



Roscon jp 2022 - Keynote

# Professional Drone "Airpeak S1" Overview

## - as a concrete example of ROS based critical solution

AI Robotics business group, Sony Group Corporation

Dai Kobayashi

Airpeak

## Dr. Dai Kobayashi

- Robot software engineer at Sony Group Corporation
- 8+ years experience ROS-based system development
- Leading drone intelligent software dev team
- Acquiring Sony Outstanding Engineer Award 2021

@roscon-jp2019  
Aibo and  
AR eye-wear proto-type



# AI Robotics Business Group



aibo



POiQ



Airpeak





**Video  
Production**



**Commercial  
Production**



**News  
Reports**

**For All Aerial Photography Creators**



**Architecture**



**Landscape**



**Sports  
broadcasting**



# Combining Sony's Technology

**AI**

**Robotics**

**Sensing**

**Imaging**

**Network**



# Airpeak S1

2021.6 launched

# Airpeak S1 Feature



Optimized Design for  
Exceptional Performance



Sensing Technology  
for Flight Stability



Versatile Camera and  
Lens Compatibility



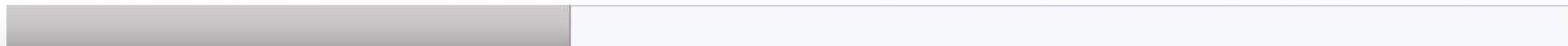
Intuitive Control



Automated Flight  
for Workflow Efficiency



SONY



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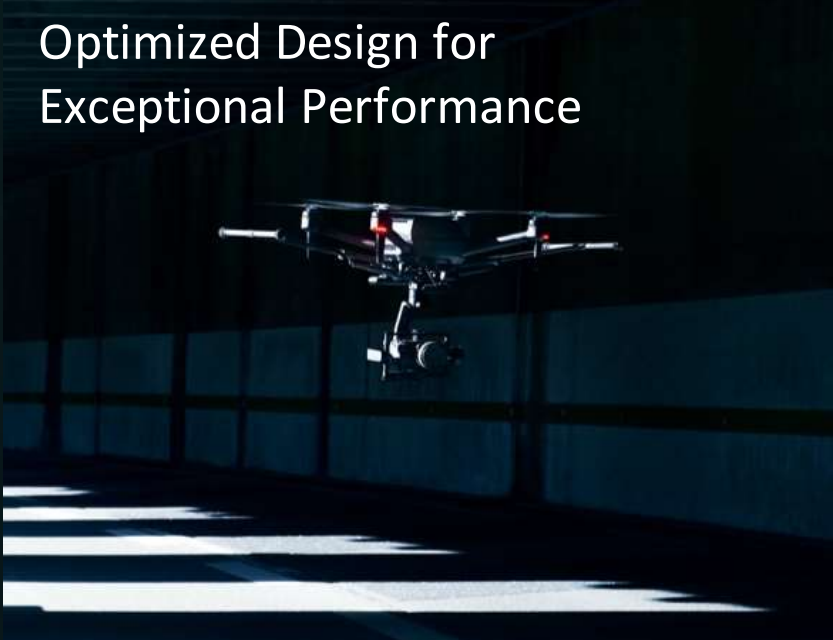




