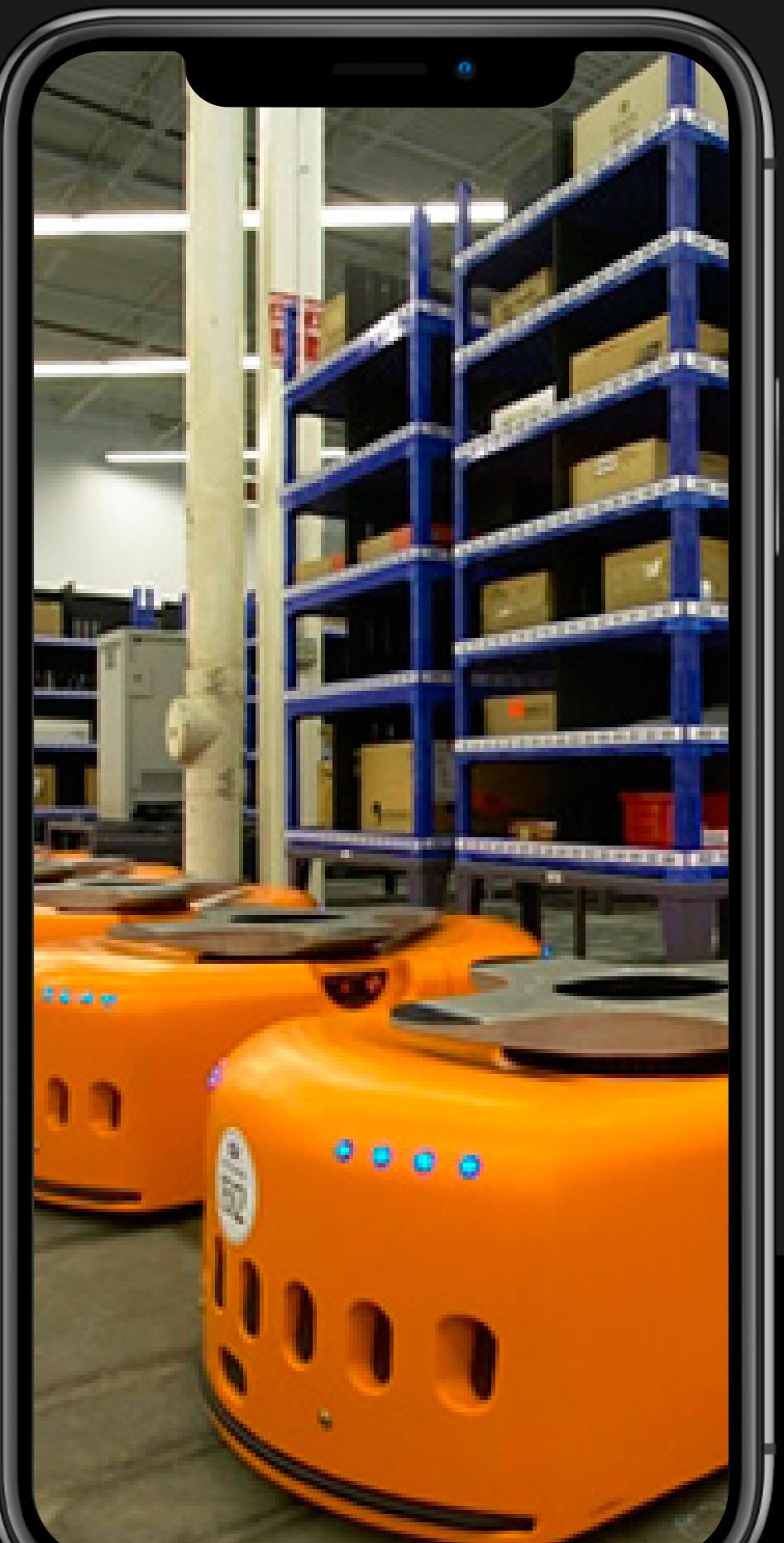


# Introductory lecture on "Case Study Autonomous system"

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# Curriculum

WHAT WE WILL BE DOING IN  
CLASS

- 01 • Ubuntu
- 02 • Docker & git & ROS
- 03 • Robot assembling
- 04 • SLAM
- 05 • Navigation
- 06 • Racing / Final Project

...



