National Institute of Standards and Technology

ARIAC NIST
Agile Robotics for Industrial
Automation Competition

Trial Description

- **Task**: Build **2** shipments from 1 single order, on any AGV.
  - The conveyor belt is used.
  - There are faulty products in the environment.
  - 1 blue pulley must be flipped in both shipments.

- **Orders**: This trial consists of 1 order (order_0) with two shipments (shipment_0 and shipment_1).
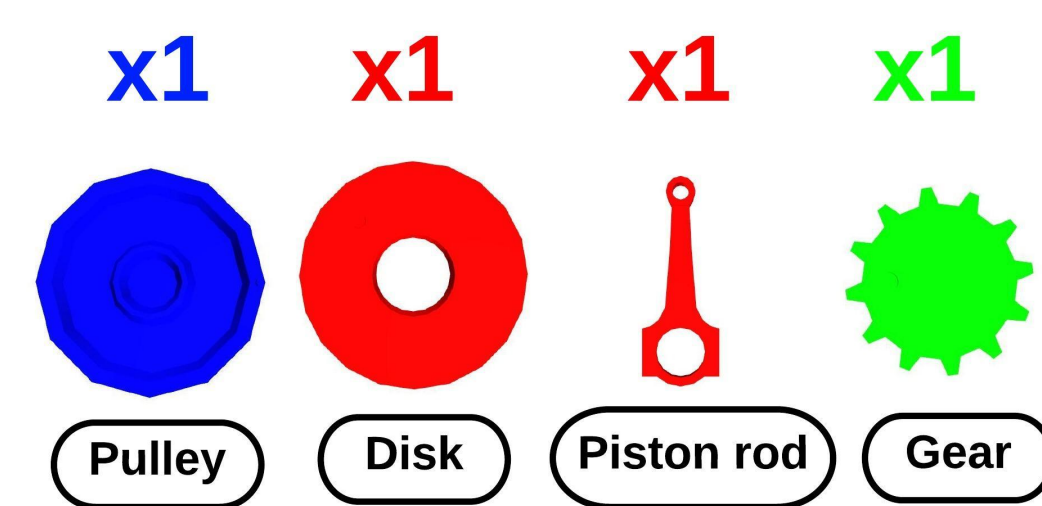 - Both shipments consist of 4 products:

x1 x1 x1 x1

Pulley Disk Piston rod Gear

Fig. 1: Products used in order_0.

- **Maximum completion score**: 32 pts
- **Agility challenges**:
  - Faulty products.
  - Flipped products.
- **Product vessels**: bin × 0, shelf × 3, conveyor belt is used.
- **Shipment deliveries**:
  - order_0::shipment_0: AGV1 or AGV2.
  - order_0::shipment_1: AGV1 or AGV2.
- **Time limit**: 500 sim seconds.

