SWROB2 Final Project Description

In the final project, the aim is to create an algorithm to drive TurtleBot to different locations in the Shannon building (shown in Figure 1) while performing some tasks.

The sequence of the tasks is the following:

1. The robot must always start in location **A**.
2. The robot must drive autonomously from **A** to **B**, avoiding obstacles on its way.
3. The robot must automatically find a red circle (same as in Figure 2) on the wall somewhere in **B**.
4. After identifying the red circle, the robot must stand 50 cm in front of the marker and take a picture of it.
5. Then, the robot must drive autonomously to **C** by finding the best route itself with a path-planning algorithm.
6. The robot must automatically find a purple circle (same as in Figure 3) on the wall somewhere in **C**.
7. After identifying the purple circle, the robot must stand 50 cm in front of the marker and take a picture of it.

General rules:

- The robot must be completely autonomous during the mission. You can only manually relocate the robot to its initial position in **A**.
- The robot must be able to avoid static and dynamic obstacles on its route using reactive navigation techniques.
- You are allowed to make a map of the building before the actual demo.

Based on the project, you must prepare a report (requirements described on Brightspace) including MATLAB code and a final presentation.

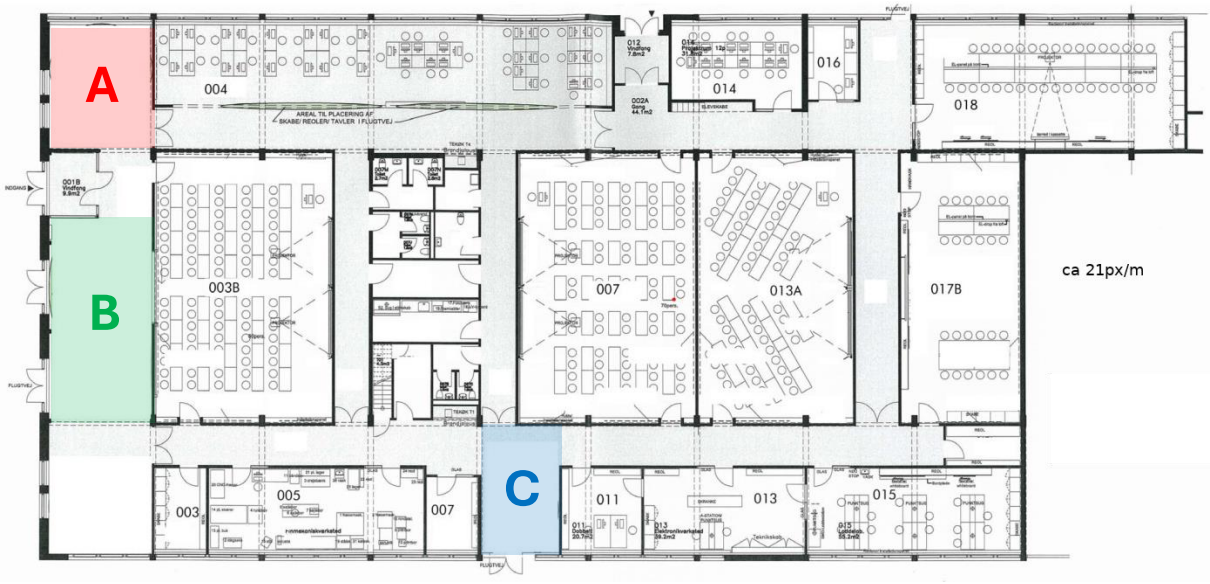

Figure 1. Map of the Shannon building.

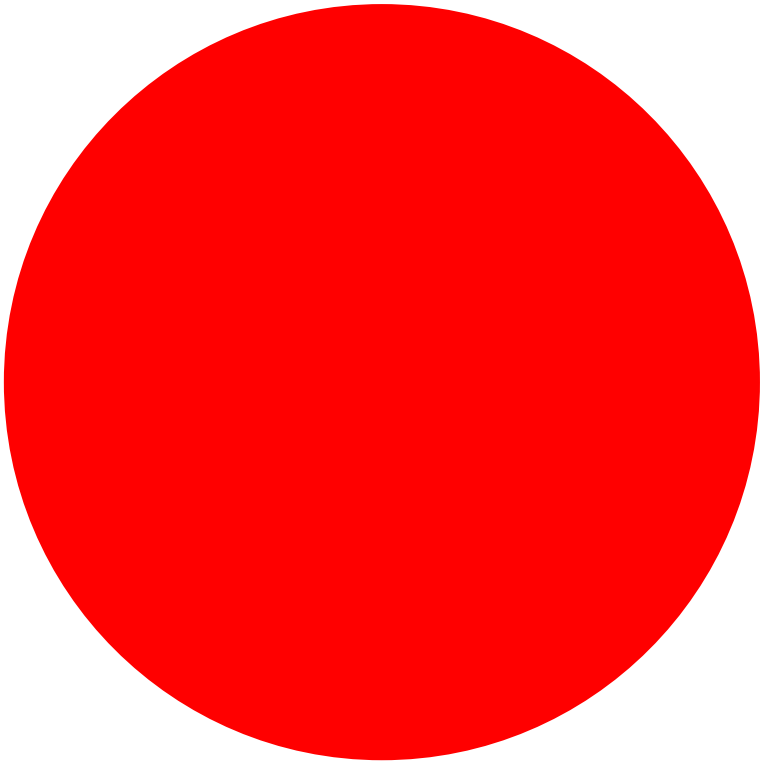

Figure 2. Marker 1.

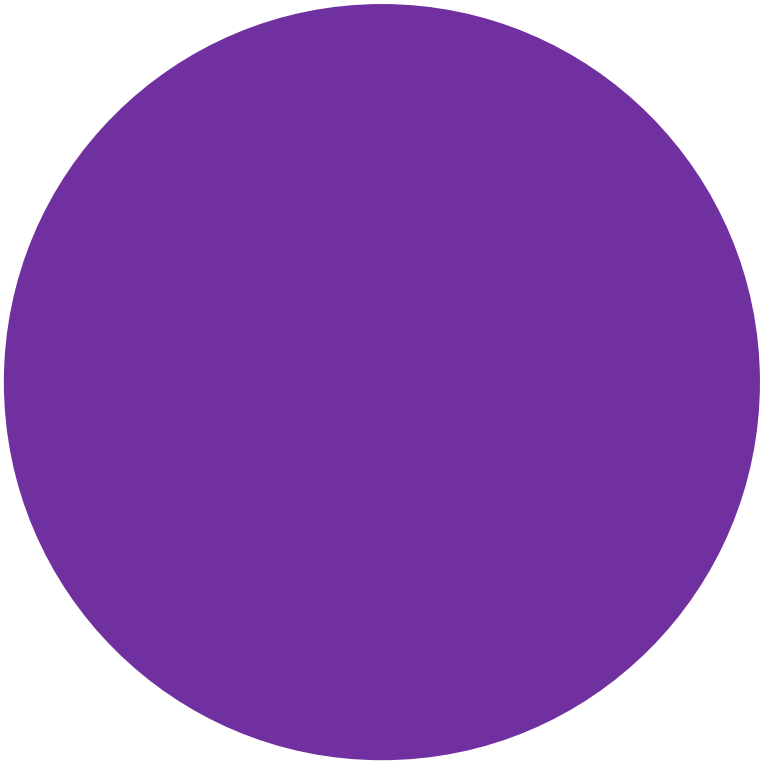

Figure 3. Marker 2.