# Airpeak S1 Feature



Sensing Technology  
for Flight Stability



Optimized Design for  
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Versatile Camera and  
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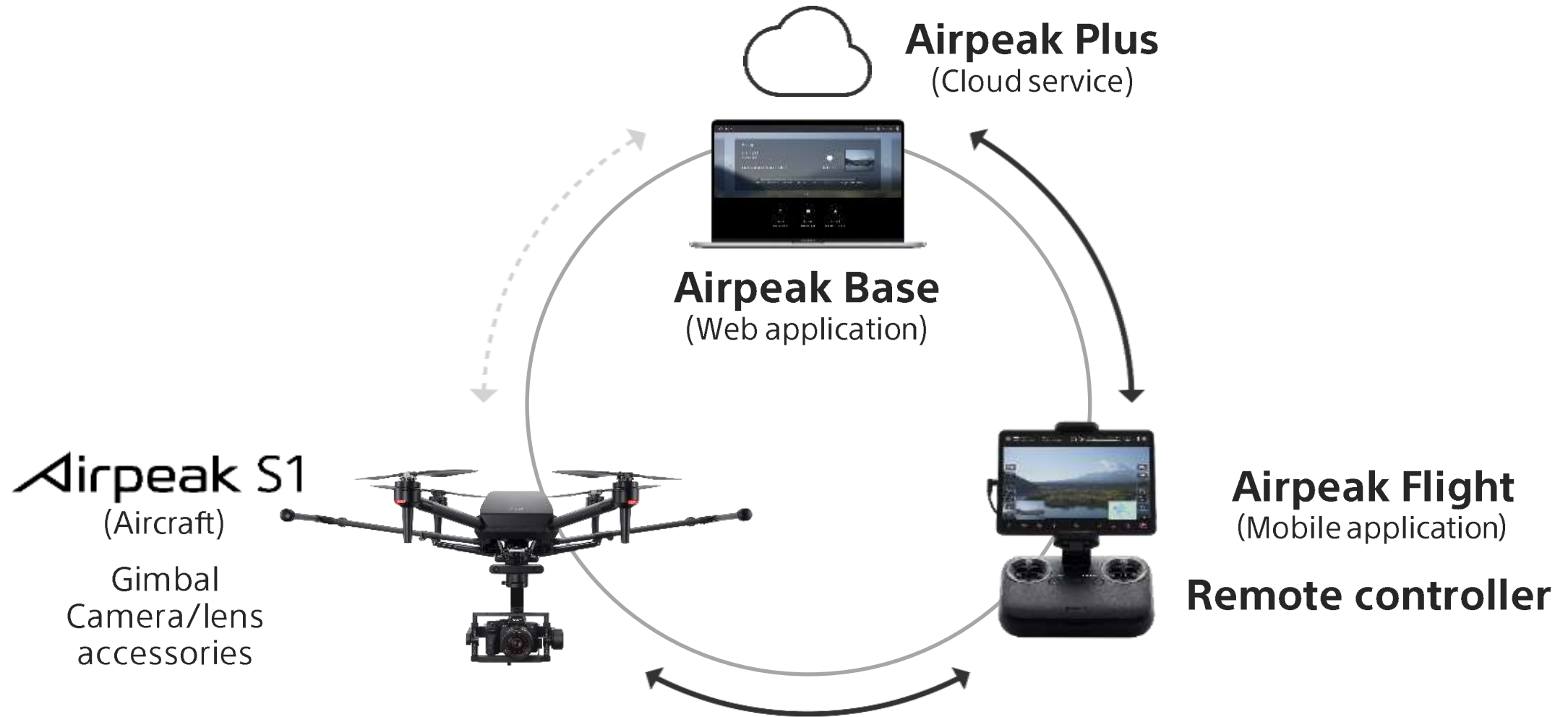


