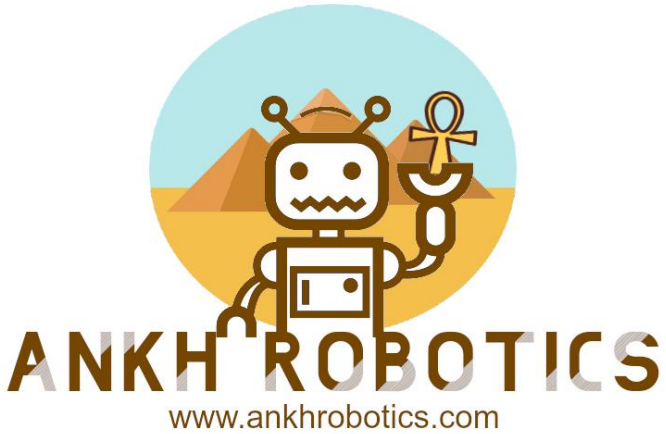

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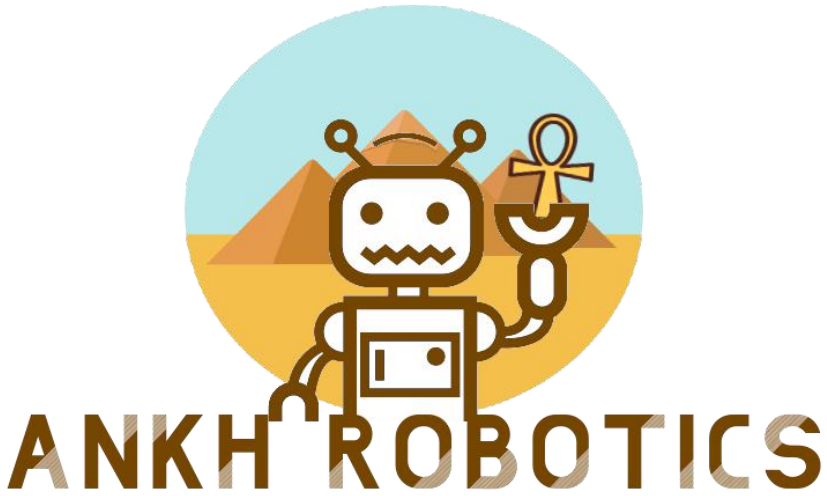
ROS2 Lecture 0



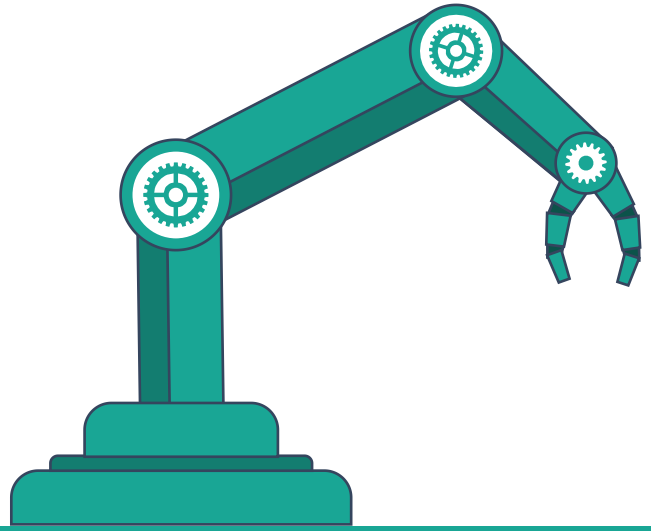
Today's Lecture

01 ROS History

02 Why ROS2

03 Prerequisites

04 Prepare the enviroment



ROS history, and why ROS2?

