TU Delft | Cognitive Robotics

AUTONOMOUS MULTI-ROBOTS LAB

website

A. Motion Planning for Autonomous Vehicles

We illustrate how the system generates safe risk-aware trajectories that protect vulnerable road users, by showing the research vehicle and videos.

B. OpenBots: Outdoor Autonomy

We showcase Spot, a quadruped robot used in the OpenBots project. We highlight its capabilities for outdoor autonomy and its potential for operation in the real-world.

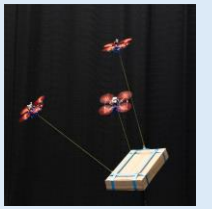
C. Human-Aware Robot Navigation

Demo rotating with D every 10-15min

We demonstrate a mobile robot navigating among pedestrians. By predicting human motion, the robot plans safe and smooth paths to move efficiently while avoiding collisions.

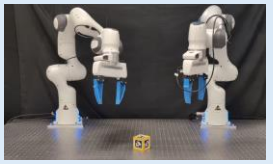
D. Multi-drone aerial manipulation

Demo rotating with C every 10-15min

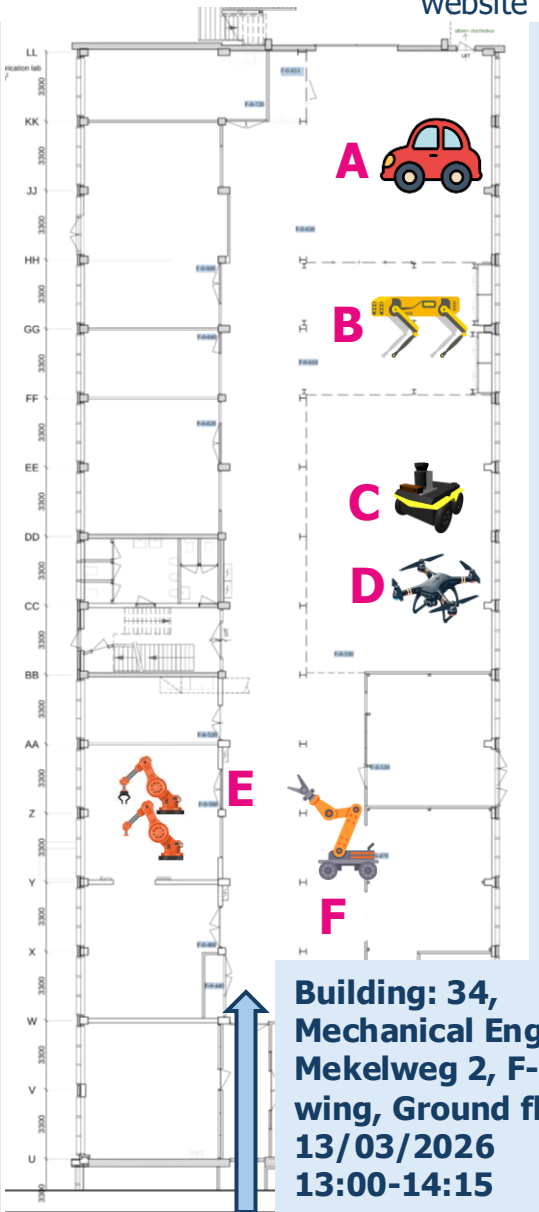


We show how three drones collaboratively control the position and orientation of a cable-suspended payload. The system maintains stable transport even under dynamic uncertainties and unknown load variations.

E. Multi-Robot Object Manipulation



We show how generative AI (coordinated diffusion policies) enables robots to learn manipulation skills such as pick-and-place from demonstrations. Multiple robot arms then collaborate on a shared task by coordinating the skills learned individually.



Building: 34, Mechanical Eng. Mekelweg 2, F-wing, Ground floor
13/03/2026
13:00-14:15

F. Mobile manipulation among humans

We present a current-based impedance controller for mobile manipulators that enables interaction without force sensors. Videos also show two mobile manipulators performing coordinated adaptive pick-and-place.