

# Embedded Motion Control

Final design

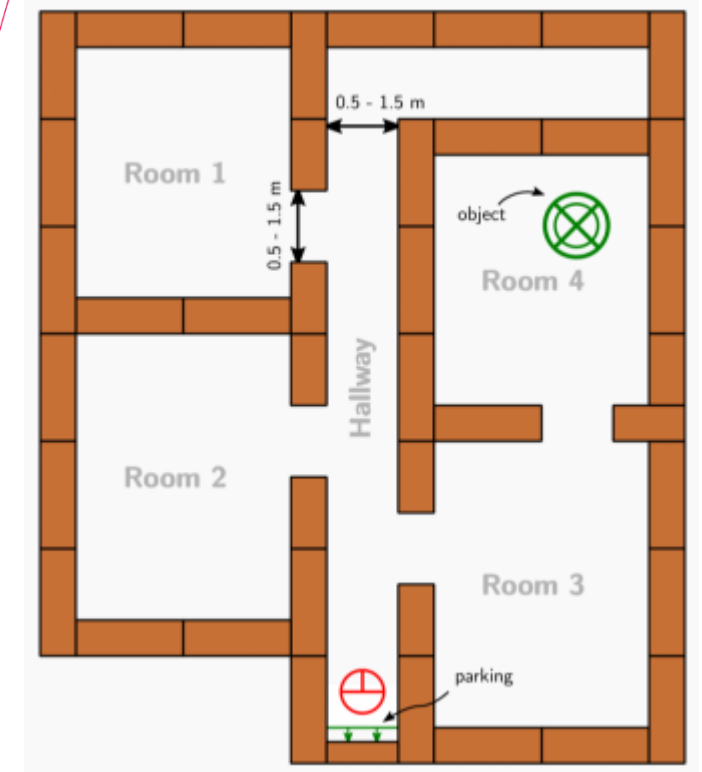
## Group 2

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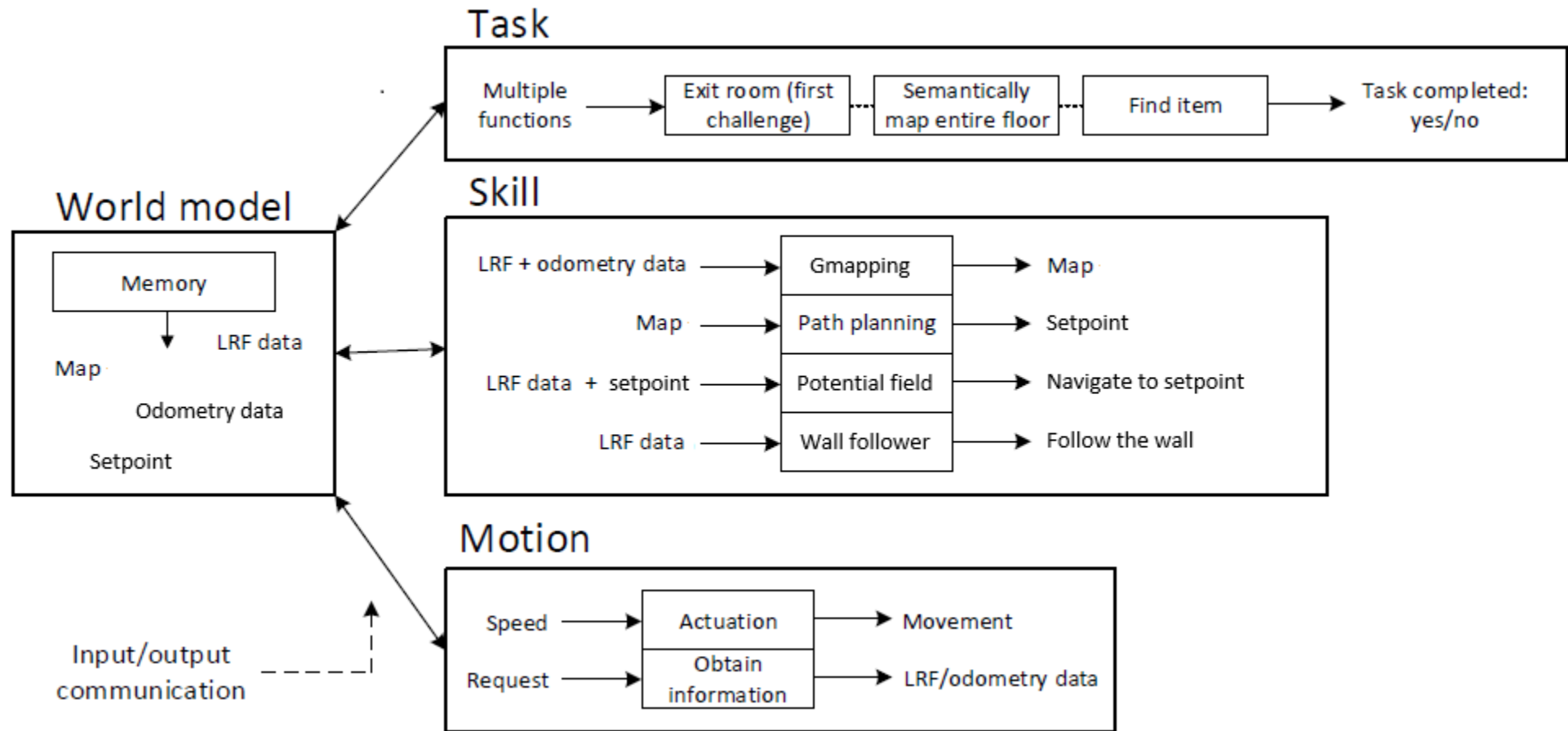