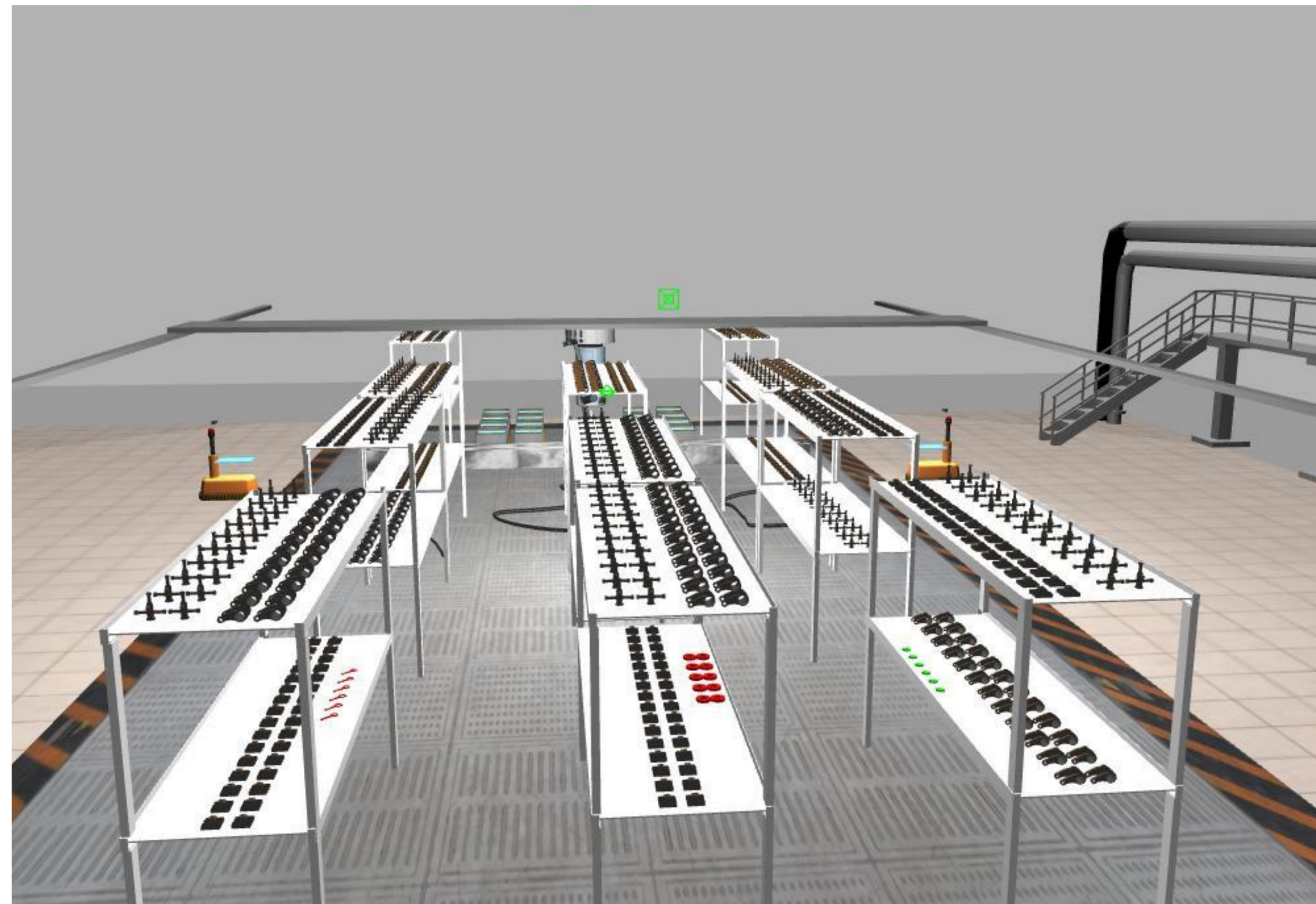## Initial Product Placement

Fig. 2: Initial product placements.