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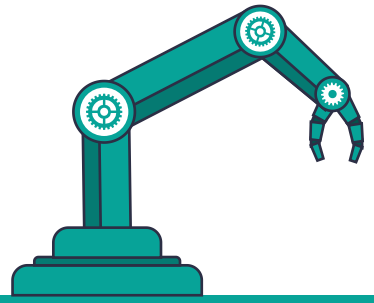
Let’s Start with some cool demos

AutoWare.auto Autonomus Driving Stack

http://youtube.com/watch?v=QcjUo7kcKxo

Let’s Start with some cool demos

Acutronic Robotics: MARA robotic arm.



https://www.youtube.com/watch?v=riJYumT1wNs

Willow Garage

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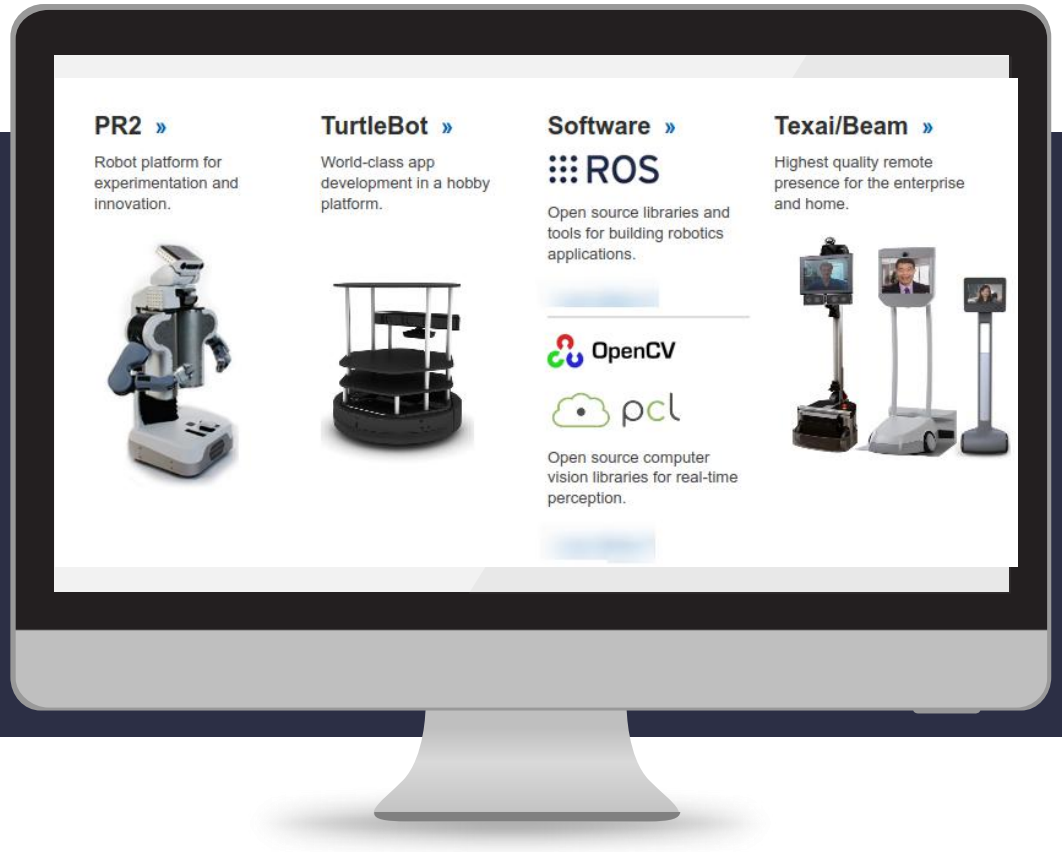
- in 2006, a former Google VP started Willow Garage.
- ROS began life as the development environment for the Willow Garage PR2 robot.
- in 2012 Open Robotics became responsible for the development of ROS



Why ROS2?

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ROS was made for PR2 and guided by it’s use case

Why ROS2?

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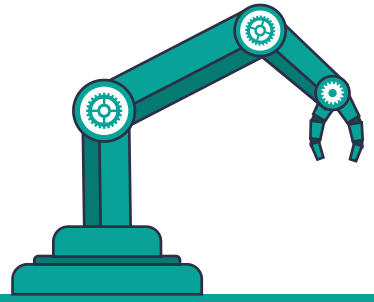
New use cases

