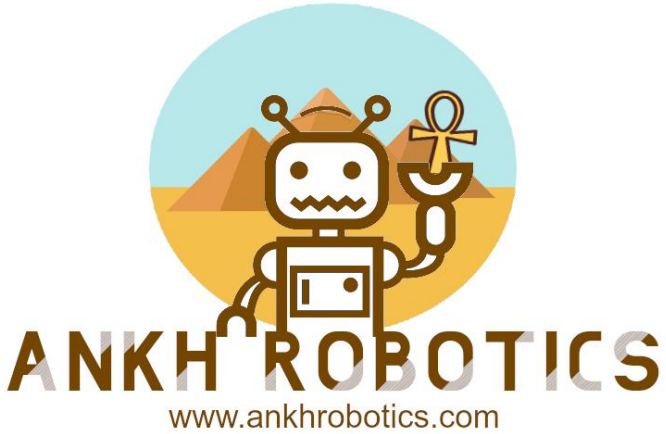
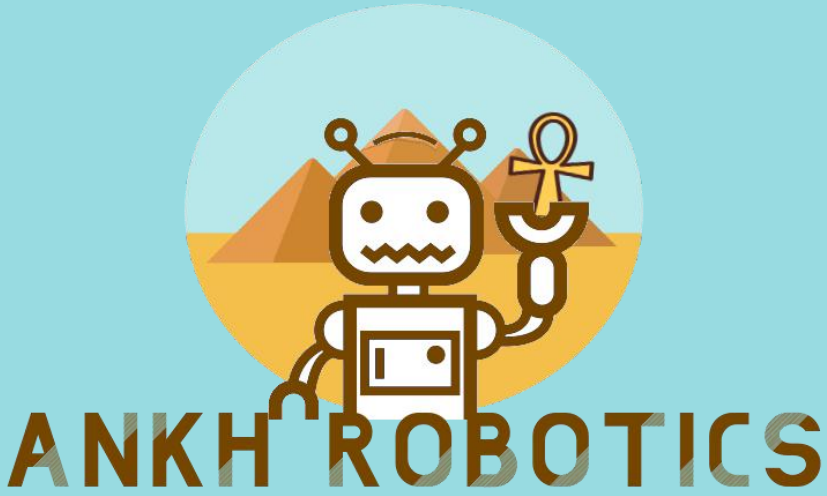