# Extensions

WHAT YOU WILL NEED FOR  
EACH CLASS



- 01 • Laptops
- 02 • Ubuntu
- 03 • Docker
- 04 • Git



# What and why Ubuntu?

Talking about Ubuntu



...

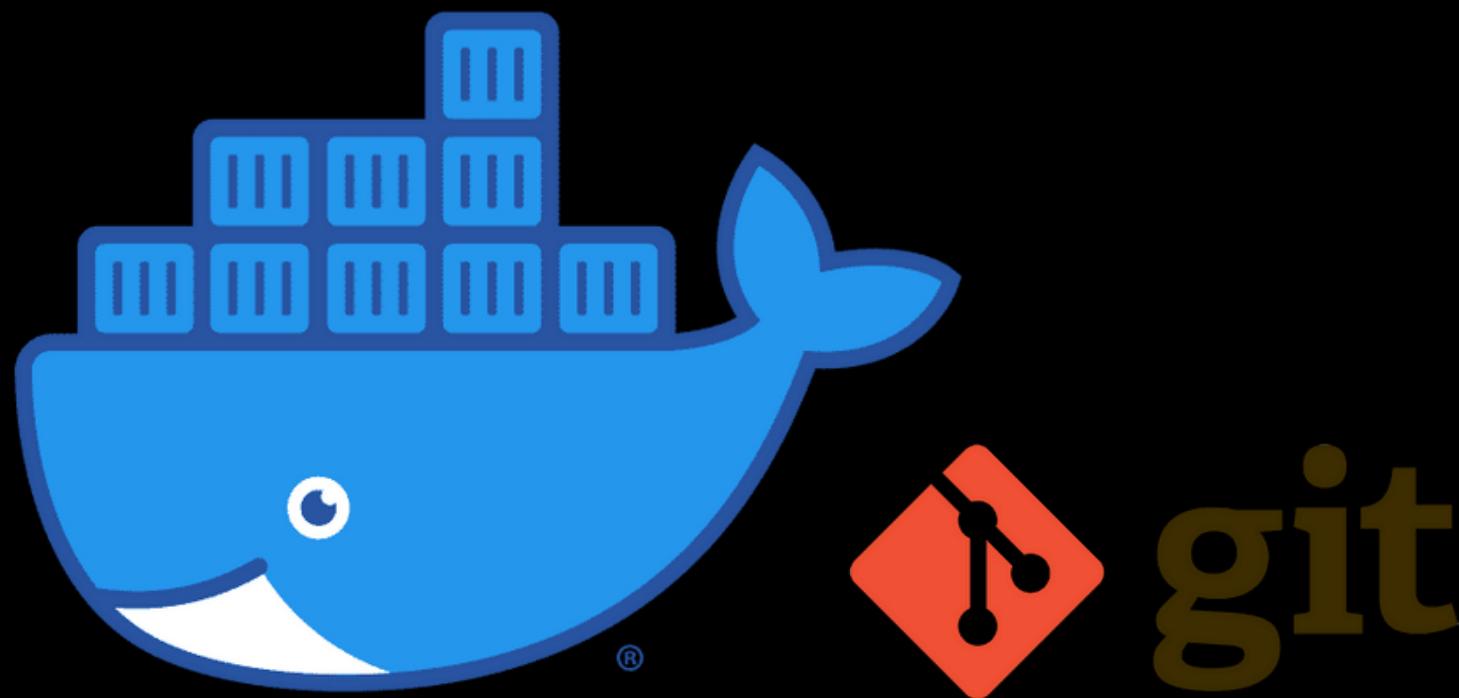
# Ubuntu

Ubuntu is an open-source operating system. For more than a decade, Ubuntu has supported key robotics open-source projects, such as ROS, PX4, Autoware, Open-CV, PCL, and more.



