Autonomous Pick and Place System

Assistive Robotics for Amazon Centers

Project

Robotics Amazon specializes manufacturing lead technology for future Amazon fulfillment centers. Due to rapid growth, Amazon is planning to expand by creating new fulfillment centers all across the US. To support this exponential expansion rate, Amazon Robotics is augmenting their existing capabilities with robotic assistive systems.

Items moved through 2.

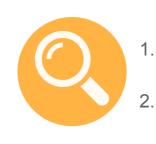
SEE

Solution

sensor gauntlet Item location and dimensions identified

Problem

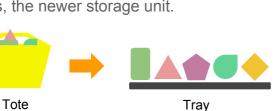
The most common operation fulfillment centers is the "pick and place" operation on ordered items into shippable containers. The system will handle a variety of items that are able to be fit into totes, the current temporary storage unit used by Amazon. These items with, varving dimensions, weights, and characteristics will be autonomously placed by the system onto trays, the newer storage unit.

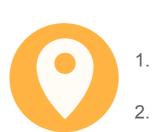


SEEK

System moves end effector to item location

End effector picks up item





SET

System moves item to destination on tray

End effector drops the item off

Metrics

Units per Hour

Average rate of pick and places

Eligibility

- Objects able to be picked and placed
- Ineligible objects handled by person

Percent Tray Space Used

Objects are packed tightly onto tray

Results

To help perform the "pick and place" of ordered items into shippable containers, our team has designed, built, and demonstrated an advanced pick and place robotic system that can move objects from storage to shipment to end-customer more efficiently. The system has surpassed Amazon Robotics' minimum criteria and will be continued both as a SCOPE project and will have a trial implementation at an Amazon Robotics facility.

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