# ROS2 Lecture 0

# Today's Lecture

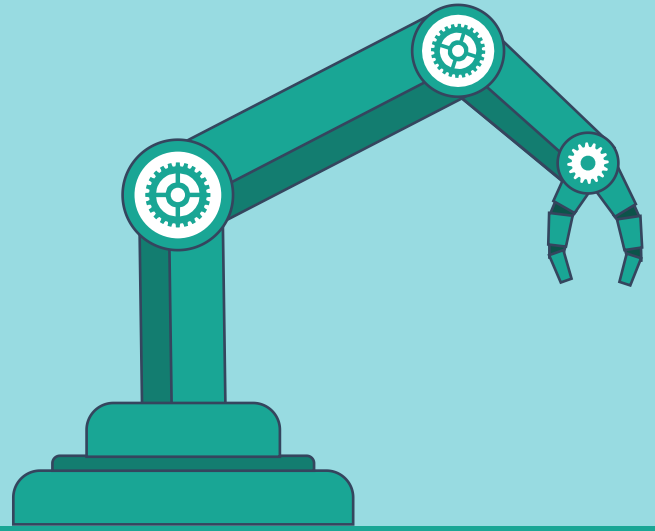



01 ROS History

02 Why ROS2

03 Prerequisites

04 Prepare the enviroment



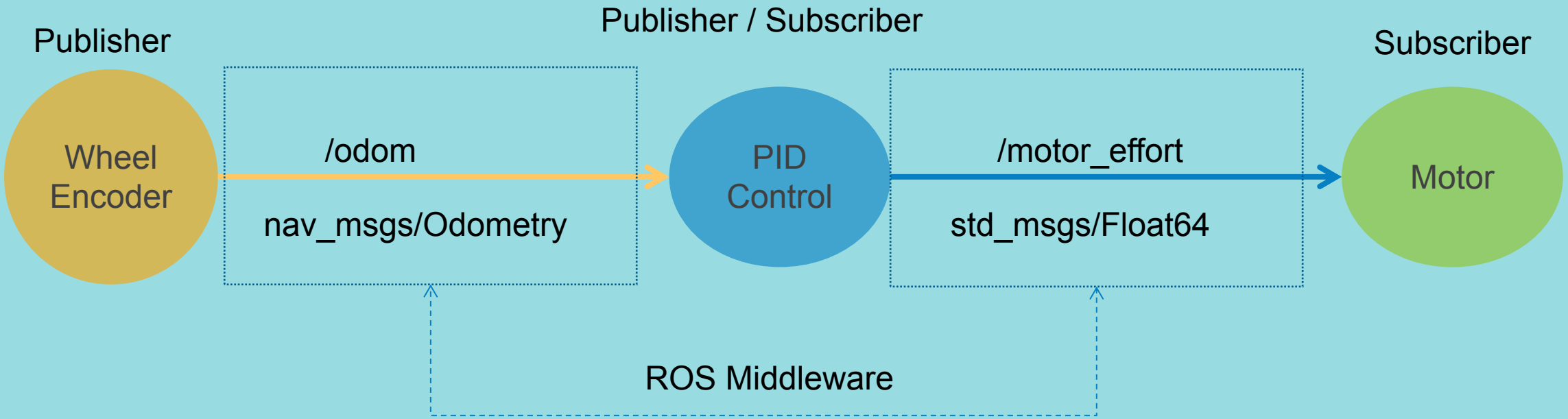
# 0.1. ROS history

ANKH ROBOTICS

Let’s Start with some cool demos

## AutoWare.auto Autonomus Driving Stack

https://www.youtube.com/watch?v=QcjUo7kcKxo



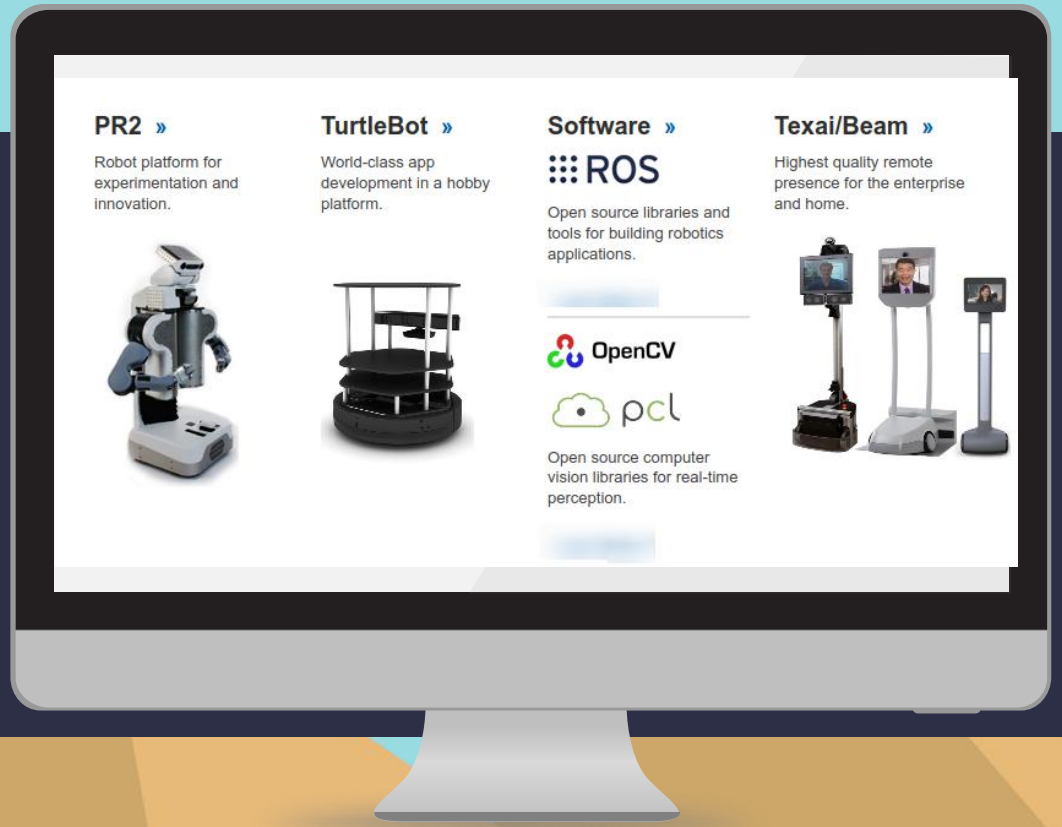

- **ROS Nodes**
- **ROS Messages**
- **ROS Topics**
- **Publisher**
- **Subscriber**