Back to the Themes



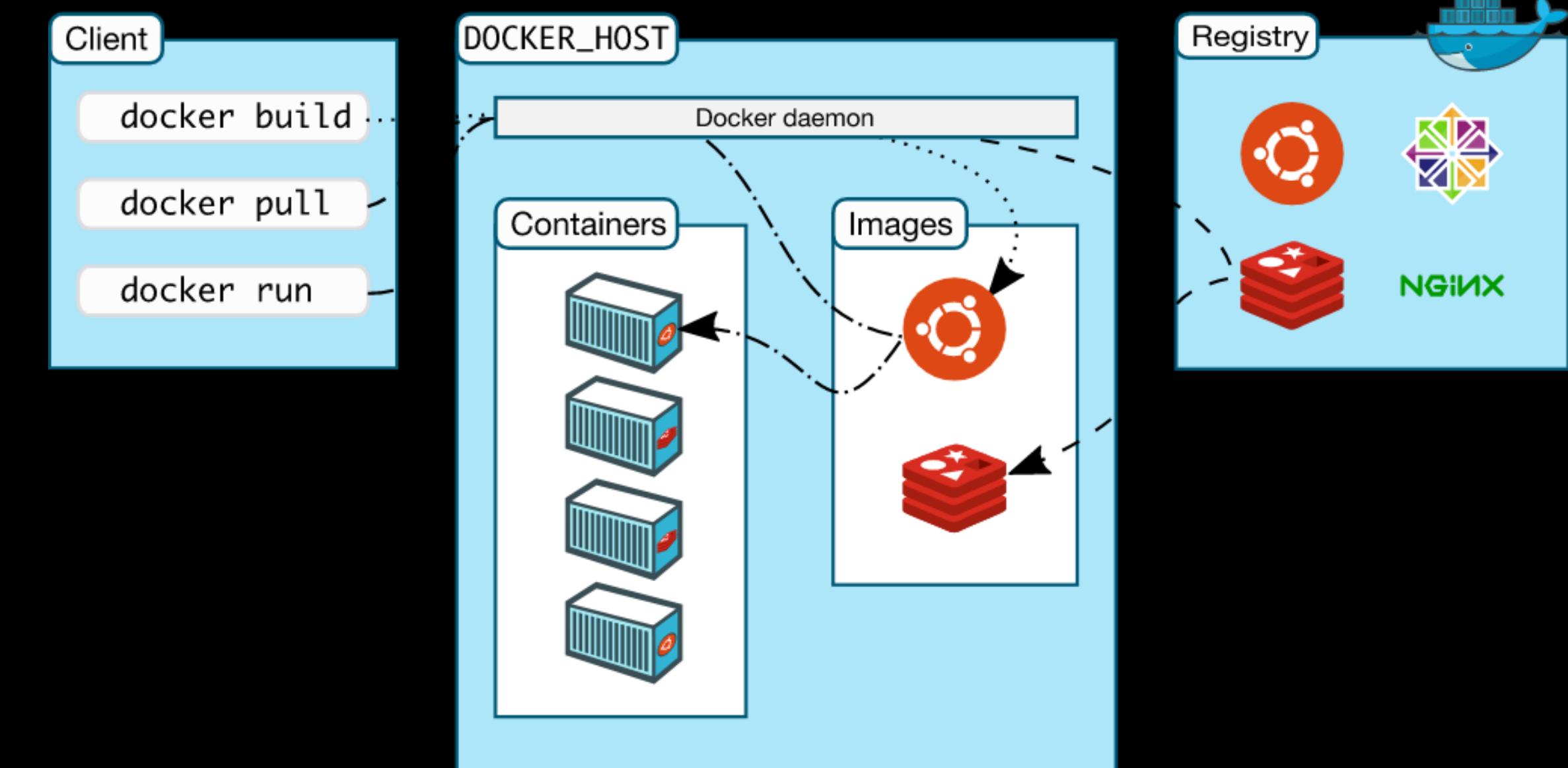


# Docker & git & ROS

as a powerful instrumental

