Sprint 1

Package Delivery Robot in Apartment

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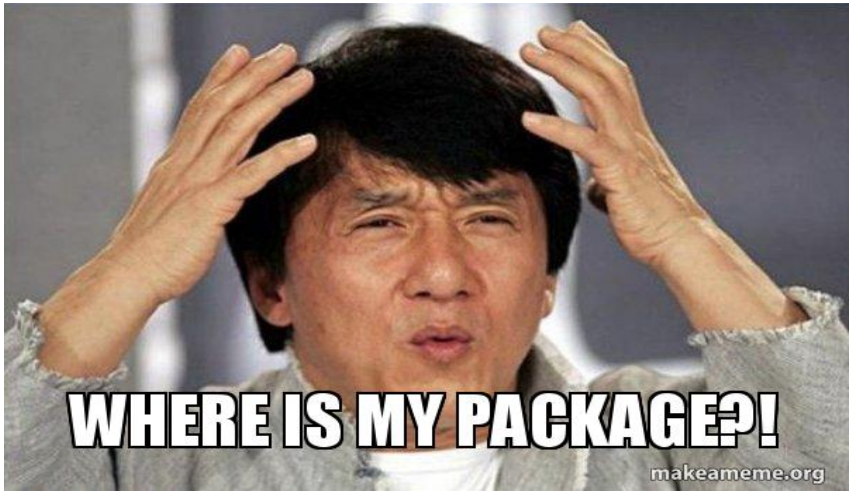
Outline

- Product Mission
- Potential Users
- Literature Review
- User Strory
- Minimum Valuable Product (MVP)
- Techonology & Development Environment

- What to solve → Package Receiving Problem

- Why solve it → Packages in the mail room mistaken by others

210 million packages were stolen from Americans in 2021: report



- Everyone who has the demand for receiving packages.
  - Focus on apartments → Normally have a mail room.

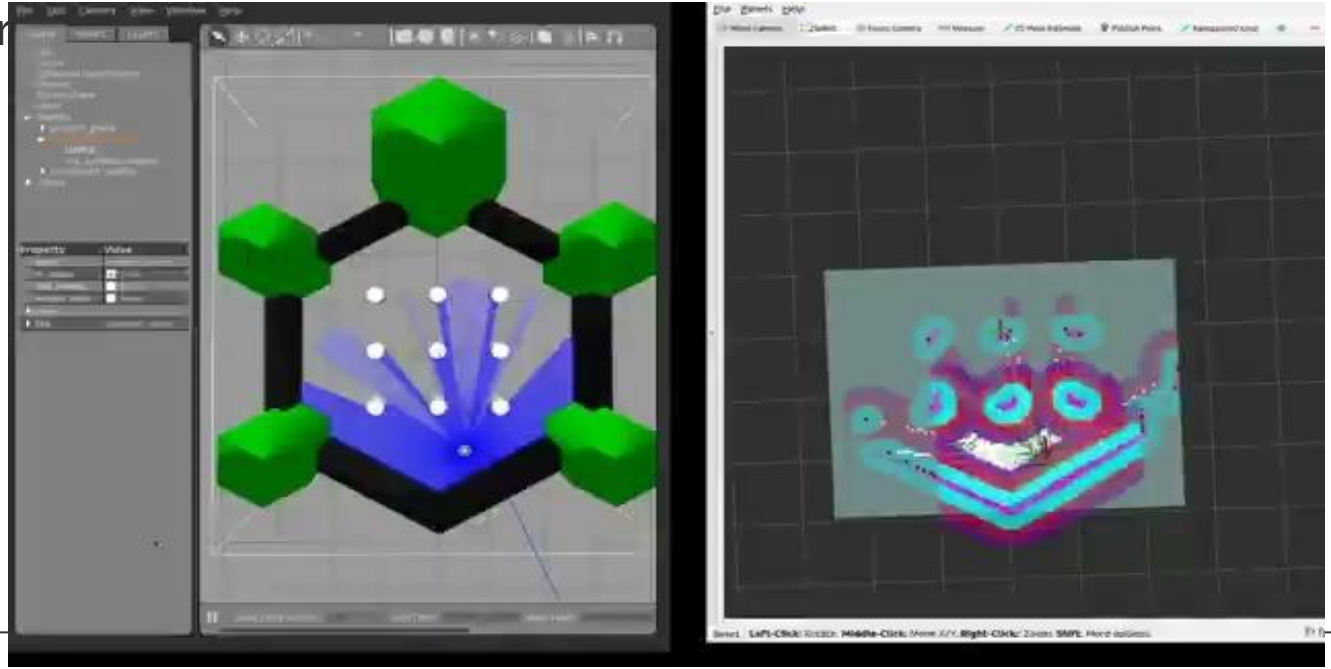
Actual Robot used in a hotel in Singapore

- As an apartment resident, I want to have an app that can deliver my packages to my door by just tapping the user interface and schedule when the packages will be sent at my door
- Because the packages sometimes mistaken by others, we may need a delivery robot that can read the personal infomation of the packages and classify them correctly.