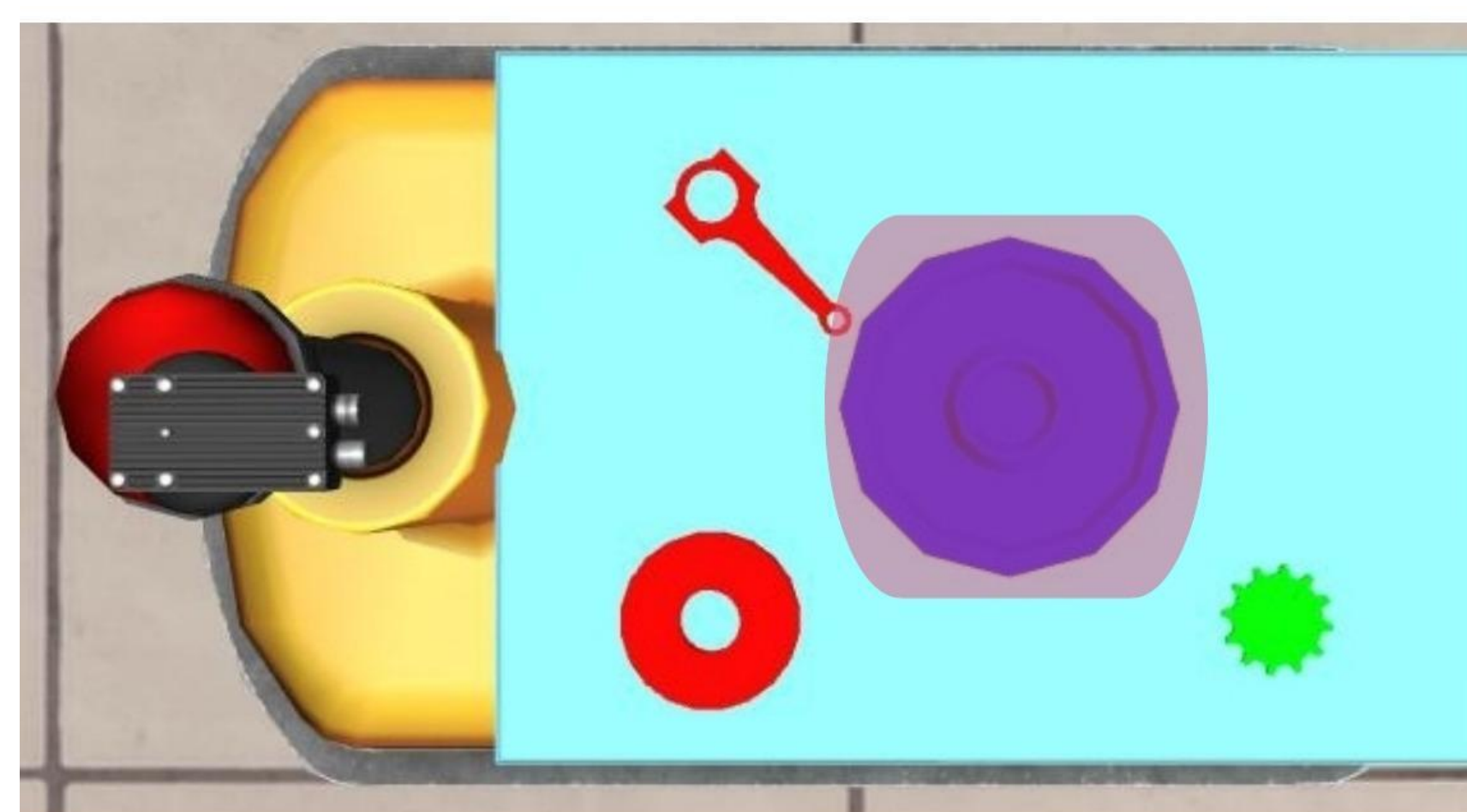- The conveyor belt will spawn a