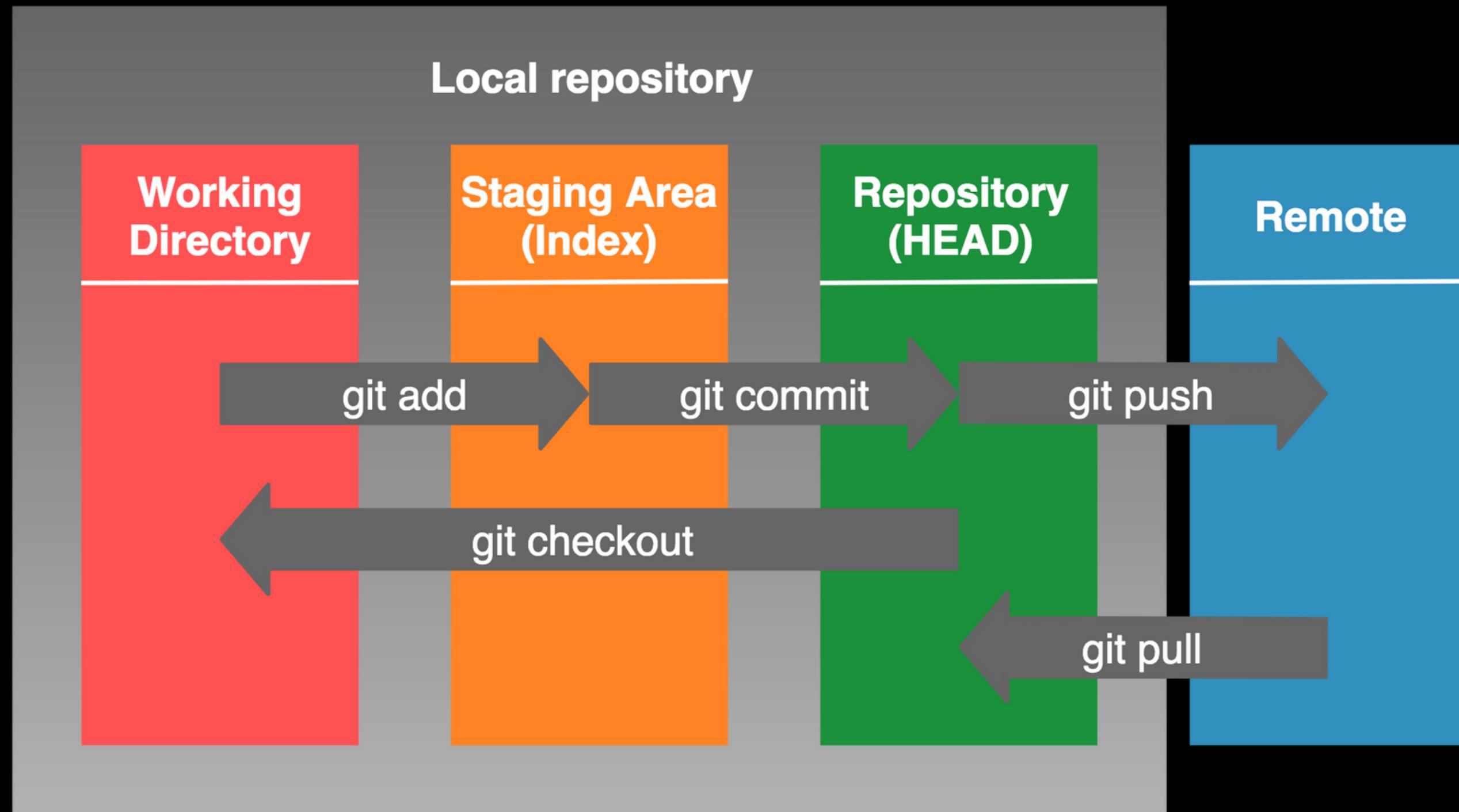
# Docker's architecture

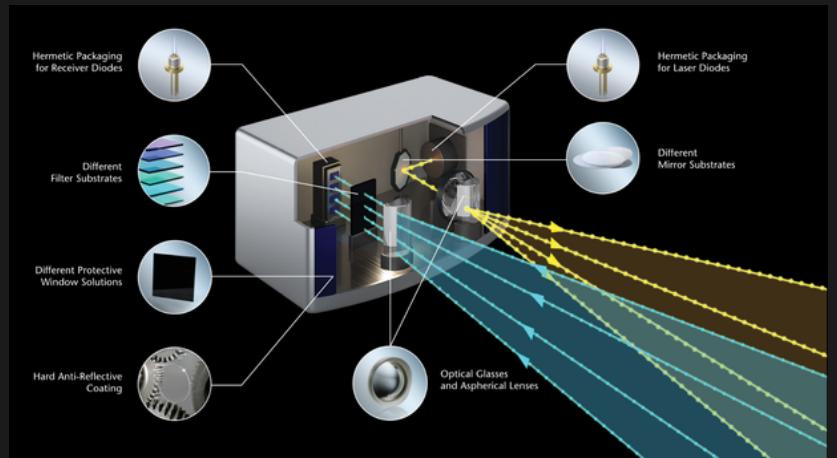
...



# git's architecture

...





