Visual Computing, Project 4:
Robot Simulation with Unity

In this project the goal is to create a virtual robot in Unity that can pick up blocks in one location and drop them elsewhere.
First, create the virtual environment in which the robot will operate. Model two bins using unity, the robot will pick up objects in one bin and place them in the other bin. Write a script that drops cubes in one of the bins at random. Use the physics simulation in Unity to ensure the blocks drop to the floor of the bin. Create a material for the bins and a material for the blocks. You can use the work done in the exercises for the Unity lesson.
Now model a robot arm. The robot has a single arm that can only move in the x, y and z directions. The robot can only move in one direction at the same time. Model this robot in Unity, you are free to model the robot as you like, as long as it follows the constraints. An example is shown in Figure 1.
Finally, write C# code for your Unity project that controls the robot. The goal for the robot is to pick up the randomly spawned blocks from the one bin and place them in the other bin. The placement in the other bin should not be random, but they should be ordered on a grid. Ensure the simulation of the robot is physically correct, i.e. it should not be able to pass trough the walls of the bin and the blocks can not fly by themselves. On Toledo you can find a video of our robot in operation.

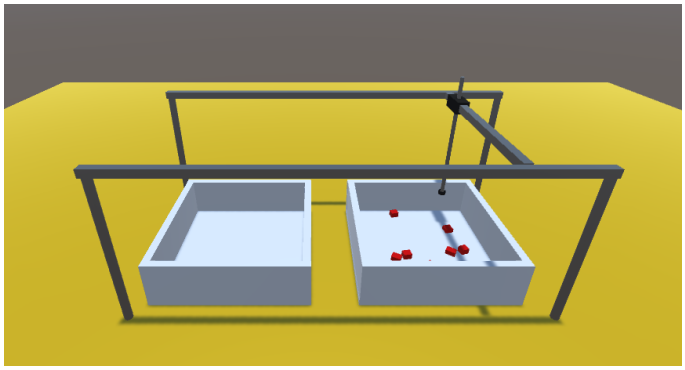

Figure 1: Our robot in action.