A 3D rendering of a warehouse conveyor belt system. Several cardboard boxes are positioned on the belt, which is flanked by blue guides. A red laser grid is projected onto the floor, indicating a teleoperated robot's field of view or inspection area. The scene is brightly lit, with a focus on the boxes and the grid lines.

# DESIGN OF A TELEOPERATED ROBOT FOR INDUSTRIAL INSPECTION

by Lars Gielen and Vinz Roosen

# Design Requirements

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SAFETY



TELEOPERATION



SENSOR SUITE



ACTUATION  
MECHANISMS

# Hardware Components

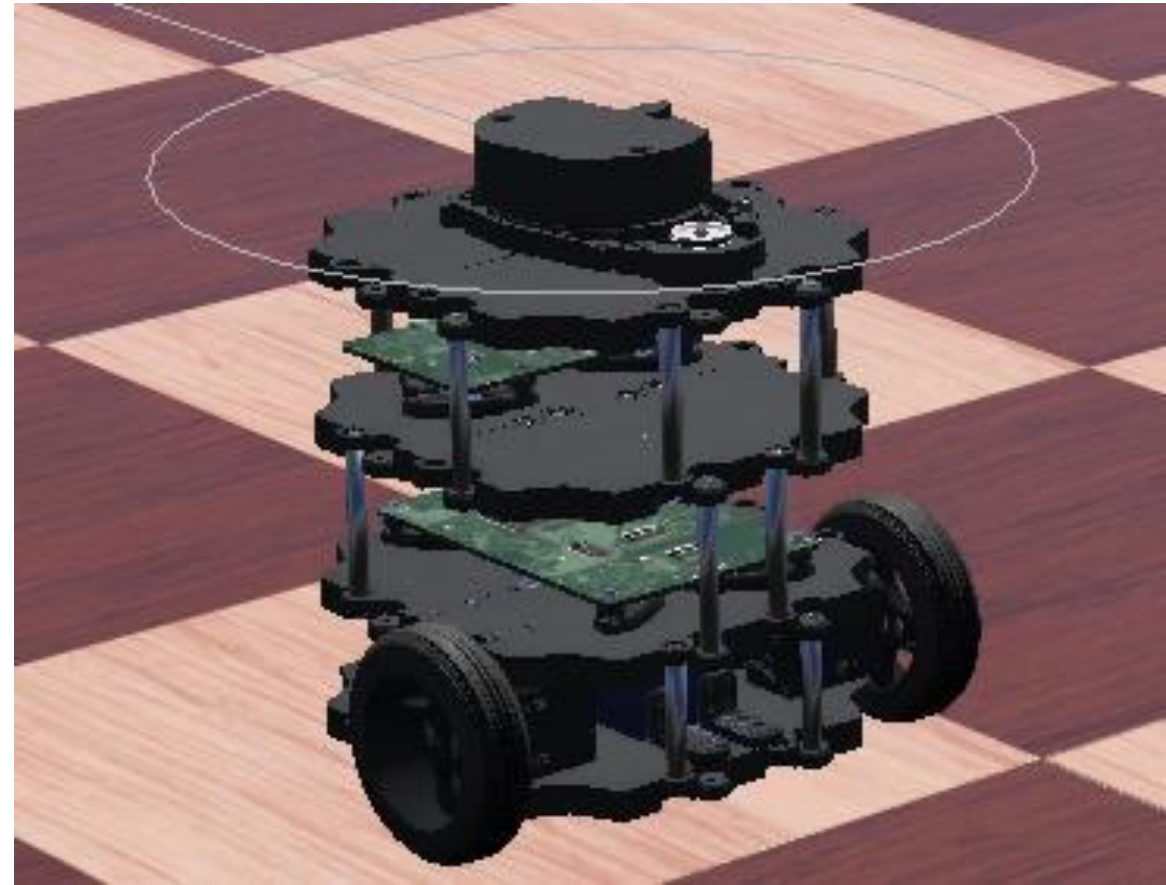
TurtleBot3

Sensor:

- Camera
- LiDAR

Communication:

- Wi-Fi
- MQTT



# Software Architecture



Perception: processes sensor data



Input: handle input



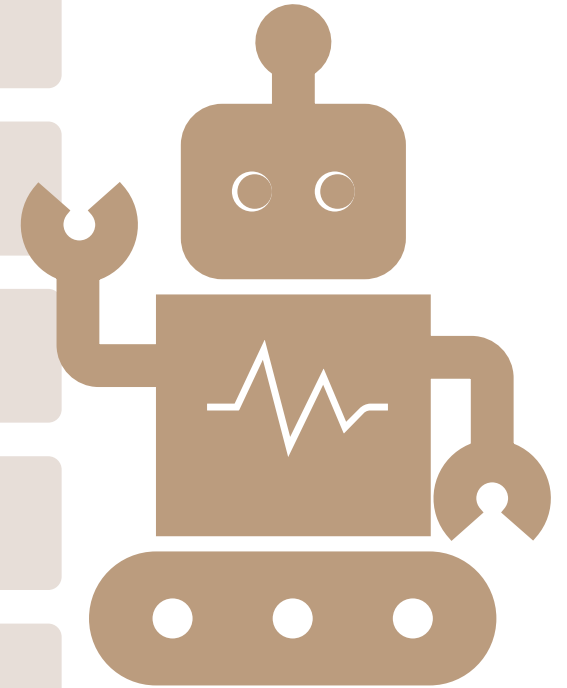
Control: control the robot's motion and tool/sensor operations.



Safety Monitoring: environmental conditions and robot status



User Interface: web-based interface for teleoperation



# Teleoperation Mechanism

