RMI Assignment 1

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C1 - Control

- Objectives
  - Lap the map the fastest way possible
  - Avoid collisions with the walls
- Implementation
  - Read the obstacle sensors values
  - Process the output to the 2 robot motors
- Extra
  - Wrong way detection

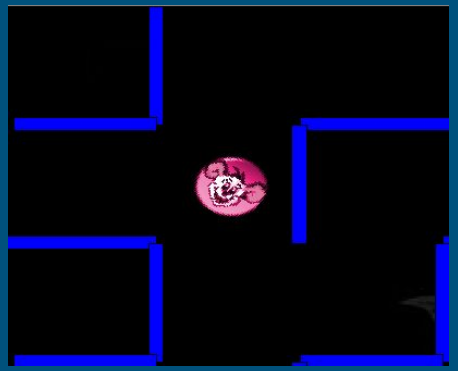
C2 - Mapping

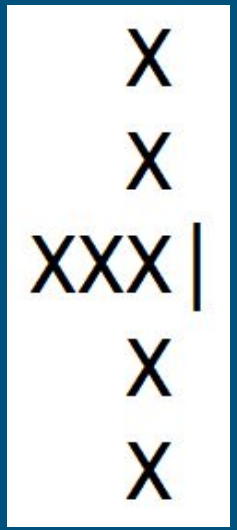
- Objectives
  - Explore the whole map
  - Print the map to an output file

- Implementation
  - Move according to the compass and GPS
  - Walk with a predefined pattern in the beginning

C2 - Mapping

- Implementation:
  - Store both the visited and unvisited positions
  - In each cell, save the walls and the free squares
  - Use a-star to find the best path to a cell
  - Print the map to the text file





C3 - Planning

- Objectives
  - Find out the target spots
  - Get the best closed path that goes through them

- Implementation
  - The same as in challenge 2, in the end compute the best path with a-star

- Improvements to be made
  - Sometimes it wastes time discovering the whole map when already has the best closed path
  - Use a-star to find out if there is a better path that uses the unknown part of the map

Conclusion

- Learnt to work with path finding algorithms (search algorithms)
- Found solutions to deal with noise
- Can be useful in the future to work with AI