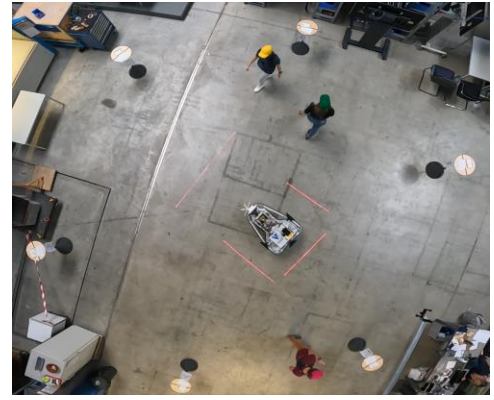
Lehrstuhl für Ergonomie
TUM School of Engineering and Design
Technische Universität München

Navigation with ROS: Avoiding contact at all costs?
Challenging an interaction paradigm in a Subject Study

Starting Point and Objective

Mobile Robots share the shop floor of current industrial sites with human co-workers. Encounters with them are, however, not yet at the human-to-human level regarding efficiency and smoothness. A study aims to investigate whether allowing physical contact can enable this and tests realistic interactions for this purpose (see on the right). For this, a mobile robot is to navigate so that it perceives and considers dynamic obstacles but does not necessarily avoid them at all costs or with certainty.



Study with the CoHEXist Setup

Possible Tasks

To enable experiments involving physical contact, a mobile robot must be set up to navigate in a way that contact becomes a possibility (the robot is already padded!). Possible work packages include:

- **Research and selection** of a suitable navigation algorithm
- **(simulation** in, for example, Gazebo)
- **Implementation** of the navigation on the mobile robot ‘Innok Heros’ in ROS Noetic
- Initial **testing** for evaluation

Requirements:	Self-reliance and autonomy Very good knowledge of German or English Previous experience with ROS
Advantageous:	Interest in Human-Robot-Interaction
Can start from:	Now (Published 28.10.24)

Contact:
Nicolas Niessen, M.Sc.
nicolas.niessen@tum.de
Tel: +49 162 2010952
Office: MW 3303