Intuitive Control



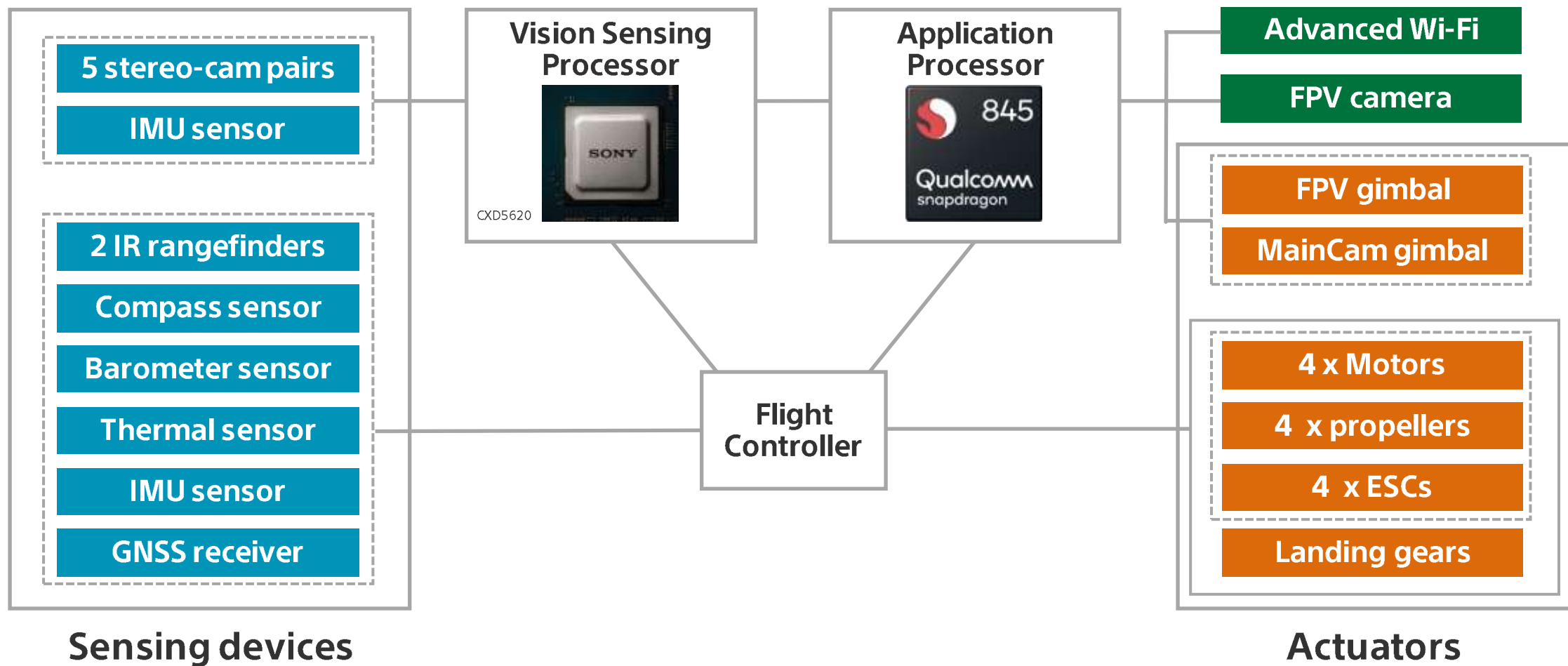
Automated Flight  
for Workflow Efficiency

