Collection Bot

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Overview

A project proposal implement an Industrial collection robot to pick up parts from conveyor and place on tray for kitting task in industrial setup.

The architecture proposed for the AIP will utilize the ARIAC-provided gazebo environment, which represents an industrial setting with two robots (floor and ceiling), multiple bins holding a variety of parts with AGV to transport for kitting task.

Capabilities

Detects partinfo , parts and color for each order passed along with bin number and tray id , and store it in a data structure.

Using dynamic planner, floor robot traces the part moving on conveyor and places it on the tray assigned on AGV.

Further can detect missing parts and also flipped parts

Approach

Collect the order information and store the processed order details in a vector mapped to structs.

Using the information obtained along with laser sensor, detect the moving part on the conveyor and pick up the part.

Set up dynamic moveit planner to place it on the tray based on order information.

Milestone

Phase 0: Project proposal, initial design, code template setup. (12/5/2023)

Phase 1: Algorithm development and Stub implementation of classes. (12/12/2023)

Phase 2: Completing the implementation, reviewing and verifying builds and coverage and delivery of well documented software. (12/19/2023)