SECOND ROBOTICS PROJECT
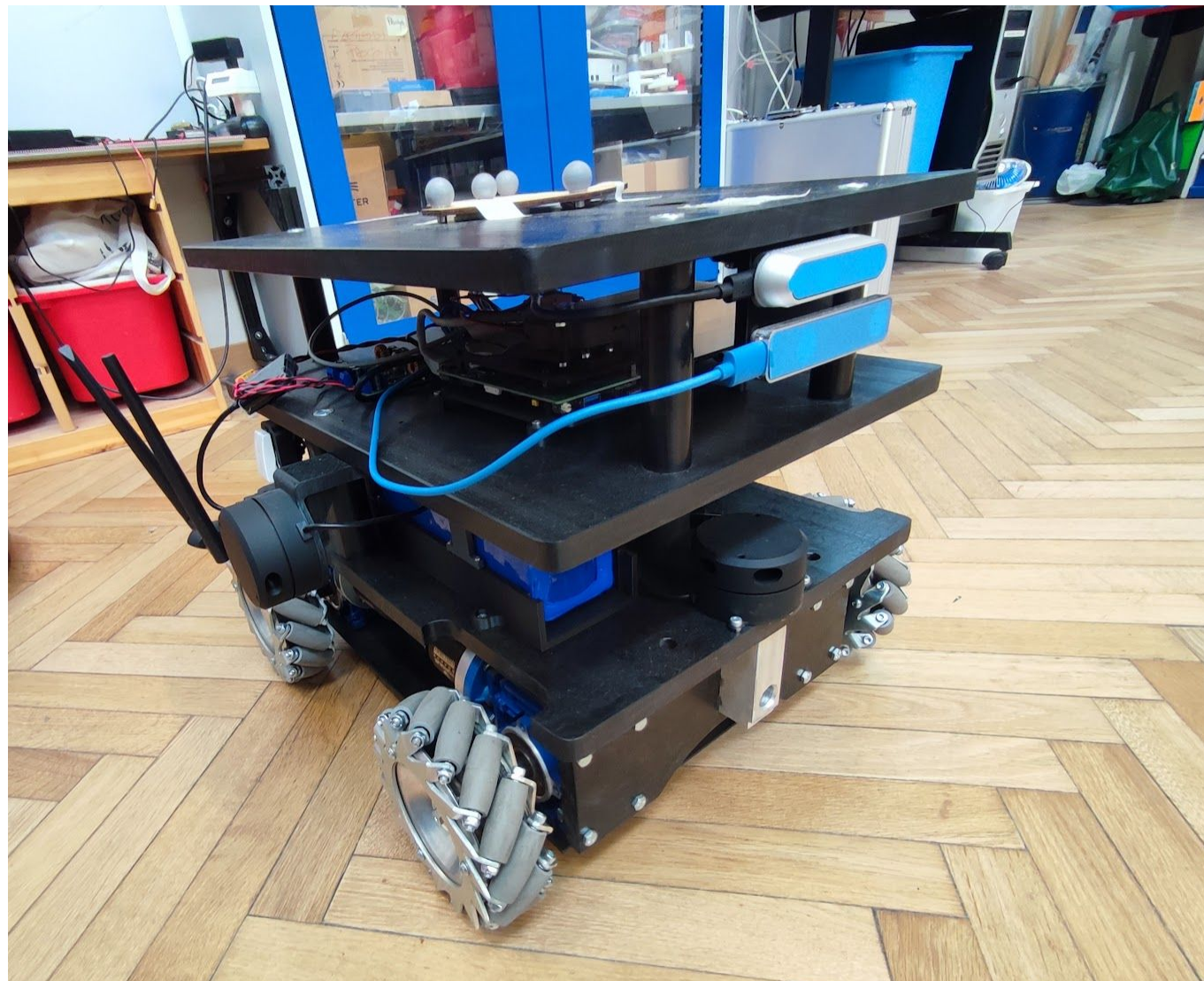
ROBOTICS

POLITECNICO
MILANO 1863

DATA

Format: ROS Bag file

Data: bag files

Topics:

- /odom: odometry topic
- /front/scan: laser mounted in front of the robot
- /rear/scan: laser mounted on the rear of the robot
- /wheel_states: data from wheels (same structure as 1st project)
- /tf_static: static tf for laser position

- 3 bag files:
    - 1 for map creation
    - 2 for localization
    - choose the one you prefer for the map creation

- Write launch files to create the map
- Write launch file to perform amcl based localization
- Write service to save an image with the map and the trajectory of the robot

- You can use the package you prefer for map creation (gmapping, slam_toolbox, cartographer, hector-slam)
- Use amcl for localization
- A node is needed to publish the odometry as a tf
- A node is needed to merge the two lasers seen during lesson can properly configure a launch file to do this task
- You can use the provided odometry, or use the node of the first project

Deadlines and requested files

-Send **only** a tar.gz file (put the .txt file with info inside the archive)

-Send via e-mail both to Simone Mentasti, Paolo Cudrano and Matteo Matteucci

-name the e-mail "SECOND ROBOTICS PROJECT 2022"

-Inside the archive:

   - txt file (details next slide)

   - folders of the nodes you created (with inside CmakeLists.txt, package.xml, etc...)

   - all used lauchfiles

   - folder with the created map and created images of robot path (1 map, 2 path images)

   - **do not send** the entire environment (with build and devel folders)

Requested launch files

- Launch file for gmapping (or alternative node) to compute the map

- Launch file for amcl localization

I should be able to create a map and start amcl with the launch files, include everything in there (i.e., static tf, use_sim_time, rviz, etc.).

You can assume I will start:

- the bag file in a new terminal
- the map server to save the png image (for the gmapping task)
- call the service to save the image

Deadlines and requested files

File txt must contain (at least):

- ID, name, surname of all team members
- small description of the files inside the archive
- structure of the tf tree
- name of the bag used to create the map and bags to test
- node used for map creation
- description of how to start/use the nodes

- info you think are important/interesting

Some more requests

Insert in the archive all the file you think are important, i should be able to properly recreate your workflow

Name the archive with your ID

Don't use absolute path

DO NOT SEND THE BAG FILE

DO NOT SEND COMPILED FILES

Deadlines and requested files

Deadline: 26 June

Max 3 student for team

Questions:

    -write to me via mail (simone.mentasti@polimi.it)

    - do not write only to Prof. Matteucci

    -ask on Slack