# Total system overview

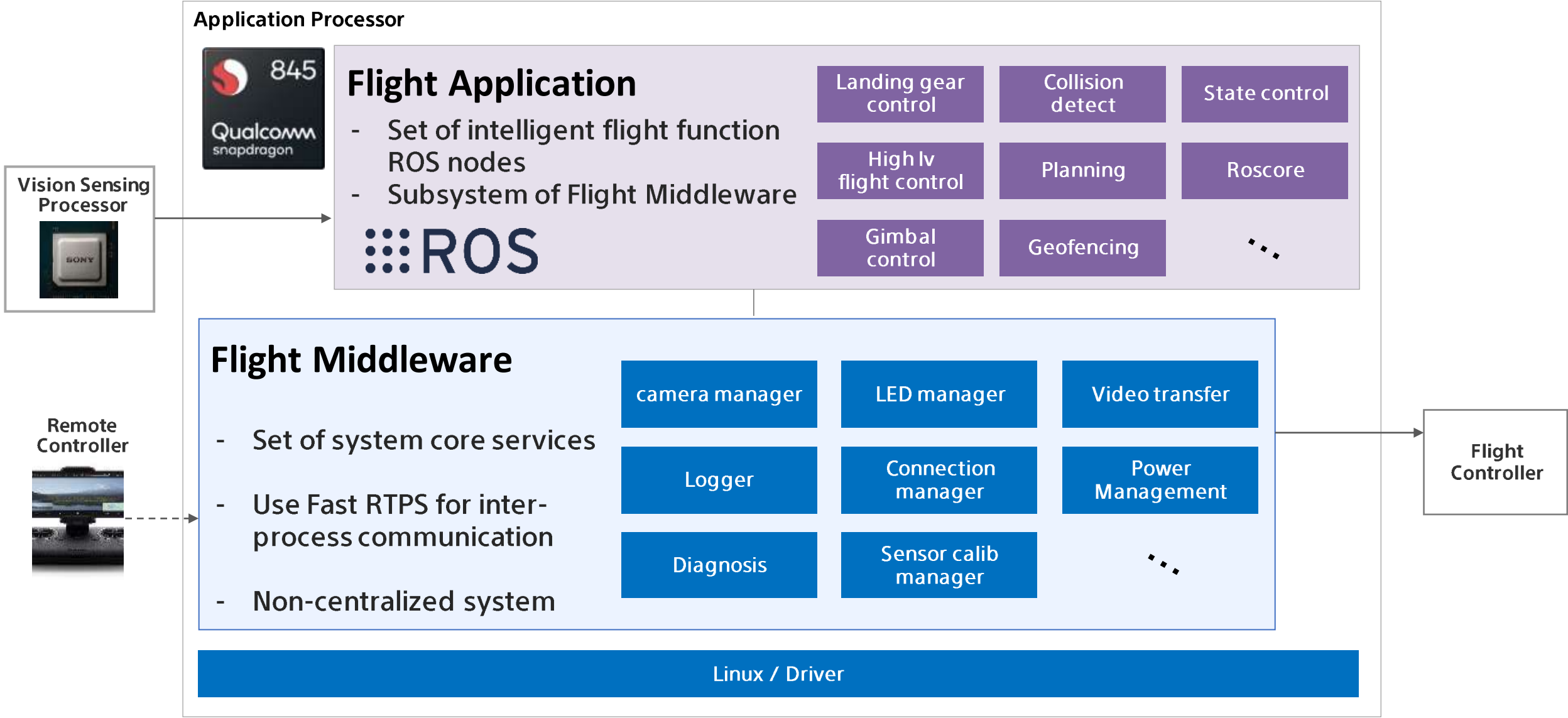




# System components of Airpeak S1

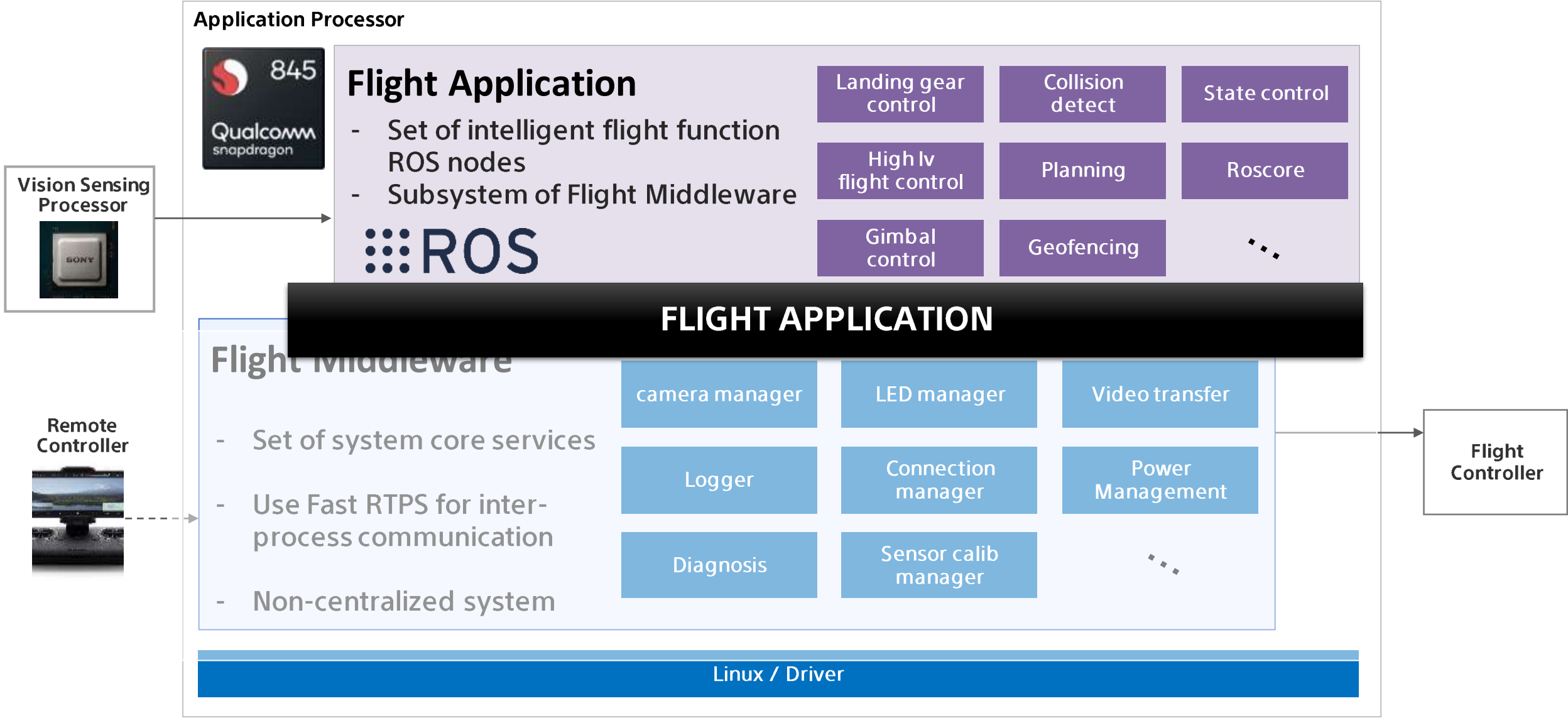


# Functions on the Application Processor