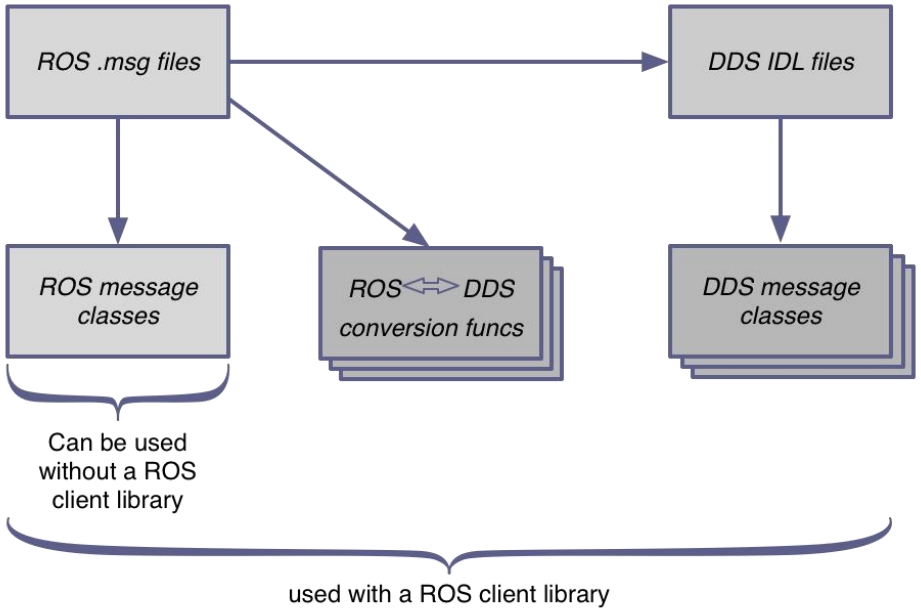
- Small embedded platforms
- Real-time systems
- Non-ideal networks
- Production environments
- Prescribed patterns for building and structuring systems
- Teams of multiple robots