# Requirements

- Execute all tasks autonomously
- Perform all tasks without bumping into a wall
- Perform all tasks without getting stuck in a loop
- Finish both challenges as fast as possible, but at most within 10 minutes
- Explore and map the hospital rooms
- Get back to the starting position and park backwards into the wall
- Find and stop next to the object that is placed in a specified room

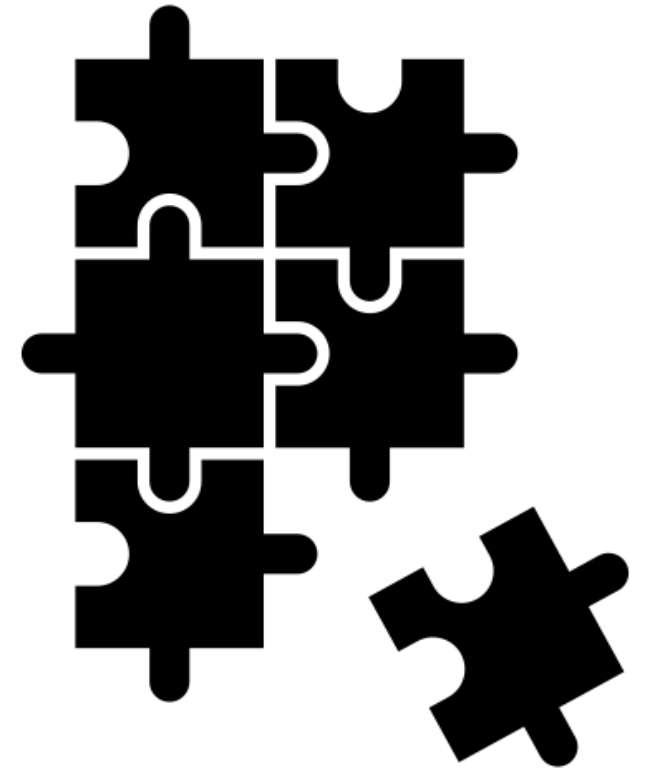


# Interface



# Initial vs. Final design

- Different implementation semantic mapping
- No path generation & object avoidance
  - Replaced by potential field with a setpoint
- Wall follower implemented



