

# **Meeting Materials for QDrone Project Regular Internal Meeting**



# **Regular Internal Meeting for QDrone Project**

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4PM at PSE 312

Jungwon Kang, Zahra Arjmandi, Kunwoo Park  
Gunho Sohn

# Prerequisites for Pursuing Project

## ❑ Software

- Matlab
- C++
- Ubuntu
- ROS

## ❑ Theory (for backend: state estimation from sensor measurement)

- EKF
- MSCKF
- Smoothing

## ❑ Sensor

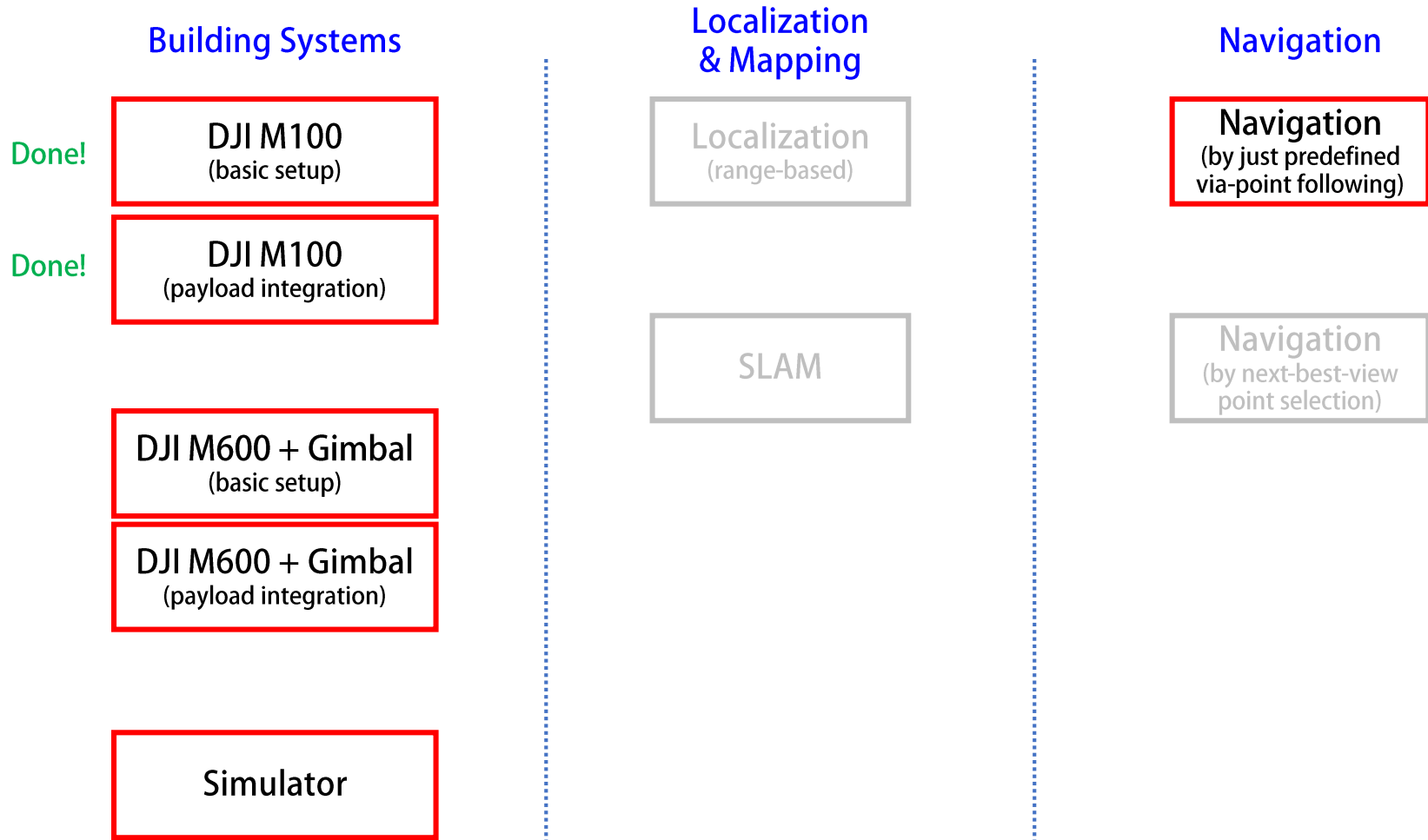
- GPS
- IMU
- Camera
- LiDAR

# Tasks

- ☐ Task 0: Building Systems
- ☐ Task 1: Localization
- ☐ Task 2: SLAM
- ☐ Task 3: Navigation