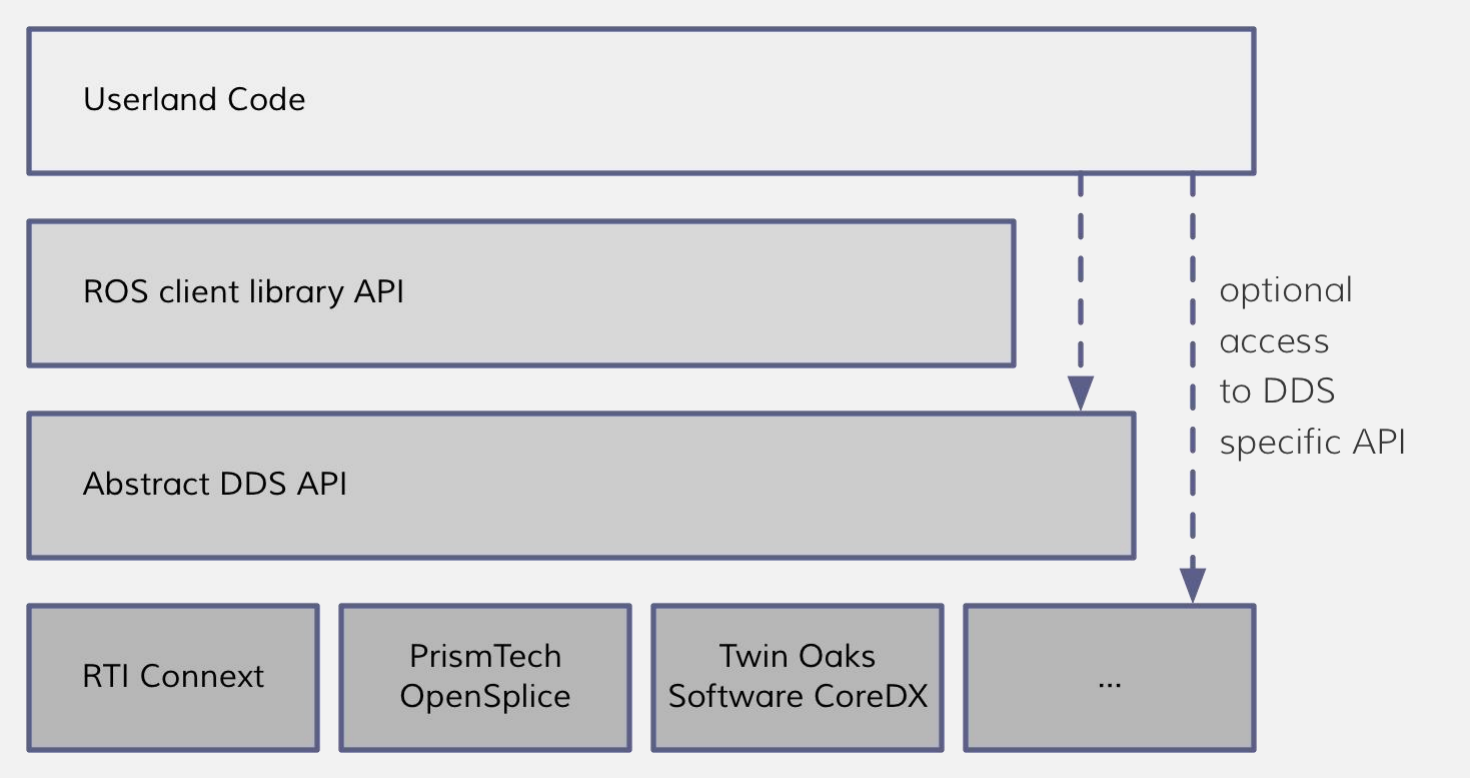


New technologies

- It is now possible to build a ROS-like middleware system using off-the-shelf open source libraries.
- maintain less code, especially non-robotics-specific code
- take advantage of features in those libraries that are beyond the scope of what we would build ourselves
- benefit from ongoing improvements that are made by others to those libraries
- can point to existing production systems that already rely on those libraries when people ask us whether ROS is “ready for prime time”.

Data Distribution Service (DDS)





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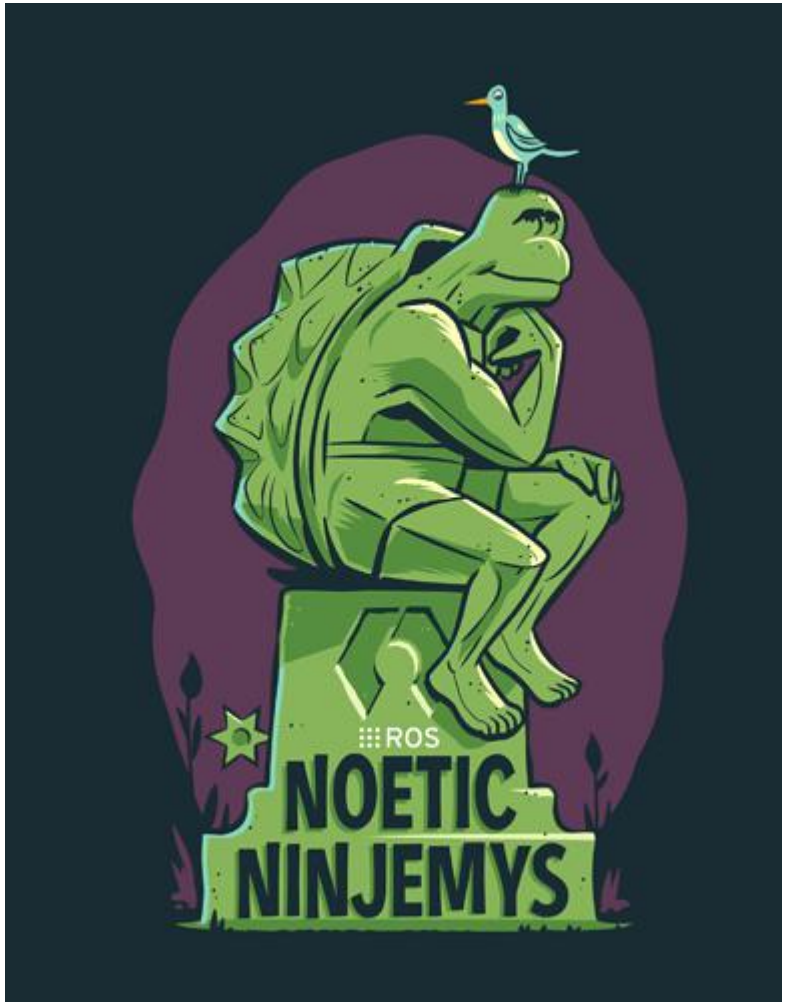
Noetic Ninjemys: The Last Official ROS 1 Release