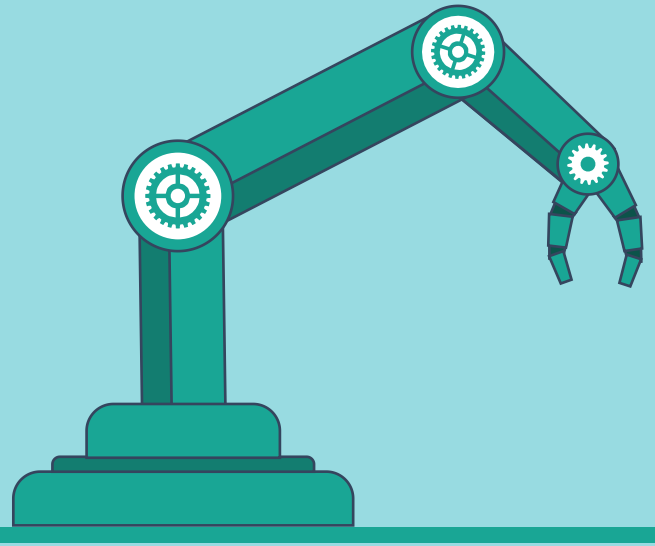
ANKH ROBOTICS

# Willow Garage

ANKH ROBOTICS

- 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





# 0.2. Why ROS2?

ANKH ROBOTICS

# Why ROS2?

ANKH ROBOTICS

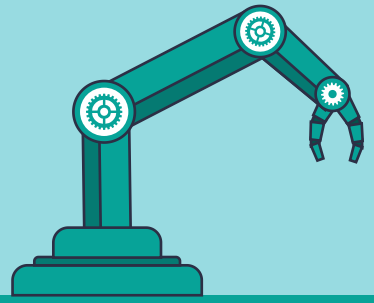
**ROS was made for PR2 and guided by it’s use case**

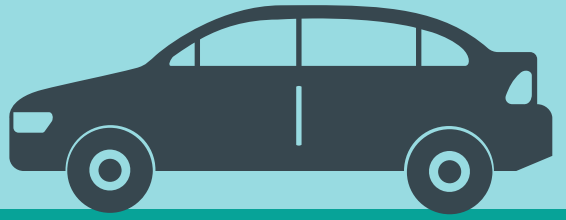
# Why ROS2?

ANKH ROBOTICS

New use cases

- Small embedded platforms
- Real-time systems
- Non-ideal networks
- Production environments
- Teams of multiple robots