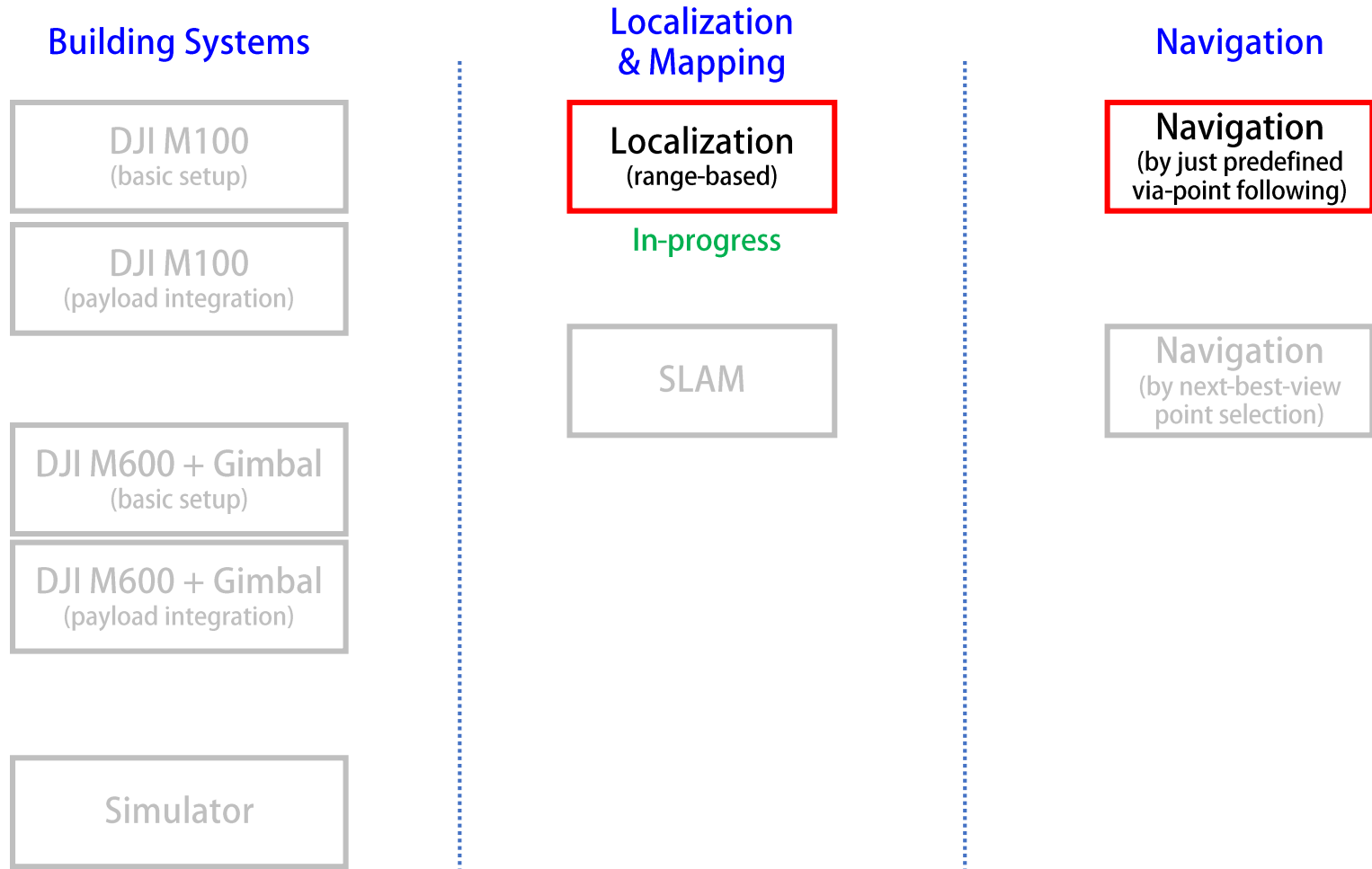
# Task 0: Building Systems

## ❑ Building Complete Systems



# Task 1: Localization

## ❑ Following Predefined Via-Points



# Task 2: SLAM

## ❑ Building a Map

### Building Systems

DJI M100  
(basic setup)