## Distance sensor

LRF, ultrasonic sensor, infrared distance sensor



## Vision sensor

Stereo camera, mono camera, omni-directional camera

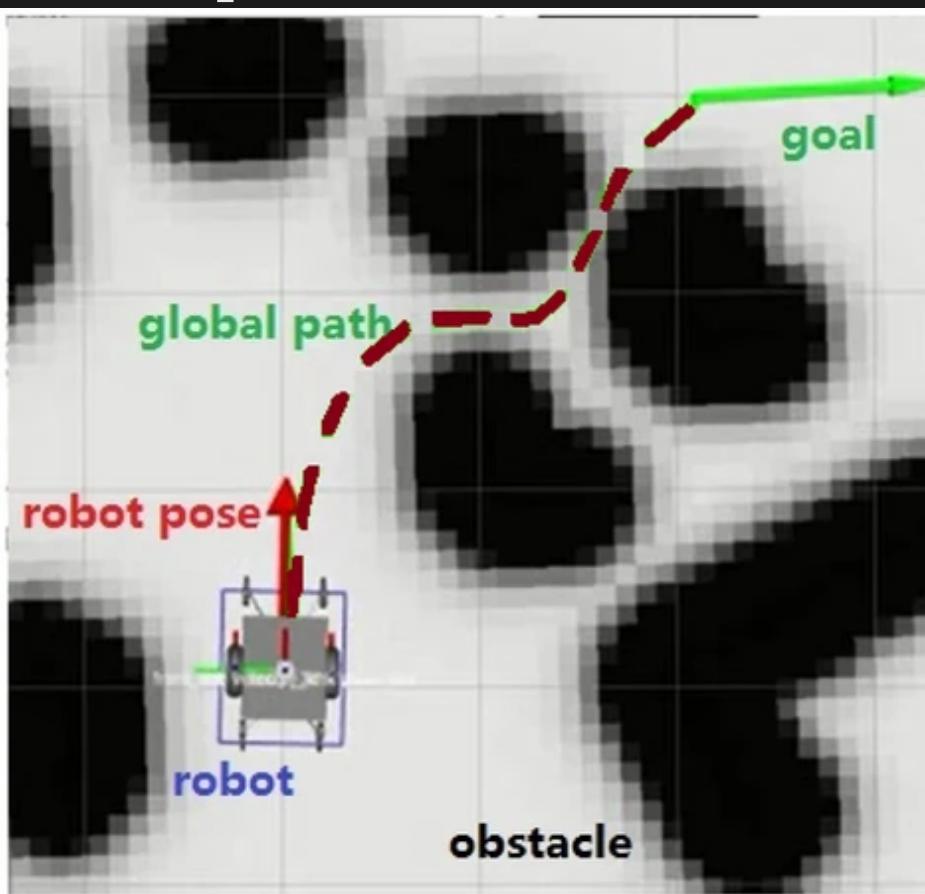


## Depth camera

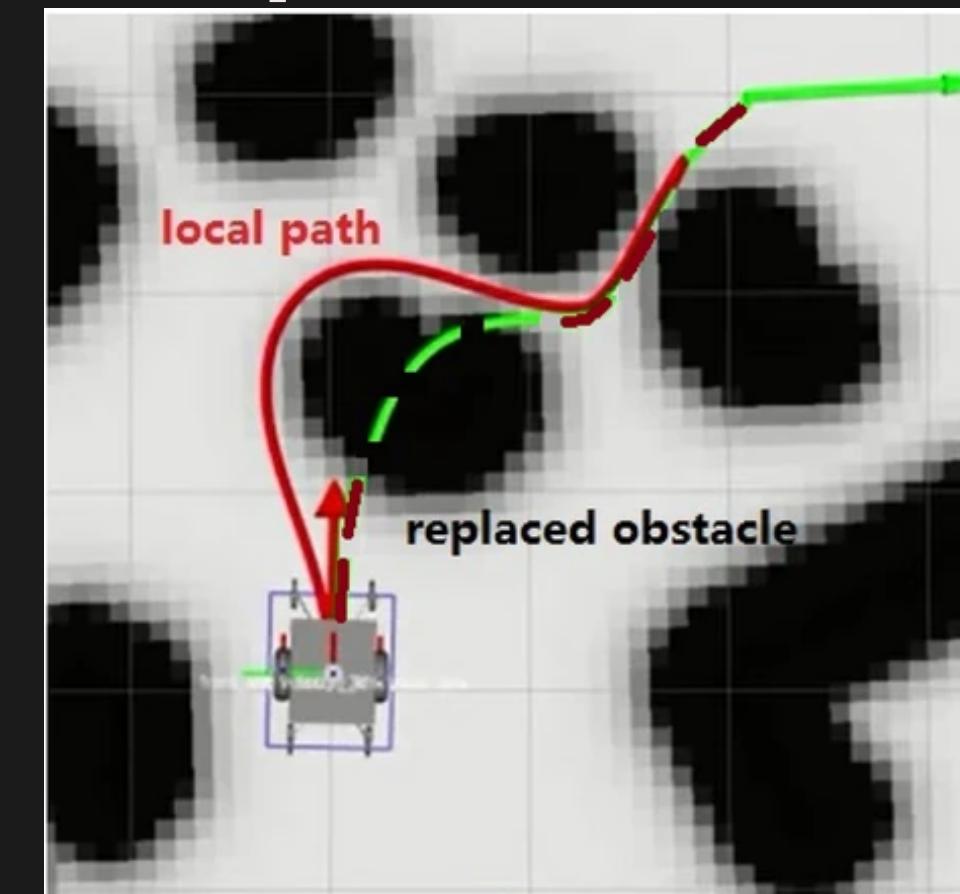
SwissRanger, Kinect-2, RealSense

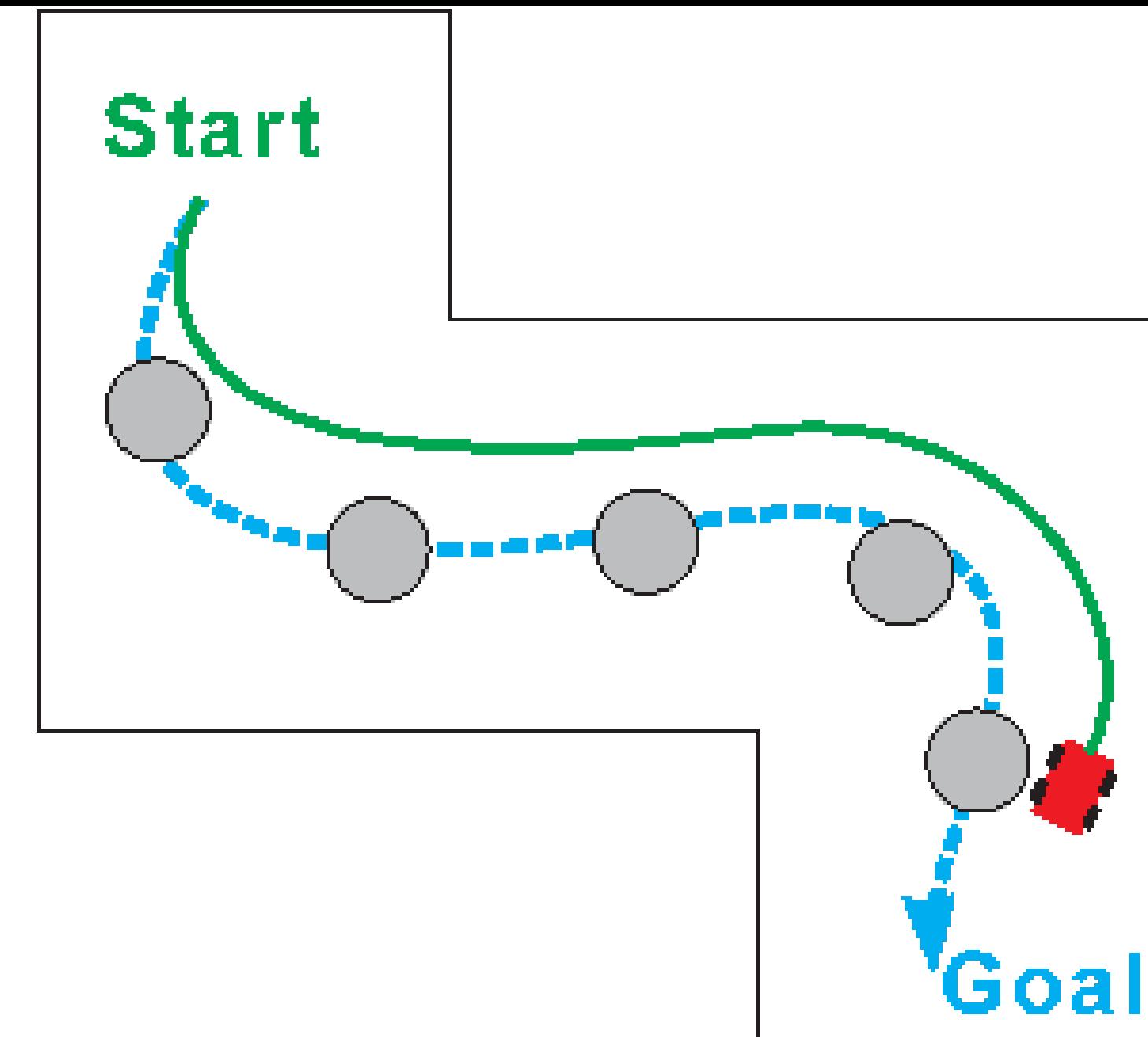