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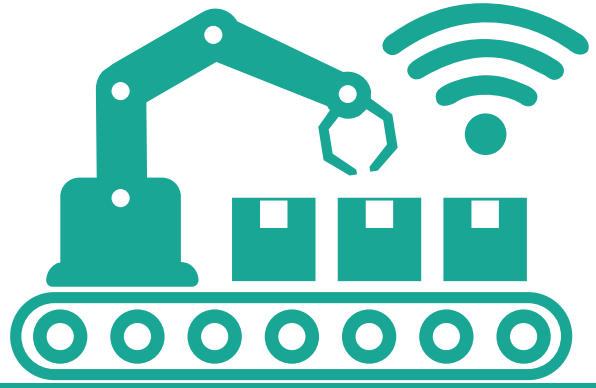

Prerequisites

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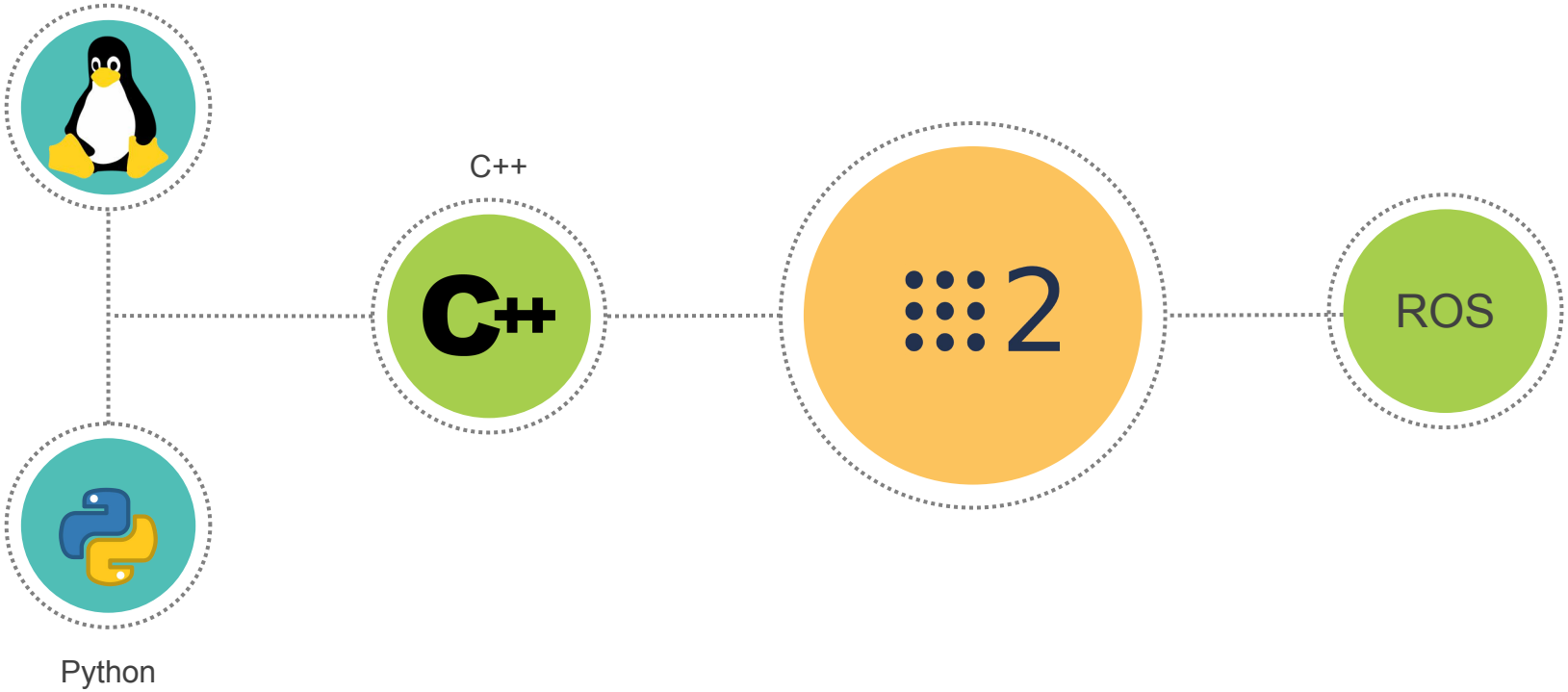
Prerequisites

Basics of linux command line.