DJI M100  
(payload integration)

DJI M600 + Gimbal  
(basic setup)

DJI M600 + Gimbal  
(payload integration)

Simulator

### Localization & Mapping

Localization  
(range-based)

SLAM

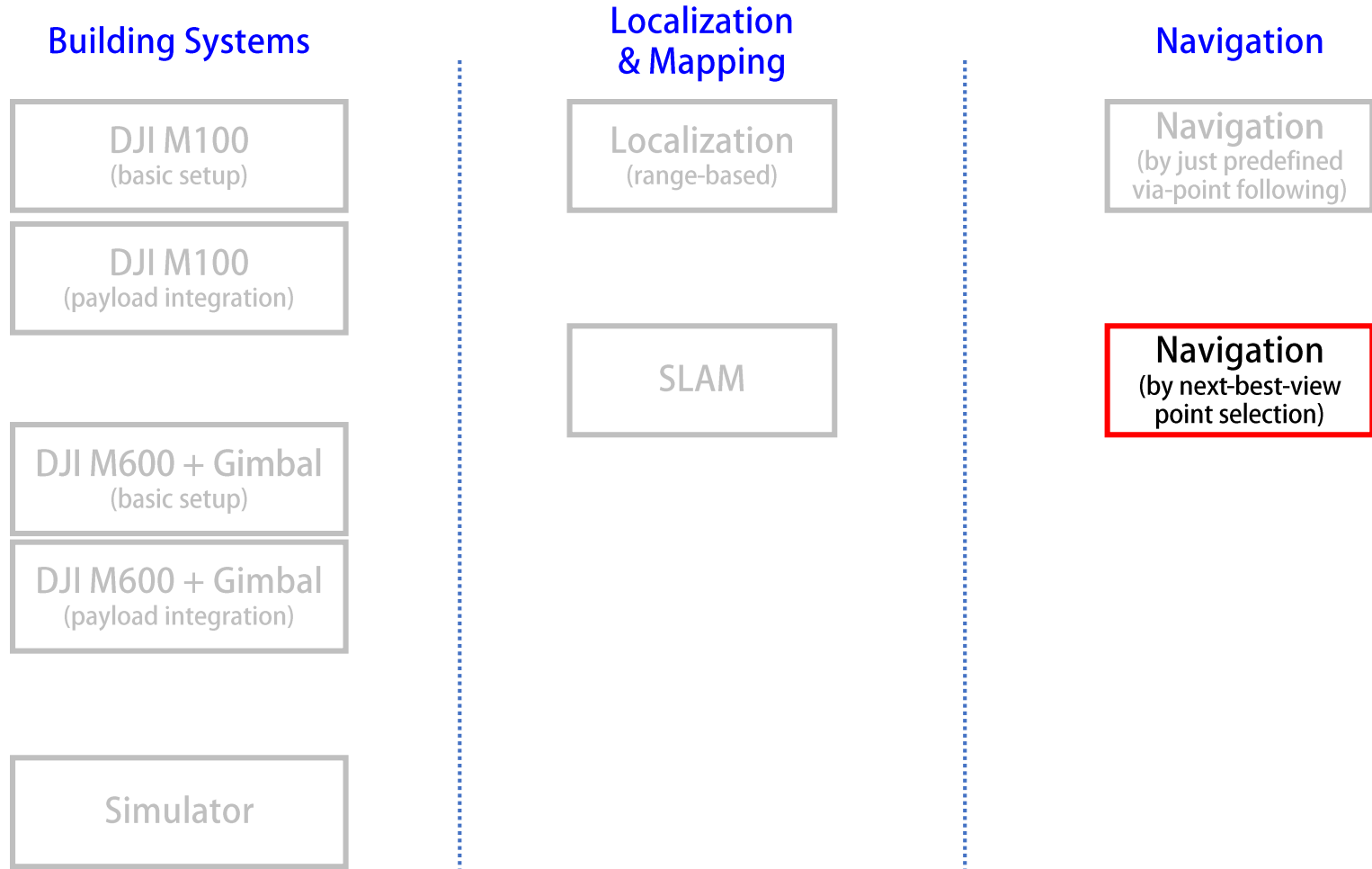
### Navigation

**Navigation**  
(by just predefined  
via-point following)

Navigation  
(by next-best-view  
point selection)

# Task 3: Navigation

## ❑ Building a Map by Next-Best-View Point Selection





# Meeting Results: What to do

## ❑ Common

- Basic setup for 'DJI M600 + Gimbal' (primarily by Zahra & Kunwoo)