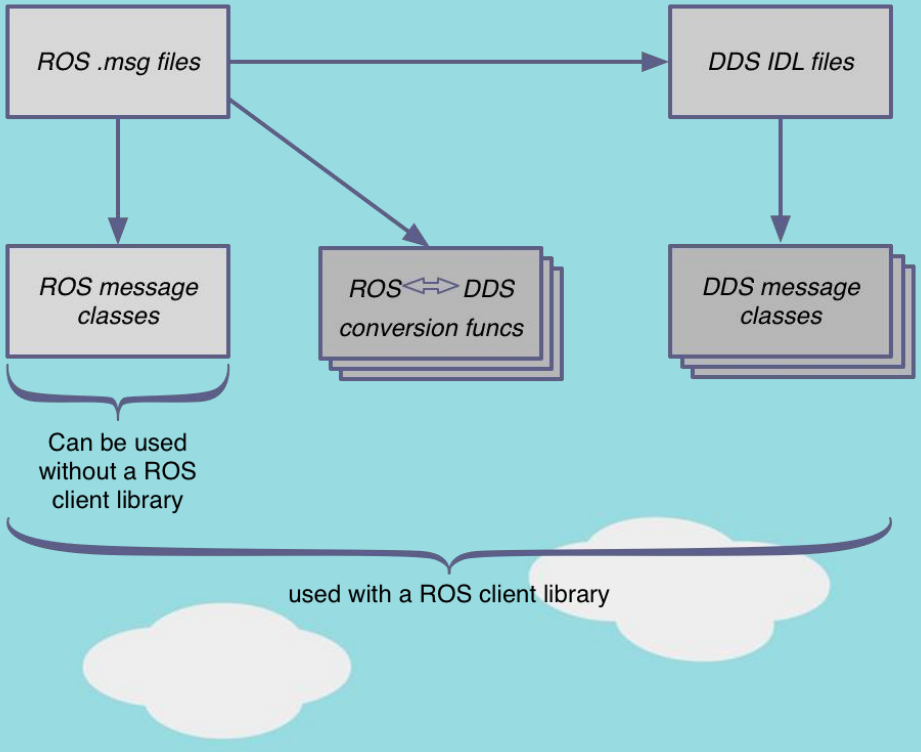


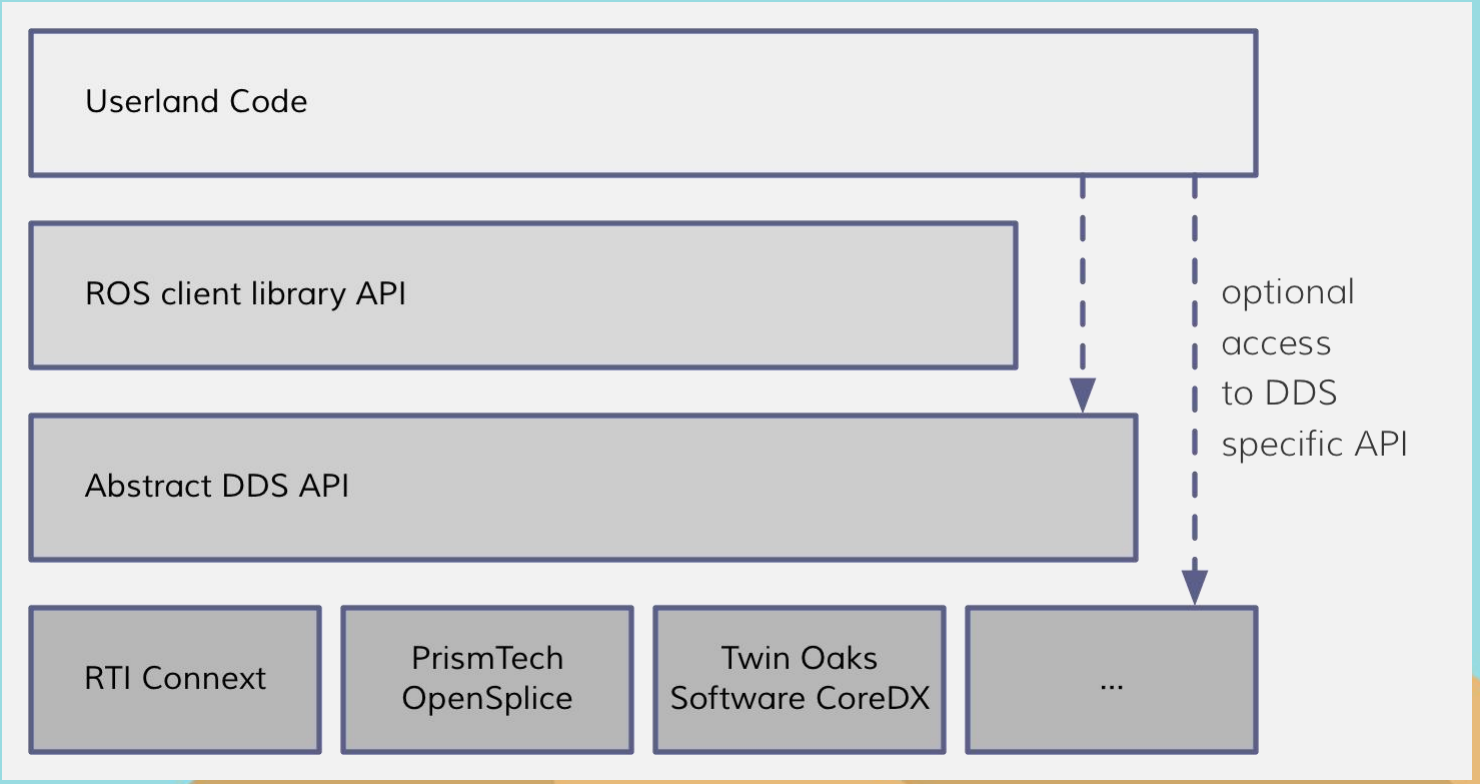


New technologies

