

Homework 5

Robotics 2020 - ShanghaiTech University

1 Introduction

In HW 3 you already learned about MoManTu and used it in simulation. Now you apply that knowledge on the real robot. Since the real robot resources are limited you will work on this HW in your project group. Submit your HW in your project repo!

Please watch this small tutorial video to learn how to use the Fetch hardware:

https://robotics.shanghaitech.edu.cn/static/videos/HowTo_Fetch.mp4

On the Fetch PC you will find a working MoManTu installation under the folder: hw5_ws
Use it for your homework.

You'll get about 2 hours, no more than 3 hours, of Fetch time to work on this homework. Schedule the time in advance with Hou Jiawei (houjw@). Available times are between Dec 21 and Jan 08. Excluding weekends and holidays.

2 Task 1: Mapping (50%)

Create an environment (move tables around, select rooms to use (stay within the STAR Center), place bottle and QR code). Then use the Fetch robot to map the environment. Save this map for use in MoManTu and also save the map in your hw5 folder of your project repo.

3 Task 2: MoManTu (50%)

Apply MoManTu. So try to run MoManTu and have the robot drive to your bottle, pick it up and bring to the goal. You'll need to edit FlexBE for that. Take 3 representative photos of this action and also put in the hw5 folder. Also demo your final attempt to one of the instructors, one of the TAs or Hou Jiawei.

It is OK if it doesn't work 100% in the end - as long as we see that you made an effort it is OK.

4 Optional Task: Feedback

If you want you can provide further feedback to MoManTu in a feedback.txt in the hw5 folder of your group repo.

5 Submission

Your submission consists of the following 4 or 5 files, located in a folder called "hw5" in your group gitlab repo.

The following files are important:

- the map you created
- three photos from your demo
- optional: "feedback.txt"