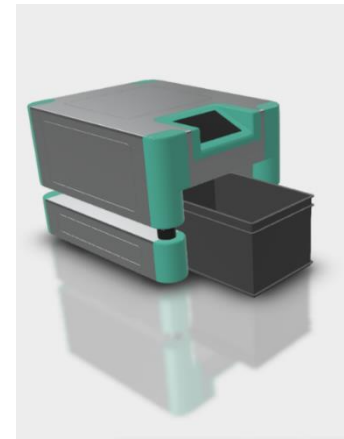


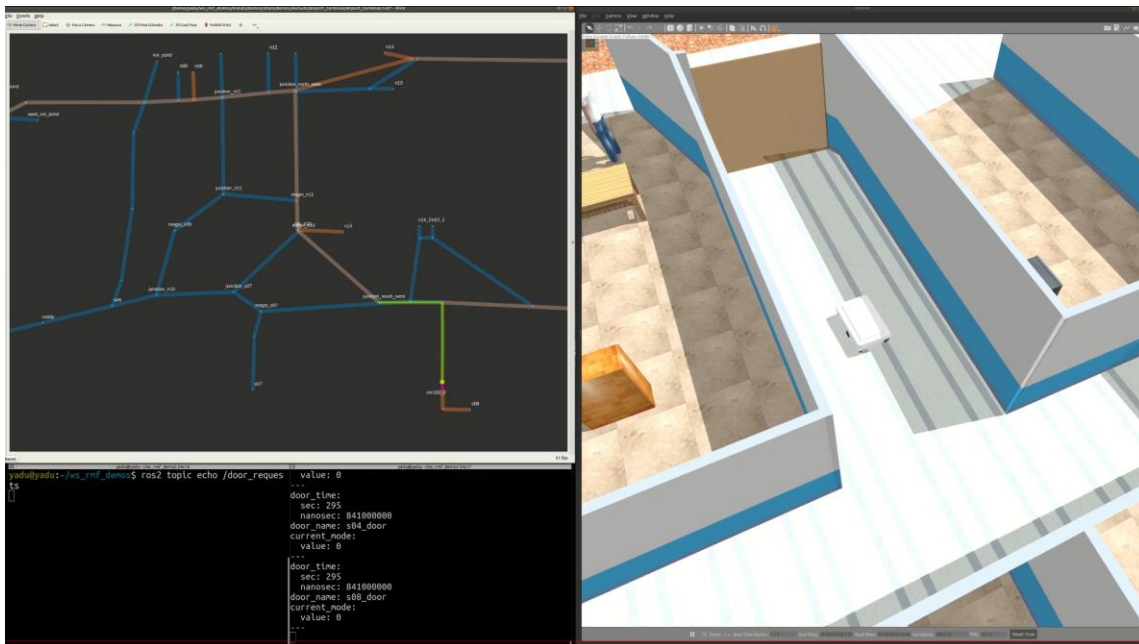
## Graduation or Internship Assignment: Fleet Management and Precision Docking

In the Mechatronics Research Group we have developed a mobile robot that can drive over crates and pick them up: The NeNa robot. This assignment has two parts: precision docking with Navigation 2 and fleet management. We already have developed several functional components for precision docking and in this assignment everything is integrated in the Navigation 2 software. The second part deals with the possibilities to control a fleet of NeNa robots to perform their tasks (pick up crates and bring them to another location). We want to use Robot Middleware Framework to control our robot. This assignment can be performed in simulation.



### Task description

You will explore the possibilities of Navigation 2 (<https://navigation.ros.org/>) and RMF (<https://osrf.github.io/ros2multirobotbook/>) to control multiple robots. You import the NeNa model into RMF and model (a part of) our building. You integrate precision docking (driving over the crate), picking up the crate and putting down the crate into the framework. The result is a simulation with multiple crates and multiple nena robots that can perform their tasks.



Screenshot of RMF with on the left the planner and on the right a simulation with a robot.

### Practical Information

**Student Profile:** Applied Computer Science, Computer Science (HBO-ICT), Electronics, Mechatronics (with interest in software aspects of robotics)

**Duration:** February 2022 – July 2022

**Compensation:** 230 euro per month, before taxes

**Contact Person:** Wilco Bonestroo, [w.j.bonestroo@saxion.nl](mailto:w.j.bonestroo@saxion.nl), 06-13001996