- 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”.

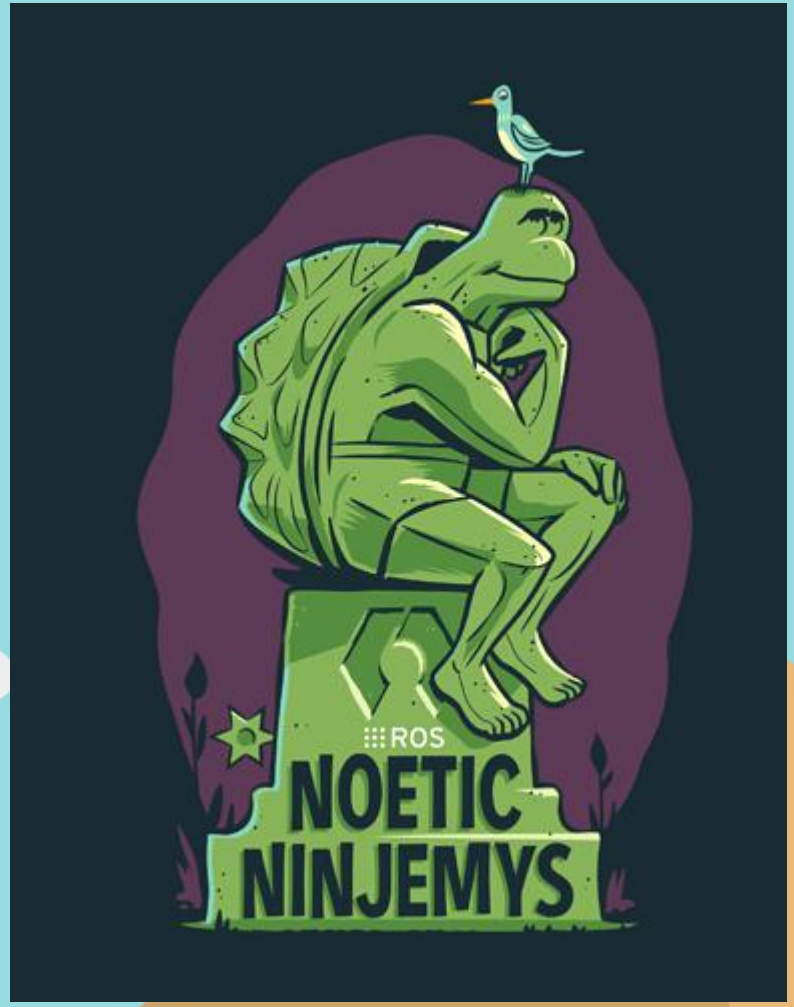
# Data Distribution Service (DDS)