Shwyt Linux, Shwyt Python, Shwyt ROS, w shwyt C++ Kootar awwiii

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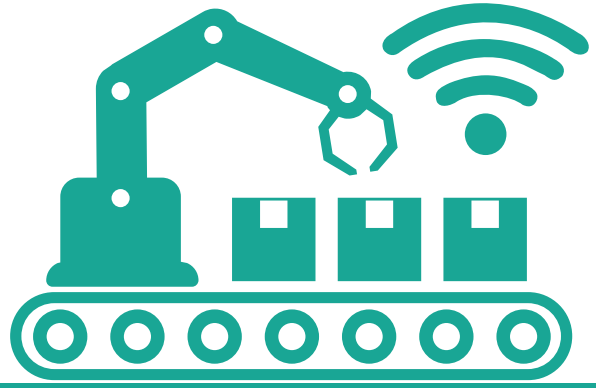

Preparing the Environment

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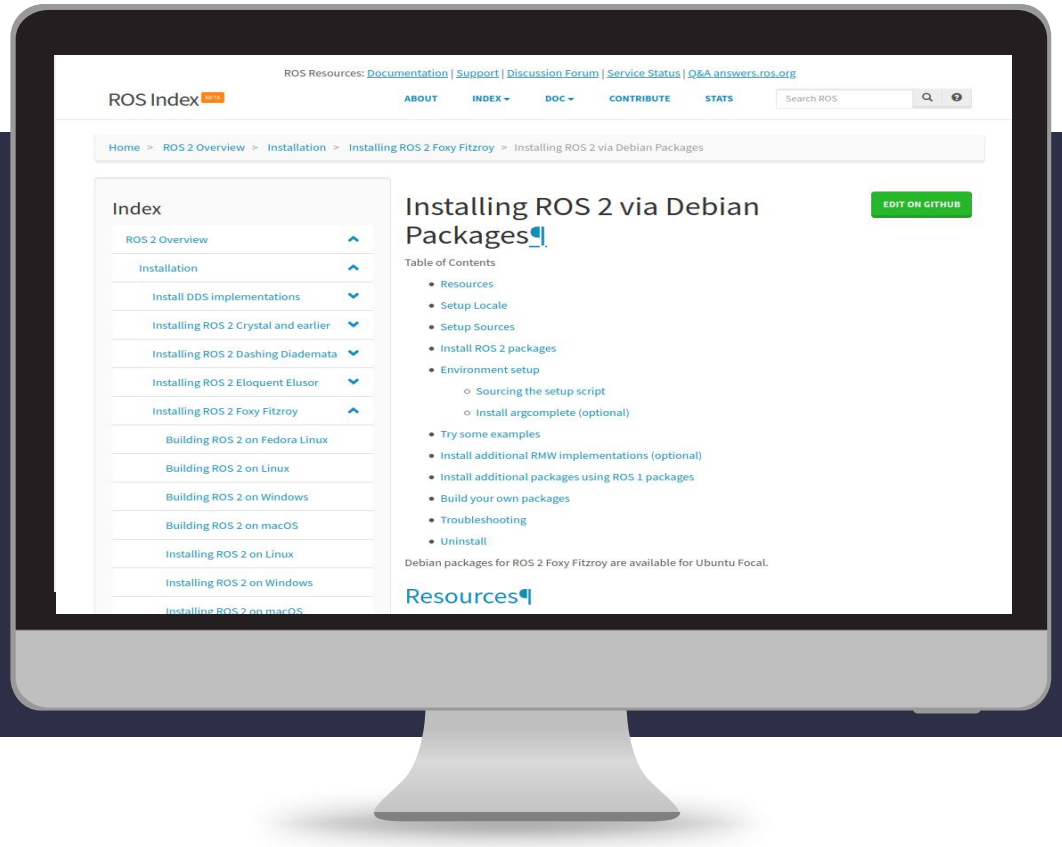
Installing ROS2

Ubuntu 18.04 -> Dashing Diademata

Ubuntu 20.04 -> Foxy Fitzroy

You can use docker -> docker pull osrf/ros:dashing-desktop



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Lets Run the Great Turtle simulation