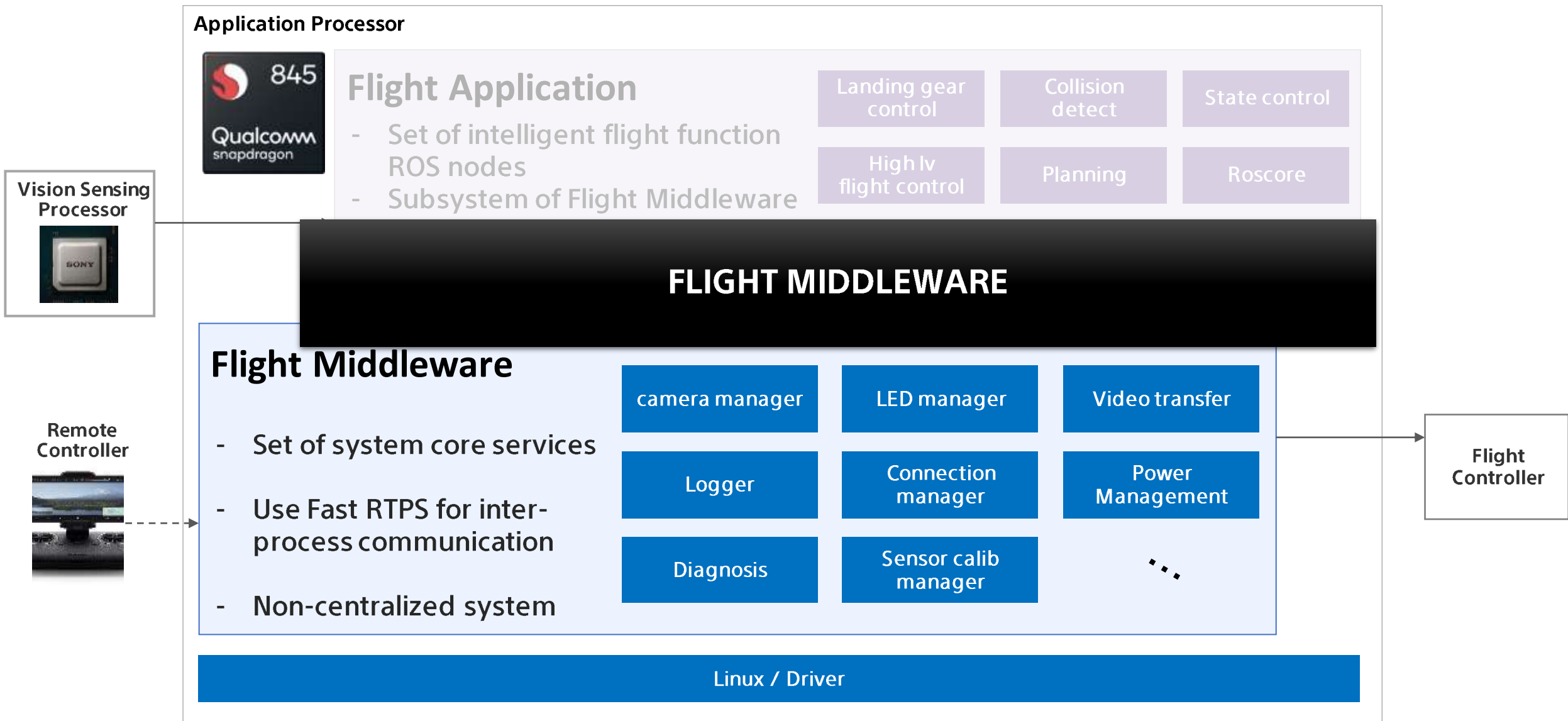




# Functions on the Application Processor



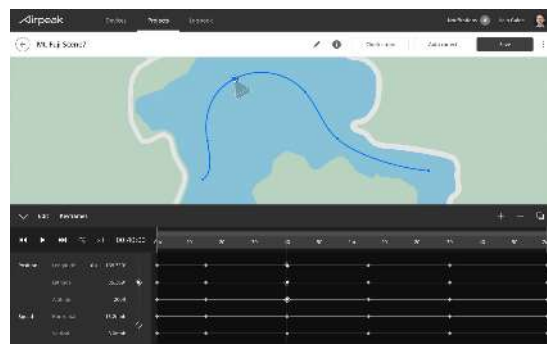
# Functions on the Application Processor





# Mission Flight, Repeat Flight

