FINAL12 – MOVING OBSTACLES (MO)02

National Institute of Standards and Technology

ARIAC NIST
Agile Robotics for Industrial Automation Competition

Trial Description

- **Task**: Build **1** single shipment from 1 single order. In this scenario there is one person moving in aisle #3. Products required to complete the shipment are located on the side of the shelves that are in aisle #3. The robot can use aisles #2 and #4 to access these products by extending the arms. With good sensor placements and good timing, the robot is also capable of grasping these products from aisle #3. Colliding with the moving person will set the score to 0 for this trial.
  - The conveyor belt is not used.
  - There are faulty products in the environment.
  - 1 obstacle which moves in the aisle where products are located.

- **Orders**: 1 order. order_0 consists of 1 single shipment (order_0::shipment_0).
  - The shipment in order_0 consists of 4 products in total:

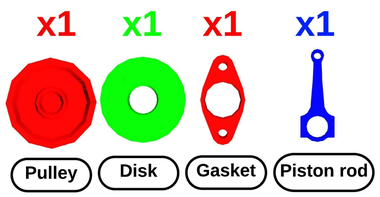

Fig. 1: Products used in shipment for order_0.

- **Maximum completion score**: 16 pts.
- **Agility challenges**:
  - Faulty products.
  - Flipped products.
- **Product vessels**:
  - bin $\times$ 2, shelf $\times$ 2, conveyor belt is not used.
  - **Shipment deliveries**:
    - order_0::shipment_0: AGV1.
  - **Time limit**: 500 sim seconds.

Initial Product Placement

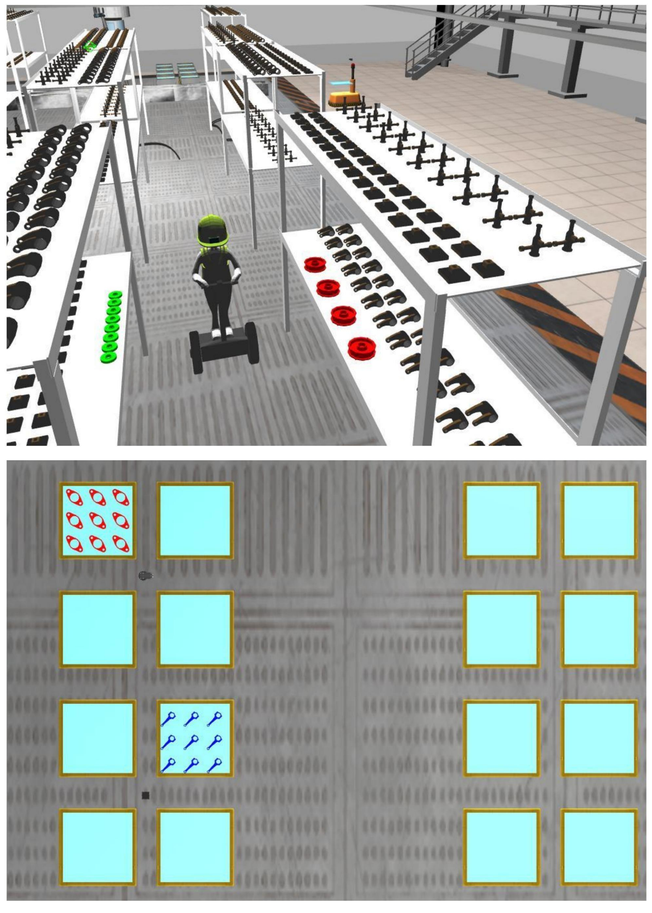

Fig. 2: Initial product placements.

Agility Challenges

- Faulty products: There are 3 faulty products in the environment.

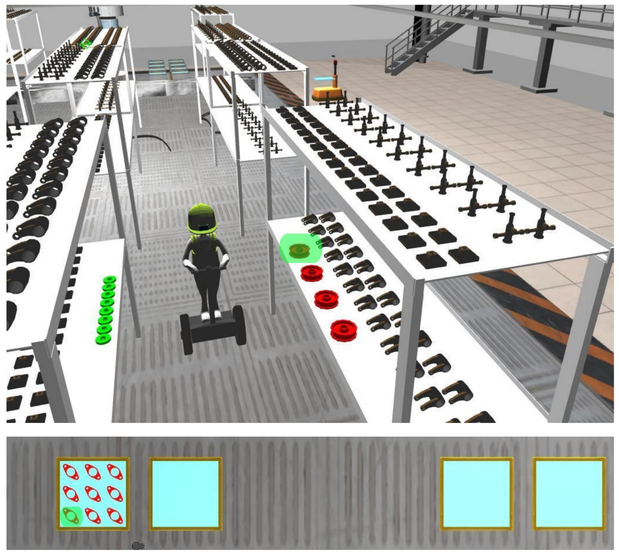

Fig. 3: Faulty products in the environment.

- Flipped products: 1 red pulley must be flipped FOR the shipment in order_0. Figure 4 highlights the flipped pulley in this shipment.

Orders

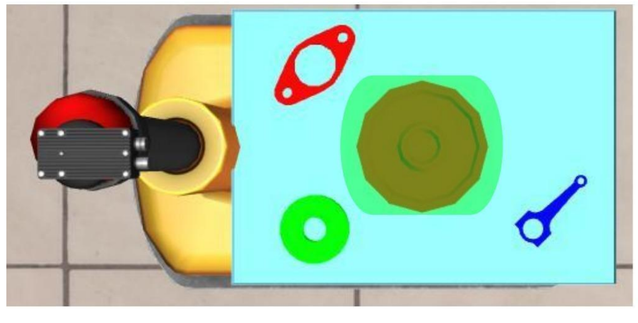

Fig. 4: order_0 shipment configuration on AGV1.