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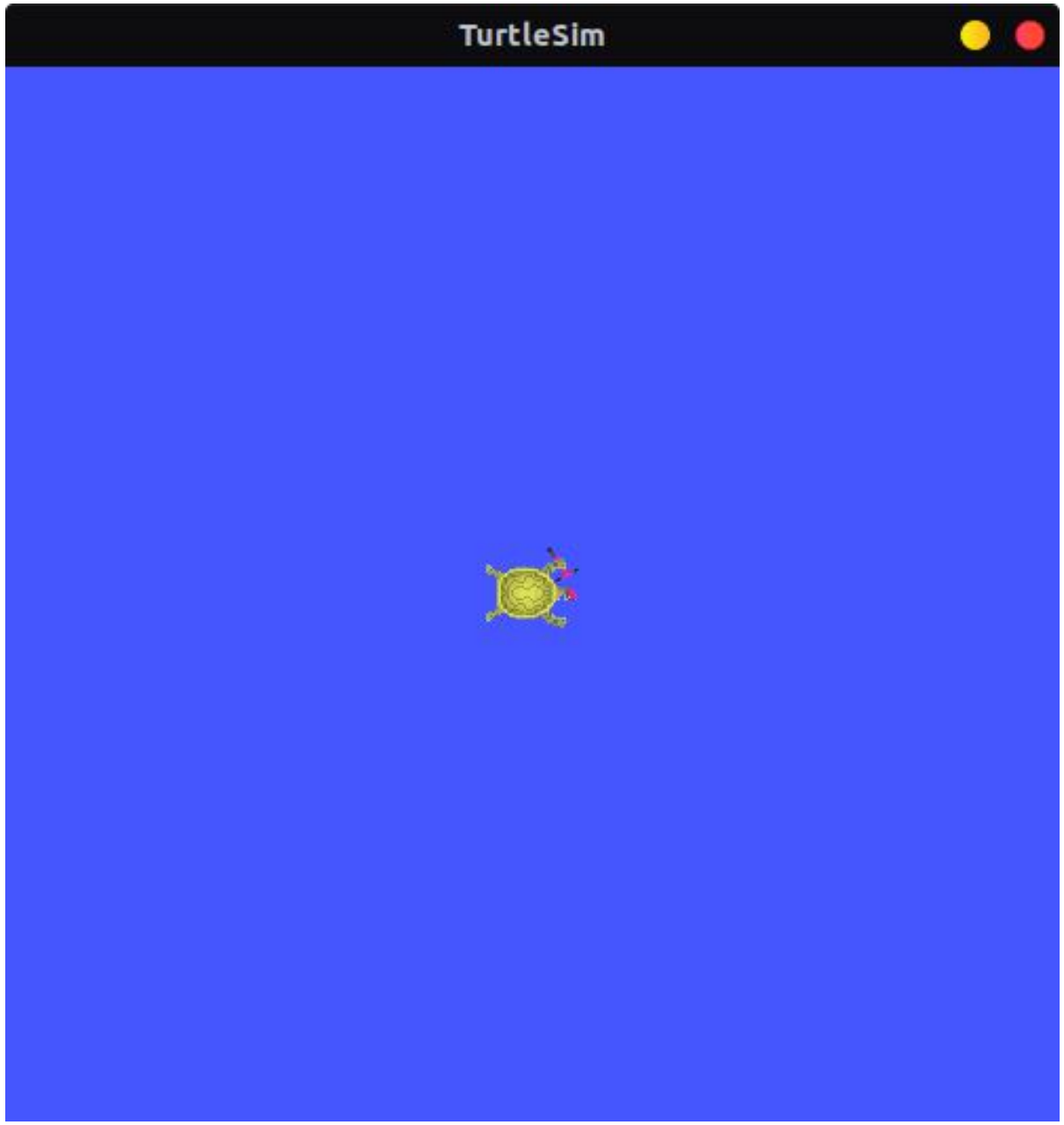
```
:~$ source /opt/ros/dashing/setup.bash
:~$ sudo apt update
:~$ sudo apt install ros-dashing-turtlesim
:~$ sudo apt install ros-dashing-rqt-*
```

```
:~$ source /opt/ros/dashing/setup.bash
:~$ ros2 run turtlesim turtlesim_node
```

```
:~$ source /opt/ros/dashing/setup.bash
:~$ ros2 run turtlesim turtle_teleop_key
```



Final Note.

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Thank You