# Challenge structure

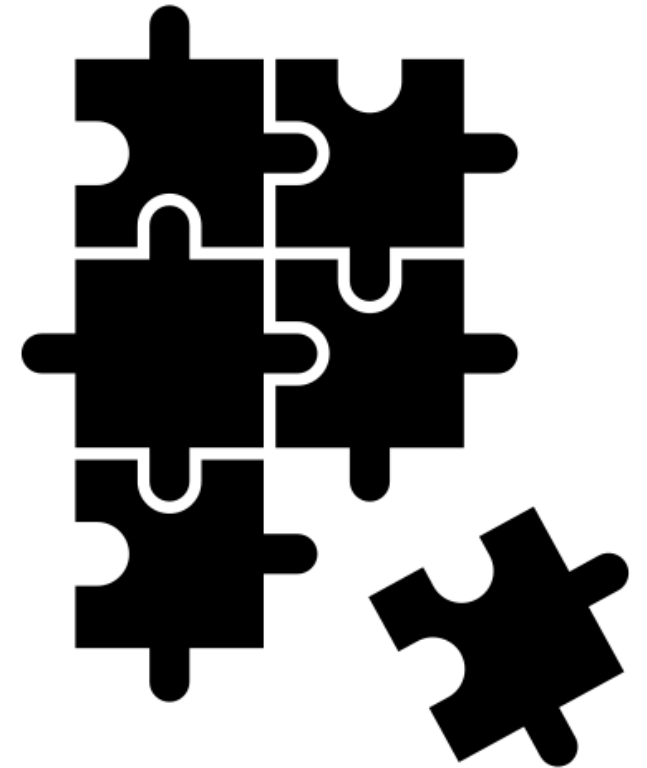
Two executables

First executable:

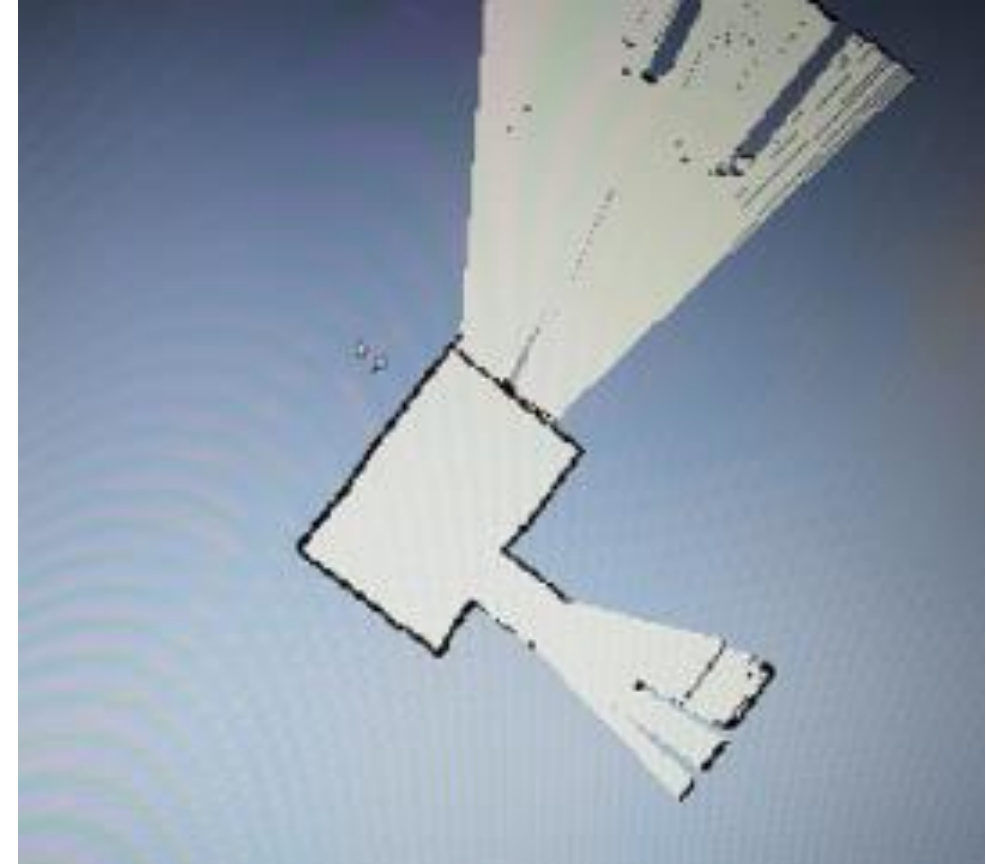
- Initialization + mapping
- Wall follower
- Driving backwards into the wall (when at the starting position)

Second executable:

- Path planning
- Potential field
- Find object (by comparing different maps)



