

NIFTi robot

Capabilities and interface

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NIFTibot

NIFTi robot :

- ▶ Search and Rescue ground robot,
- ▶ compact, autonomous,
- ▶ rich sensor suite,
- ▶ good traversability capabilities.



Structure

Structure :

- ▶ two tracks linked by a differential,
- ▶ four flippers,
- ▶ body with sensors and onboard computer,
- ▶ $70 \times 60 \times 40$ cm,
- ▶ around 20 kg.



Motion capabilities

Motion capabilities :

- ▶ climb stairs up and down,
- ▶ 30 cm steps,
- ▶ 45° slopes,
- ▶ differential for uneven terrain,
- ▶ 0.6 m/s top speed.



Sensor suite

Sensors :

- ▶ Ladybug 3 omnicaamera,
- ▶ rolling Sick LMS 151 laser scanner,
- ▶ XSens MTi-G IMU+GPS
- ▶ tracks, flippers, and differential encoders.



ROS interface

Sensors :

- ▶ `/tf` : position of all the links,
- ▶ `/dynamic_point_cloud` (PointCloud2) : 360° assembled point cloud,
- ▶ `/scan_relay` (LaserScan) : individual laser scan,
- ▶ `/imu/data` (Imu) : imu data,
- ▶ `/viz/pano/image` : panoramic image.

ROS interface

Commands :

- ▶ `/nav2/cmd_vel` (Twist) : velocity command for the tracks,
- ▶ `/flippers_cmd` : position command of all four flippers,
- ▶ `/flipper_cmd` : position command of on flipper.

Thanks for your attention.