## Global planner

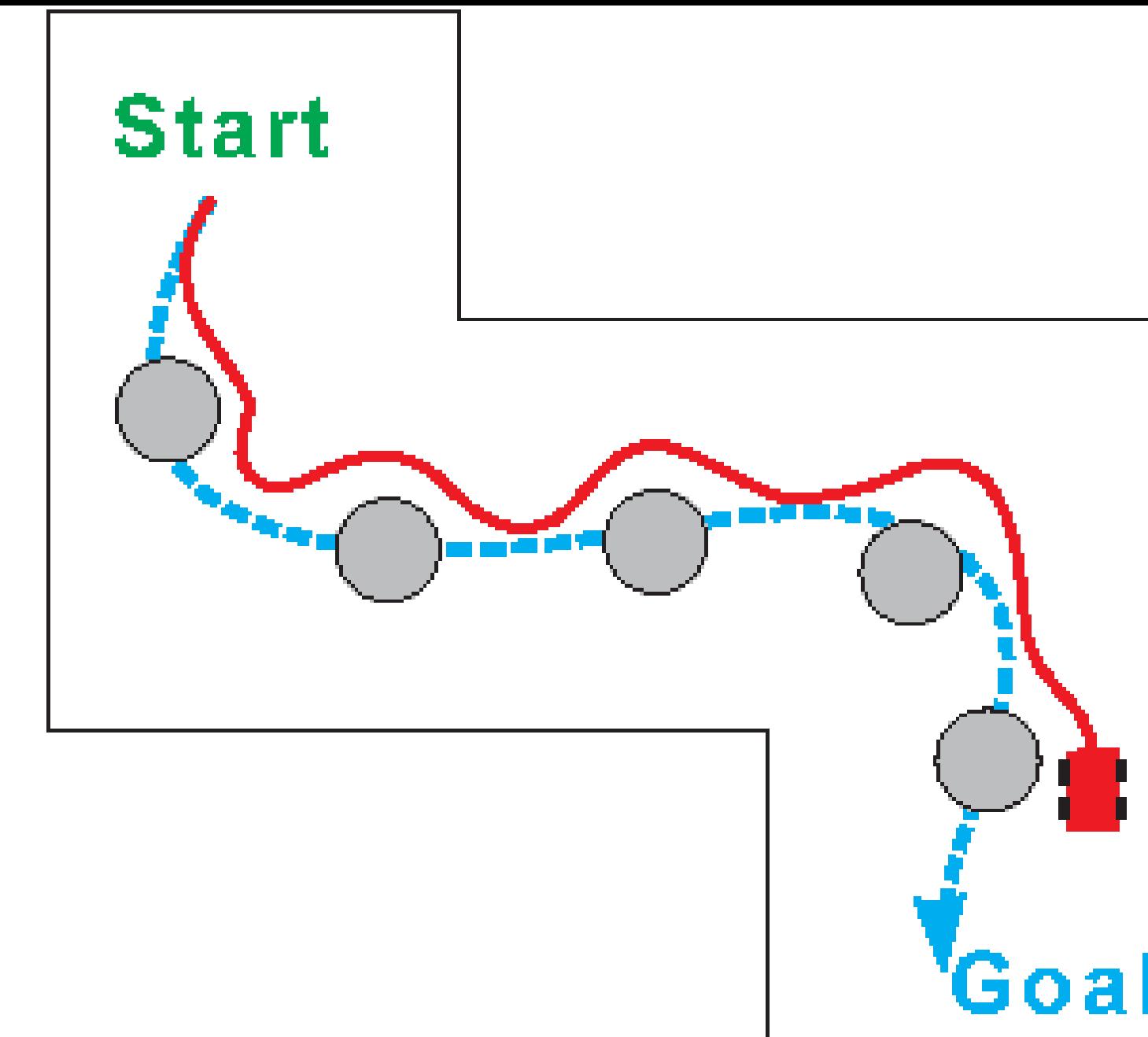


## Local planner





(a)



(b)

Fig. 1. Dashed blue spline is global path: a) Green spline is ideal local path; b) Red spline is actual local path

## Reference

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### TURTLEBOT3 E-MANUAL

<https://emanual.robotis.com/docs/en/platform/turtlebot3/overview/>

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### WIKI ROS

<http://wiki.ros.org/>

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### SLAM GUIDE

<https://github.com/MusubaPy/Awesome-SLAM>

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### GIT GUIDE

Scott Chacon (2014) Pro Git. Retrieved from <https://git-scm.com/book/en/v2>

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### DOCKER GUIDE

<https://docs.docker.com/get-started/overview/>

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