total of 15 blue pulleys.
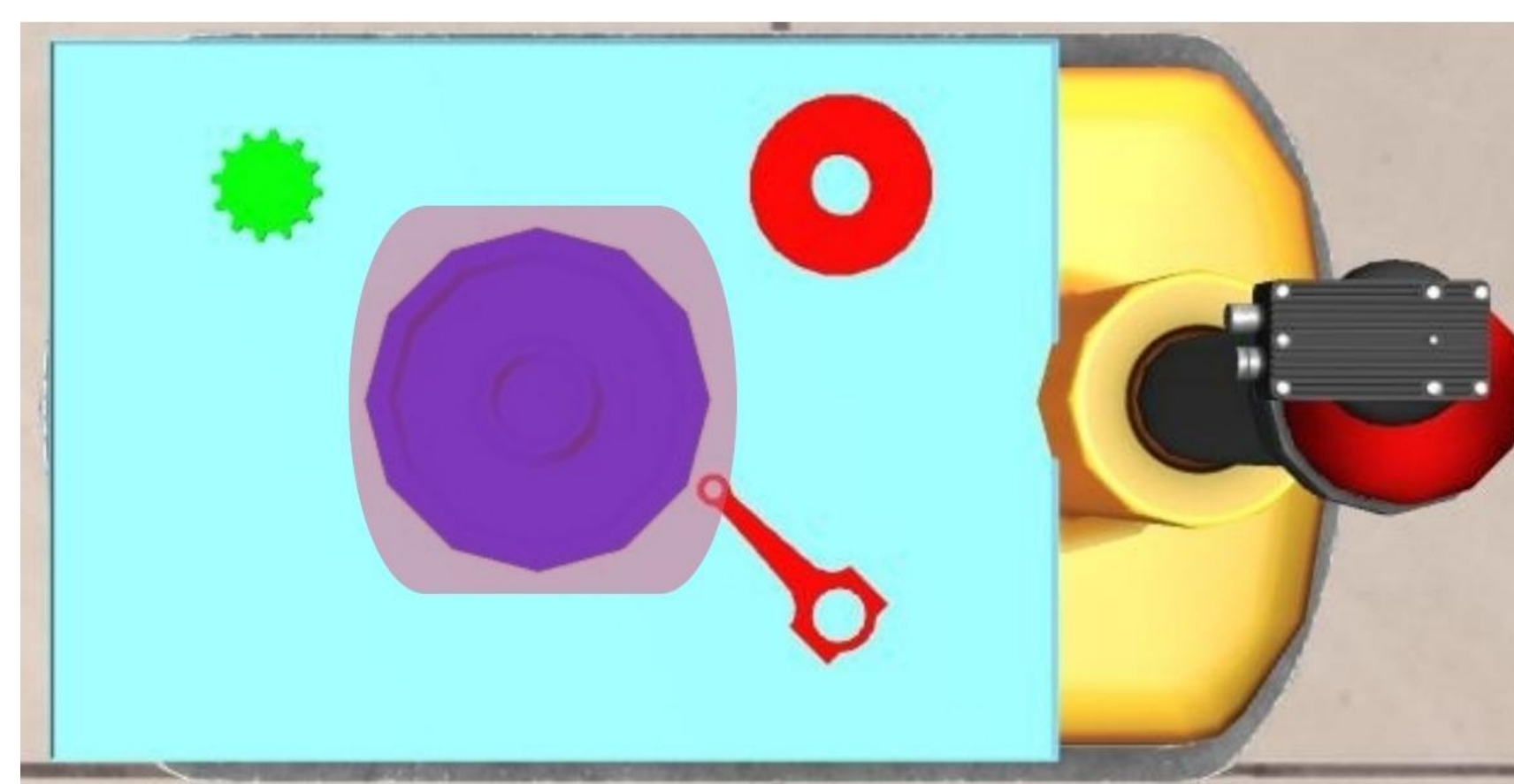
Orders

