

FIRST ROBOTICS PROJECT

ROBOTICS



POLITECNICO
MILANO 1863

THE CAR



THE PROJECT



- Compute two different odometry:

 - using Differential Drive Kinematics

 - using Ackerman model

and publish both as tf and odom topic

- Use dynamic reconfigure to switch between different published odometry

- Use dynamic reconfigure to reset the odometry to (0,0) or to set to a specific starting point (x,y)

- Publish a custom message with odometry value and type of source

THE DATA



Bag file with:

- left wheel speed (m/s)
- right wheel speed (m/s)
- steering angle (deg)
- other data not useful today

Custom message prototype

Car data:

rear wheels baseline: 130 cm

distance from front to rear wheels:
176.5 cm

steering factor: 18



<https://goo.gl/GonArW>

Project folder



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 and Matteo Matteucci
- name the e-mail “FIRST ROBOTICS PROJECT 2019”
- Inside the archive:
 - txt file (details next slide)
 - folders of the nodes you created (with inside CmakeLists.txt, package.xml, etc...)



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
- name of the parameter to change odometry source/set/reset position
- structure of the tf tree
- structure of the custom message
- 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

The project need to be written using c/c++ (no python code)



Deadlines and requested files

Deadline: 29 May (3 weeks)

Questions:

- write to me via mail (simone.mentasti@polimi.it)
- do not write only to Prof. Matteucci

Slack channel:

https://join.slack.com/t/robotics2019-group/shared_invite/enQtNjE5MTE0NTI1Nzc4LTUzMzIxODY4ZWZjMWZjNjE1Y2NjOTBiOWJhODA4ZDhhOTU3ZjlkODE0ZjRmODhhNmYONjQzNGZkYzE4ODg4ZTM