

## **Title:**

Sort-a-Bot

## **Description:**

Robot: simple structure, two arms with weight sensors, an RGB camera on top, wheel based locomotion, Lidar to navigate obstacles, wireless receiver. Uses Reinforcement Learning to come up with best path.

Environment: Grey obstacles/walls, coloured objects, coloured bins with weight estimators, RGB cameras and wireless transmitters. Procedurally generated, 1-3 objects of each colour with random weight in each generation.

## **Track:**

Gazebo simulation software

## **Main Objective:**

Picking up objects and placing them in their respective box

## **Sensors/Inputs:**

RGB camera

Weight estimator

Lidar

Wireless Transmitter (this will be used to help define completeness for RL)

Wireless Receiver (this will be used to help define completeness for RL)

## **Outputs/Behaviours:**

Explore map

Go to/mark object locations

Go to/mark bin locations

Pick up object checking it's weight, using two hands if weight exceeds threshold

Place object in bin

## **Team Members/Roles:**

Ellyn Rose Debrincat: Computer vision

Joachim Grech: Reinforcement learning + action programming

Benjamin Zammit: Reinforcement learning + action programming + general environment/robot structure

Note: These roles are not definitive and each member will check each other's work