Fig. 3: Shipment configuration on AGV1.

Fig. 4: Shipment configuration on AGV2.

Agility Challenges

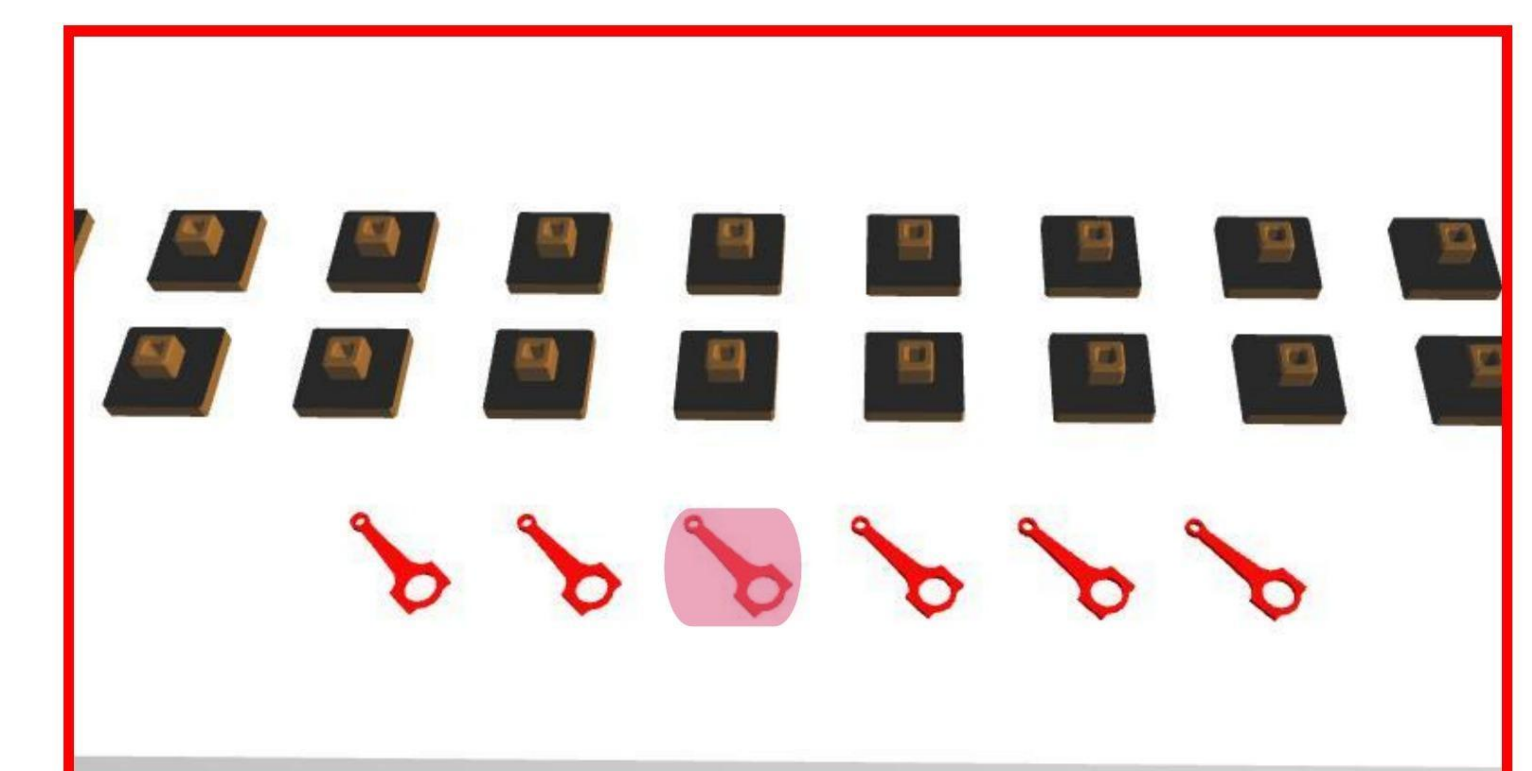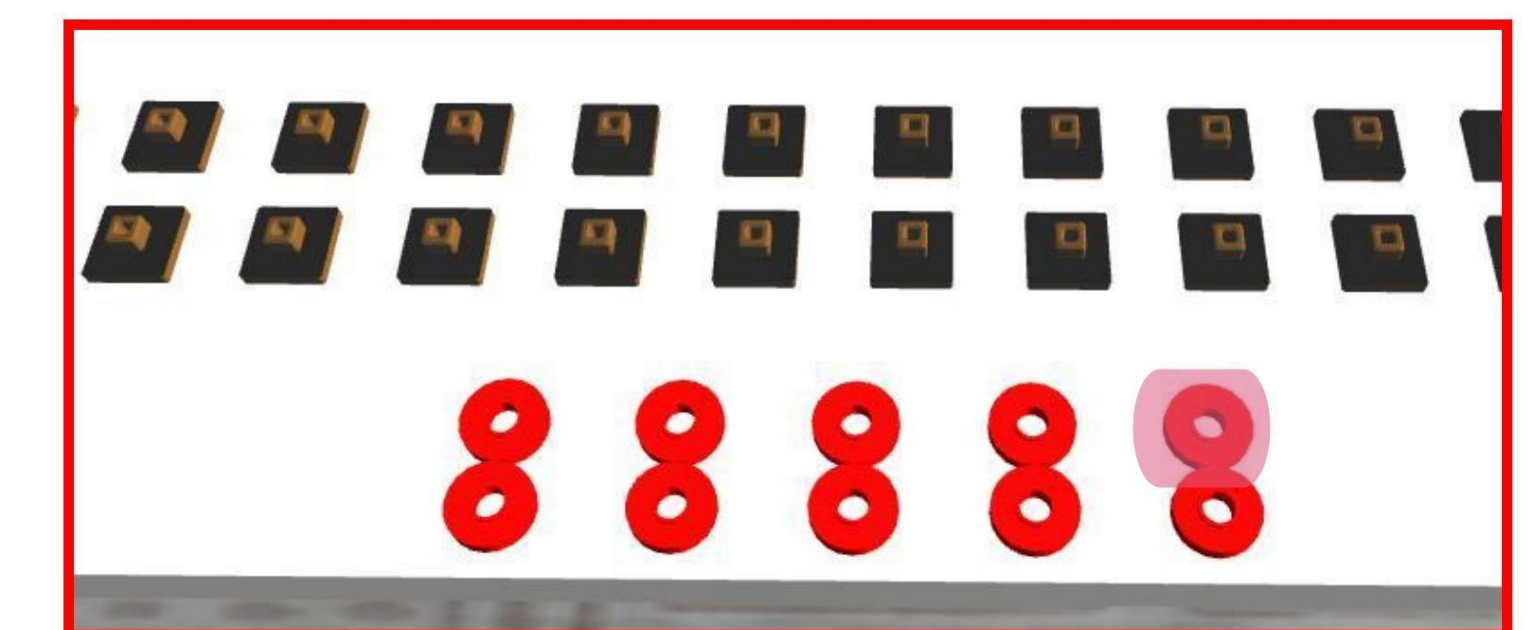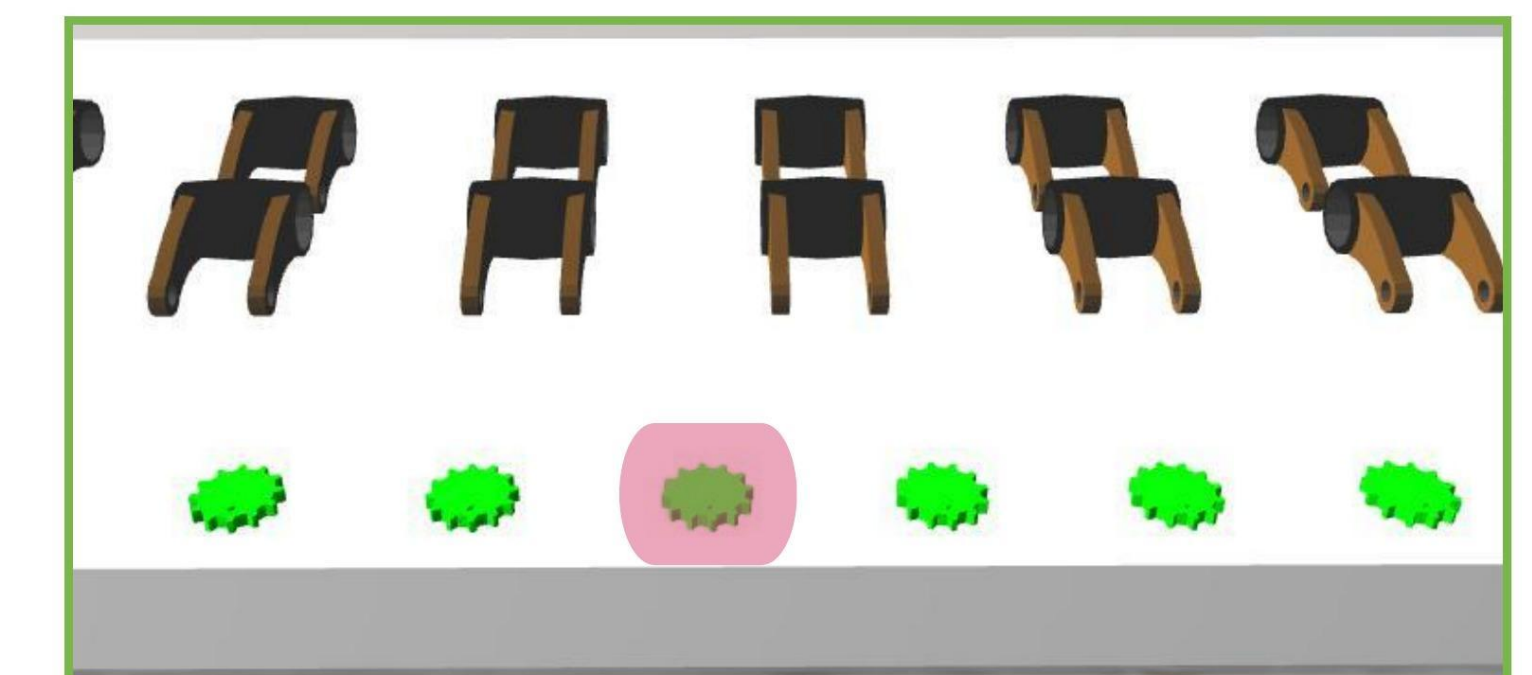- Faulty products: There are 3 faulty products in the environment.

Fig. 5: Faulty products in the environment.

- Flipped products: A blue pulley needs to be flipped for both shipments. Figures 3 and 4 highlight the flipped pulley in both shipments.