

6.4 Take Out the Garbage [Housekeeper]

Description

All garbage bins in the *Arena* are emptied and the garbage has been moved to a specified collection zone.

Main goal: The robot takes out the trash bags from the two bins in the *Arena*.

Optional goal: Removing the lid of the trash bin and handling the two garbages at same time.

Focus

This task focuses on *Object Perception*, *Object Manipulation* and *Task Planning*

Setup

- **Locations:**
 - This test takes place inside the *Arena*.
 - The robot starts inside the *Arena* at a predefined location near the entrance door.
 - The collection zone is a collection area near the exit door.
- **People:** Only the referee is allowed in the *Arena*.
- **Furniture:**
 - There are two trash bins in different rooms of the *Arena*. They are roughly cylindrical and open at the top. The top has at least 30cm of diameter. The space above the bin will be free of obstructions. The bin may be placed against a wall.
 - Each bin contains a tied garbage bag with some light contents. The color of the bag is different from the color of the bin.
 - The team leader may request to place a lid on one or both of the bins to score the bonus points.
- **Objects:** All objects are in their predefined locations.

Procedure

1. The referee requests the team to move the robot to the start location.
2. The referee gives the start signal and starts the timer.
3. The team leaves the area after the start signal.
4. A TC member follows the robot ready to press the emergency stop button.
5. The robot navigates to the bins.
6. **Optionally**, the robot can remove the lid of the trash bins.
7. The robot takes out the trash bags from the two bins in the *Arena*.
8. **Optionally**, the robot can handle the two garbages at same time.

Additional rules and remarks

The team is only awarded with points the moment the bag is placed somewhere.

The round is only valid if at least one of the bags is taken and placed in a natural way, without throwing. If the previous condition is not met, the team does not score points and takes no penalties for that try.

If the time runs out, or the emergency button is pressed, and a robot is still holding a bag the team does not score points and takes no penalties regarding that bag.

If a robot lets a bag fall down and does not retrieve it, the team does not score points and takes no penalties regarding that bag.

Instructions:**To Referee**

The referee needs to:

- Place sealed bags with some light contents in the bins
- Ask team leader whether bins should be closed.
- Make sure collection zone is clear.

To OC

The OC needs to:

- **During Setup days:** Ensure the trash bins have at least 30 cm of diameter at the top.
- **During Setup days:** Provide official bins and bags for training.
- **2 hours before the test:** Announce the collection zones.

Score sheet

Maximum time:

5 minutes

Action	Score	1 st try	2 nd try	3 rd try
<i>Regular Rewards</i>				
Move to the front of a thrash bin	2×50	_____	_____	_____
Getting the bag out of the bin without assistance	2×500	_____	_____	_____
Moving the bag out of the house	2×200	_____	_____	_____
Dropping the bag inside the collection zone	2×250	_____	_____	_____
<i>Bonus Rewards</i>				
Opening the bin lid	2×50	_____	_____	_____
Carry both bags at once	100	_____	_____	_____
<i>Regular Penalties</i>				
Tipping a bin / tearing a bag	2×-100	_____	_____	_____
<i>Deus ex Machina Penalties</i>				
Receiving the bag via handover	2×-150	_____	_____	_____
<i>Score per try</i>	2200	_____	_____	_____
Total Score	2200	_____		