Image Credits: Fedex

- As developer, collecting the data of the working environments as much as possible is required.
- Maintain the robot is an issue, so avoid the robot to bump into obstacles to cause damaged plays an important role.

- Short demo in ROS 2. Control the turtlebot to navigate in a simple envir



- Robot Operation System（ROS）
- There are ROS1 & ROS 2. Why ROS 2 ？

	Numbers of robots	Platform	Real-time performance	Stability
ROS 1	Single	Linux	Lack of support	Not good
ROS 2	Multiple	OS, Windows, Linux	Support	better

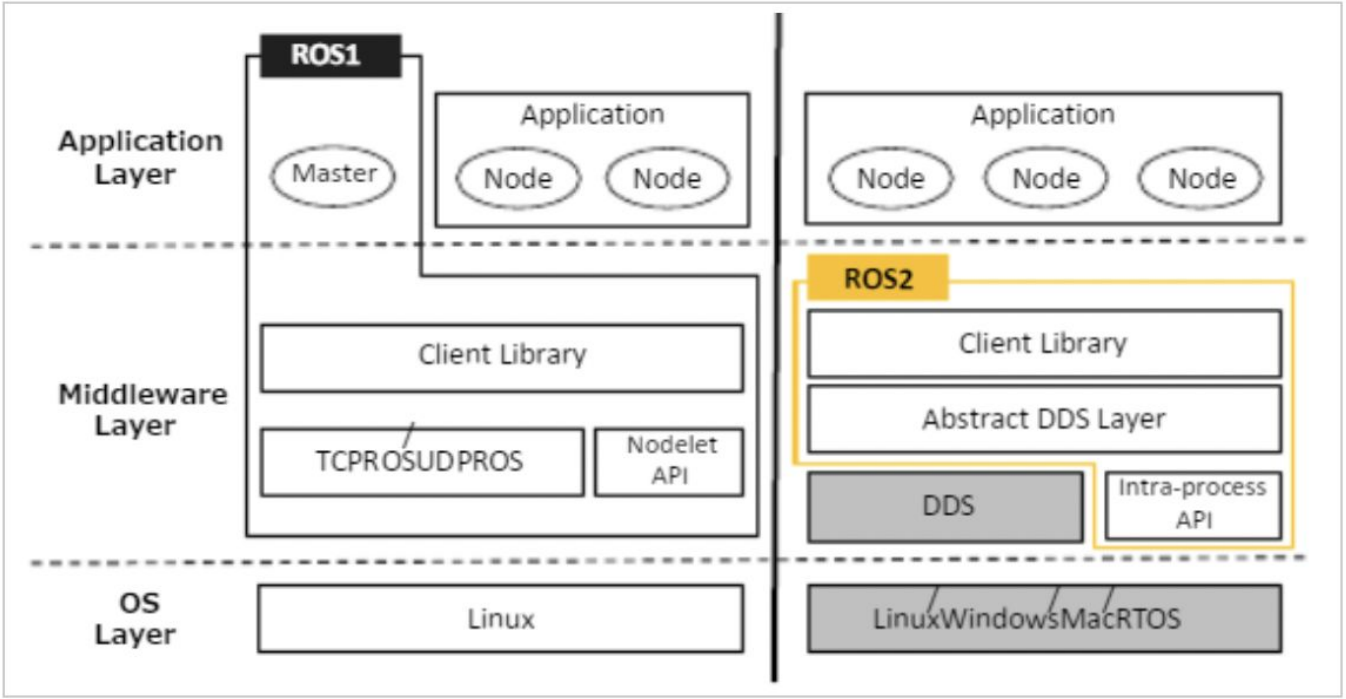


Figure credit to Y. Maruyama, S. Kato, and T. Azumi. Exploring the Performance of ROS2. In Proc. of ACM EMSOFT, pages 5:1–5:10, 2016.

Next Sprint

1. Simulate the robot in complex environment to examine the navigation packages and other functions.
2. Come up with an idea to make the robot upload and download the packages.
3. Any possible errors need to be modified during the process.

Question ?