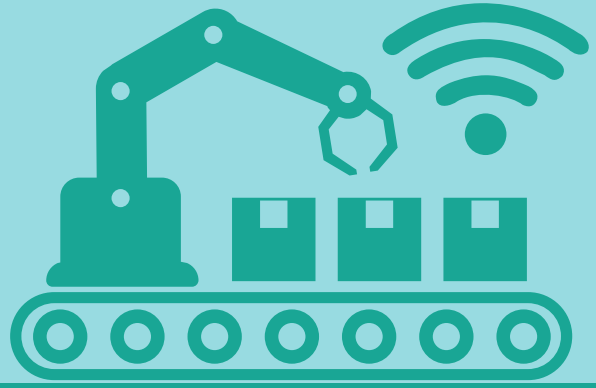




ANKH ROBOTICS

# Noetic Ninjemys: The Last Official ROS 1 Release




ANKH ROBOTICS



# 0.3. Prerequisites

ANKH ROBOTICS

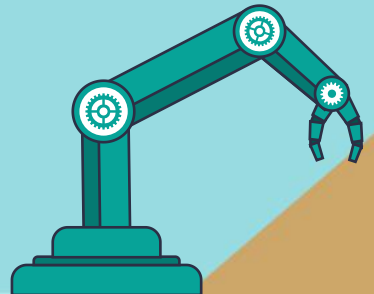
# Prerequisites

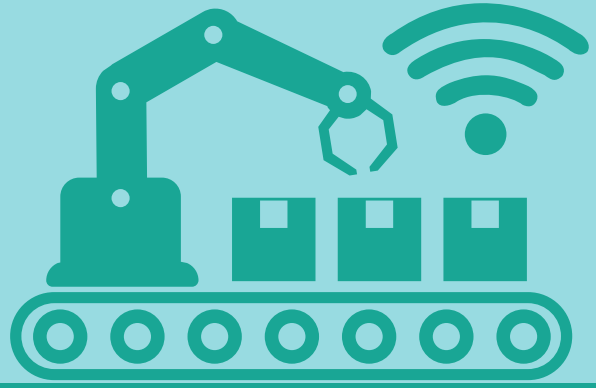
ANKH ROBOTICS

C++

ROS

2





# 0.4. Preparing the Environment

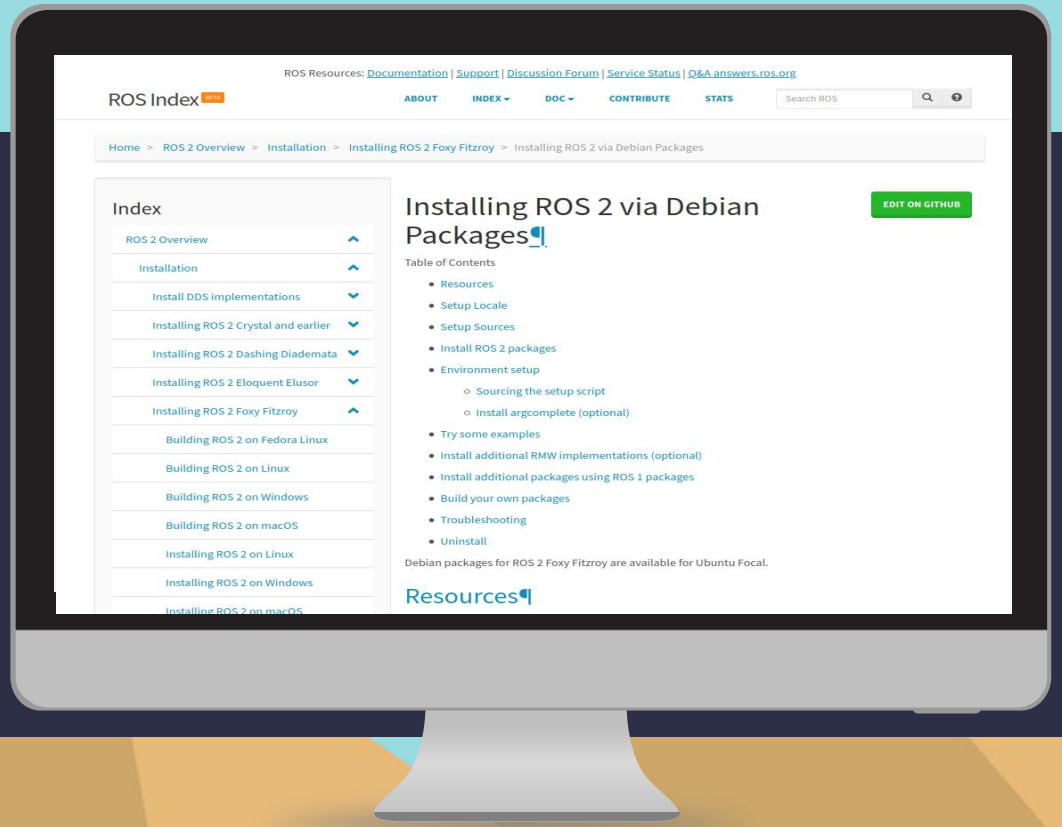