- Booking a PSE 4th floor room equipped with motion capture systems

## ❑ Zahra

- Understanding Kunwoo's EKF-based UWB localization code (including EKF)

## ❑ Kunwoo

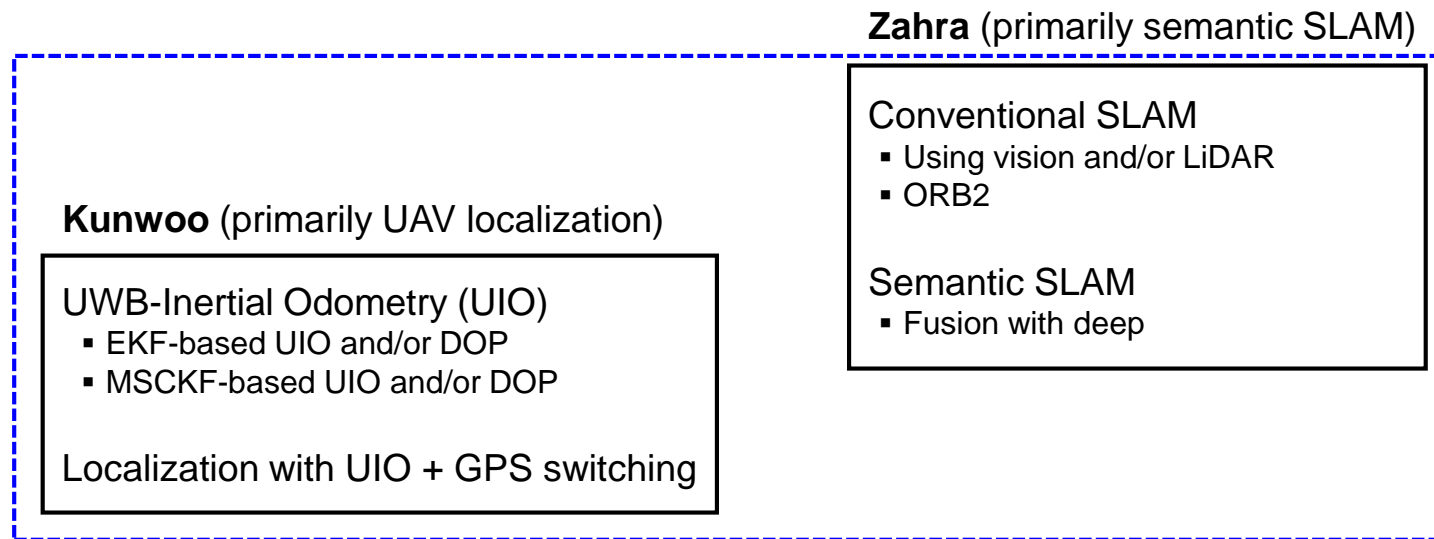
- Sending thesis and experiment plan to prof. Sohn
- Writing a paper for ISPRS Geospatial Week 2019

## ❑ Jungwon

- Writing a paper for IROS 2019

# Future Plan

## □ Jungwon's Rough Suggestion for Future Plan



**Jungwon:** supports Kunwoo & Zahra mainly in technical issues.