6.1 Carry My Luggage [Party Host]

The robot helps the operator to carry some luggage to a car which is parked outside.
Main Goal: The robot helps the operator to carry a bag to a car parked outside.

Focus

This task focuses on *person tracking*, *navigation in unmapped environments*, *social navigation* and *obstacle avoidance*.

Setup

- **Locations**:
  - The test takes place both inside and outside the *Arena*.
  - The robot starts at the living room's center.
- **People**: The operator is standing in front of the robot and is pointing at the bag to be carried outside.
- **Objects**: At least two bags are placed near the operator (within a 2m distance and visible to the robot).
- **Obstacle**: There will be a random object on the ground, in the robot's path. The object will be the same for all teams.

Procedure

1. **Picking up the bag:** The robot picks up the bag pointed at by the operator, or asks them to handle it to the robot. If the robot picks up the wrong bag and delivers it, it won't score at any stage.
2. **Following the operator:** The robot should inform the operator when it is ready to follow them. The operator walks naturally towards the car; after reaching the car, the operator takes the bag back and thanks the robot.
3. **Obstacles:** The robot will face 2 obstacles along its way (in arbitrary order): (a) an object on the ground, (b) a crowd of people obstructing the path outside.
4. **Re-entering the arena**: The robot returns to the arena, going back in through the entrance.

Additional Rules and Remarks

1. **Picking up the bag:** The robot must pick up the bag using gesture detection resources.
2. **Not picking up the correct bag:** This results in task failed and 0 points total earned.
3. **Finding the operator:** The robot can ask for the operator to go through a calibration procedure. The operator will stop walking if the robot starts giving instructions. This can be done at any time along the way and means a penalty. After 30 seconds a new penalty may be applied if the robot continues to give instructions. The robot cannot give instructions that make the operator leave the place he stopped. The operator will only return to follow the path when the robot reports that it has found the operator.

4. **Dropping the bags:** Dropping a bag causes a penalty. The robot can pick it up again or ask for the operator to pick it up for him.
5. **Car location:** There is no real car outside; instead, a fixed location outside the *Arena* is designated as a car location.
6. **Reaching the car:** The robot can reach the car location only by following the operator (the location is unknown before the test).
7. **Deus ex Machina:** Score reductions for human assistance are applied in case the robot loses the operator, and needs to perform some action to find them again.

Referee Instructions

The referees need to:

- Select one volunteer to act as the operator.
- Select three to four people to obstruct the robot's path outside.
- Choose positions for the bags and assign a bag to the operator.
- Insert the obstacle somewhere in the path.
- Designate a location outside as a car location.
- Mind the robot when it goes outside the *Arena*.

OC Instructions

2h before test:

- Select and announce the robot's starting point.
- Draw the object to obstruct the robot's path.
- Select which bags will be used in the test.

Score Sheet

The maximum time for this test is 5 minutes.

Action	**Score**	1^{st} **try**	2^{nd} **try**	3^{rd} **try**
Main Goal				
Picking up each of the bags without human assistance	*2×350*			
Following the person to the car	*600*			
Avoiding the object on the ground	*200*			
Avoiding the crowd of people obstructing the path	*300*			
Leaving the arena	*100*			
Re-entering the arena	*100*			
Bonus rewards				
Picking up both bags at once	*100*			
Regular Penalties				
Dropping the bag and picking it up by itself	*–100*			
Dropping the bag and asking the operator to pick it up	*–200*			
Rediscovering the operator	*–200*			
Score per try	*2100*			
Total Score	*2100*			