ANKH ROBOTICS

# Installing ROS2

Ubuntu 18.04 -> Dashing Diademata

Ubuntu 20.04 -> Foxy Fitzroy

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




ANKH ROBOTICS

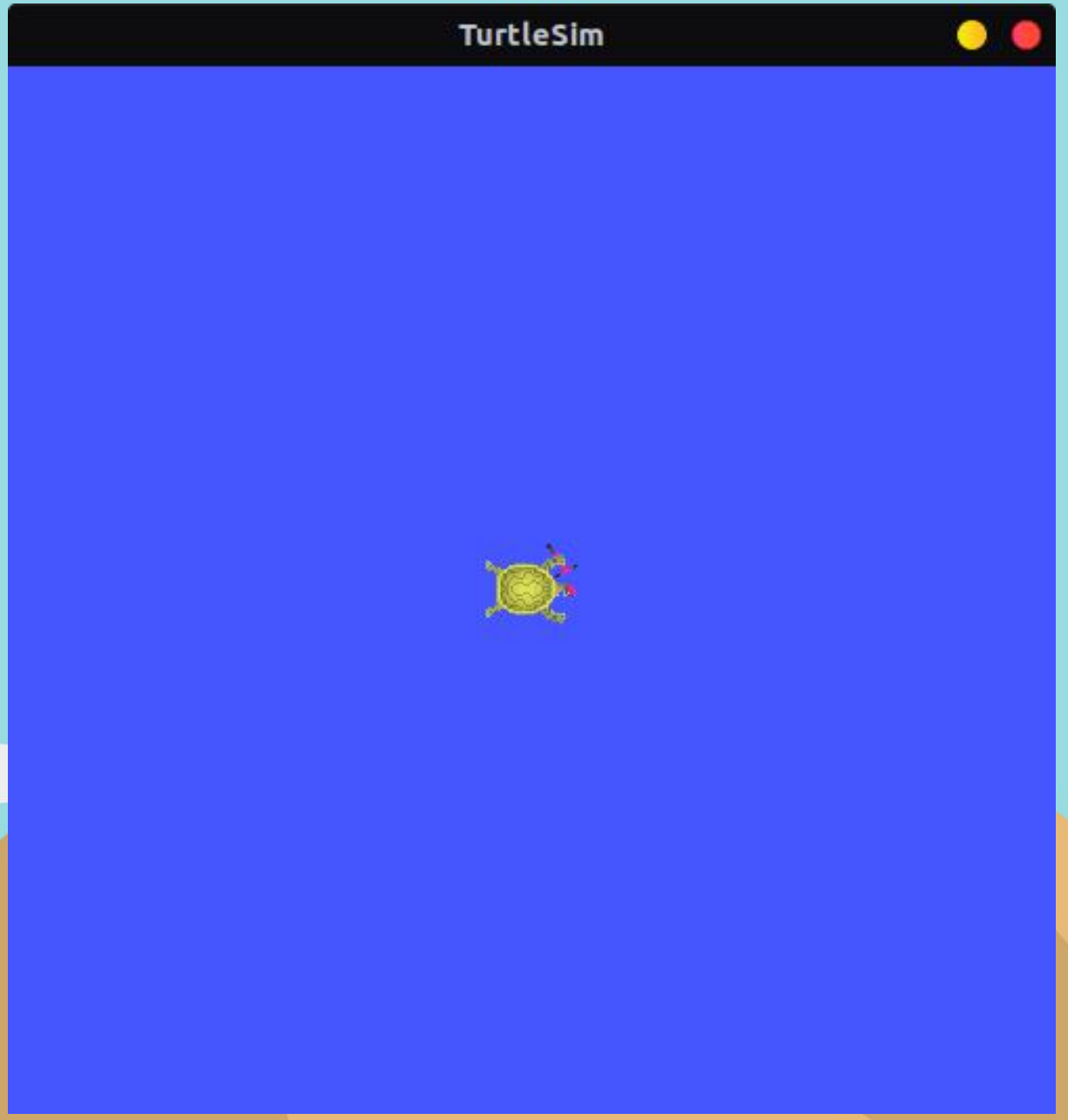
# Lets Run the Great Turtle simulation

ANKH ROBOTICS

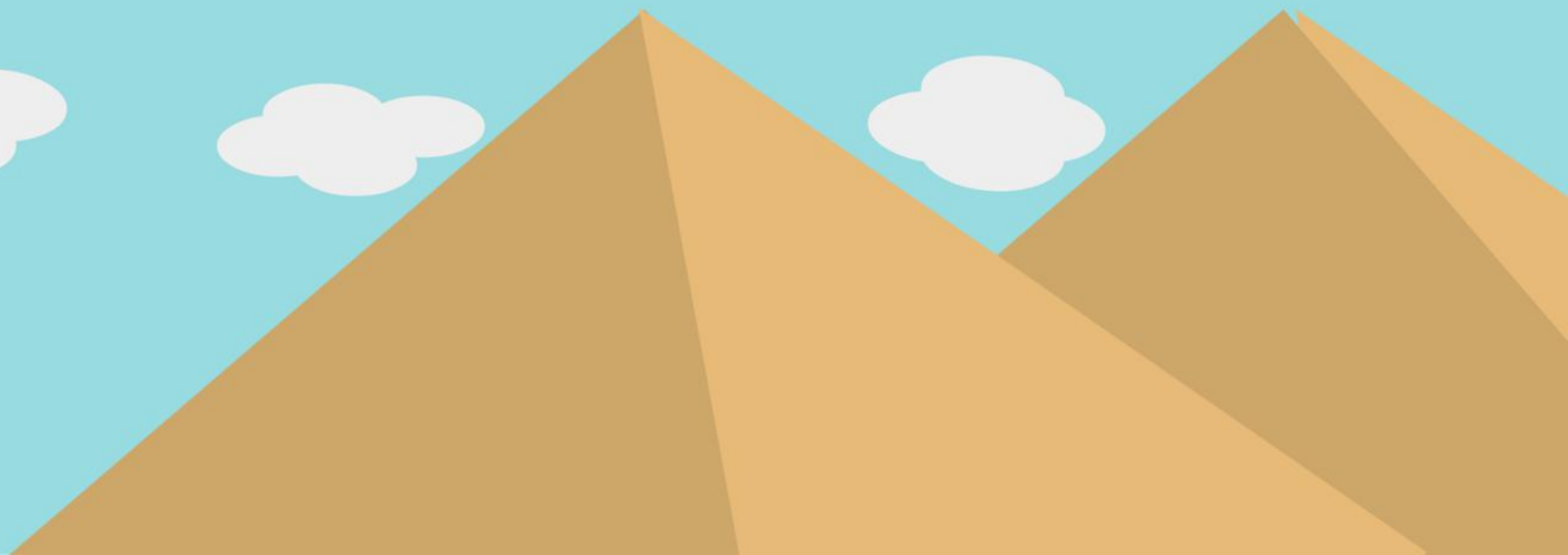
```
:~$ source /opt/ros/dashing/setup.bash
:~$ sudo apt update
:~$ sudo apt install ros-dashing-turtlesim
:~$ sudo apt install ros-dashing-rqt-*
```

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

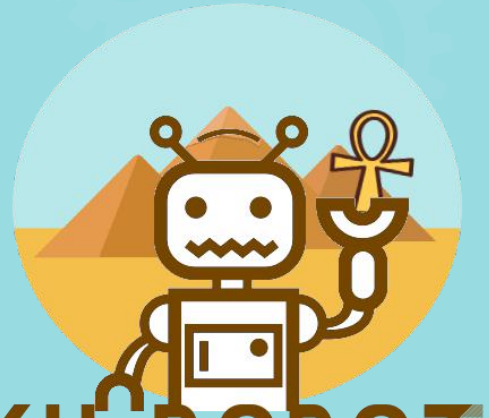
```
:~$ source /opt/ros/dashing/setup.bash
:~$ ros2 run turtlesim turtle_teleop_key
```



# Final Note.



ANKH ROBOTICS



ANKH ROBOTICS

# Thank You