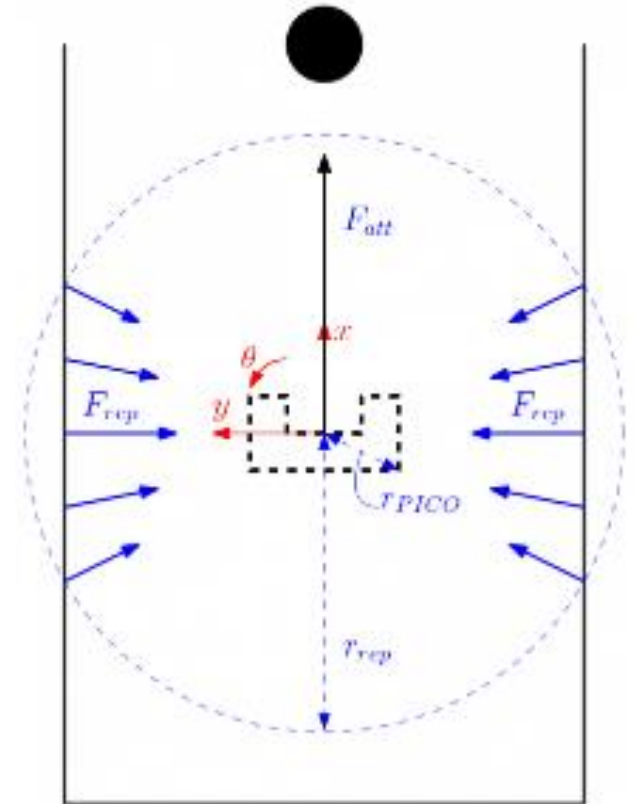
# Gmapping



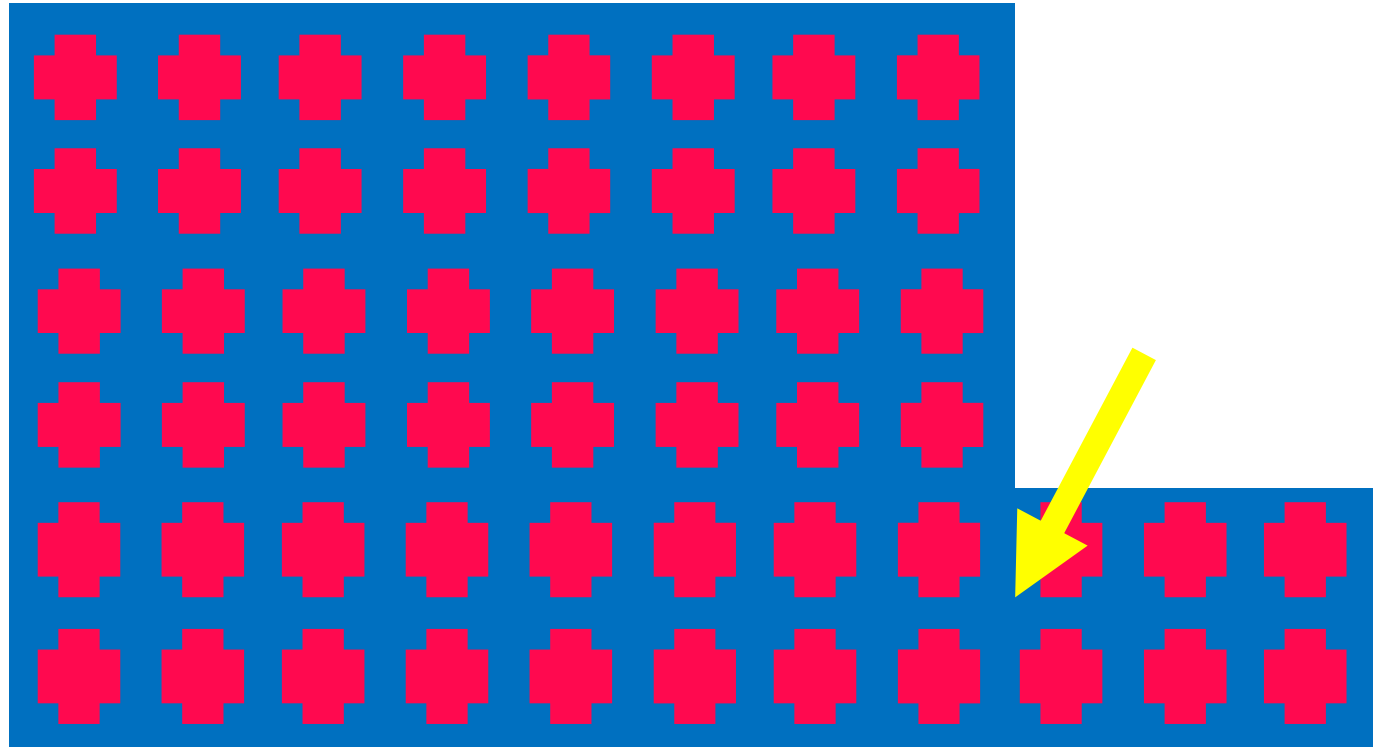
# Potential field



Movement input direction



# Path- planning





# Wall follower

