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Delta Robot ROS2 controller implementation

Abstract

Bachelorthesis at IRS-VSA.
During this thesis, a ROS2 based controller will be implemented for a parallel robot.

Start: 08.01
Tags: *Robotics, Simulation, ROS2, Gazebo*

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Motivation

Robots are increasingly important for the manufacturing of goods. Specifically articulated robots are used for their flexibility. These robots have a simple serial kinematic chain. Next to articulated robots, also robots with parallel kinematic chains are in use. This includes the delta robot. A delta robot consists of three parallel articulated arms, connected to an end effector plate. Due to their unique characteristics and low price, they are often used in pick and place tasks. To integrate a robot into an environment, the API provided by the robot manufacturer must be used.

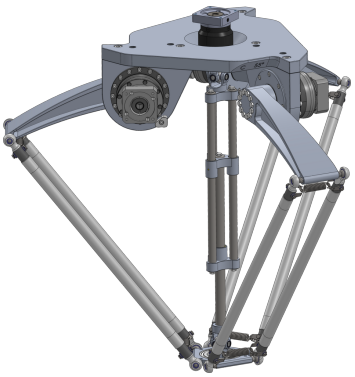

Figure 1: Delta robor

Goal

In order to utilize these robots within our lab a ROS2 controller needs to be designed. For this, a gazebo based simulation of the robot must be implemented. After implementing the ROS2 controller, the robot should be integrated into the existing VR simulation environment.

Figure 2: Gazebo

Helpful prior knowledge

The subsequent prior knowledge is advantageous for the completion of the final thesis:

- Robotics
- ROS2
- Gazebo
- Unity