Planning trajectory with complex



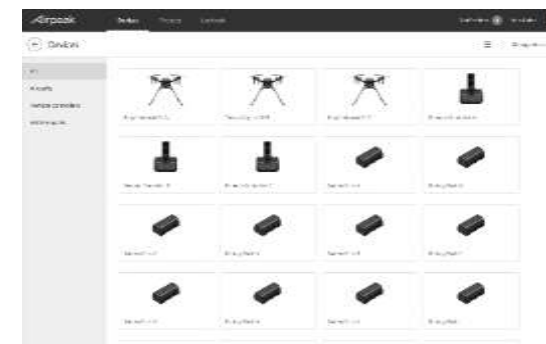
Execute by mobile application



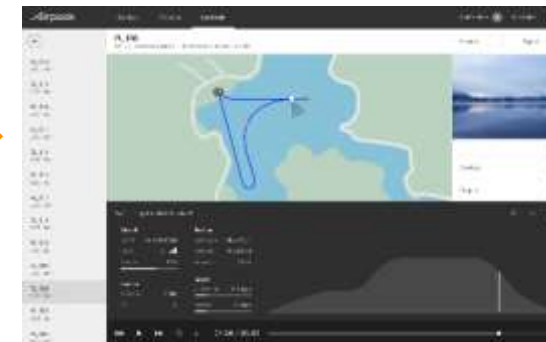
Autonomous smooth flight  
for aerial photography



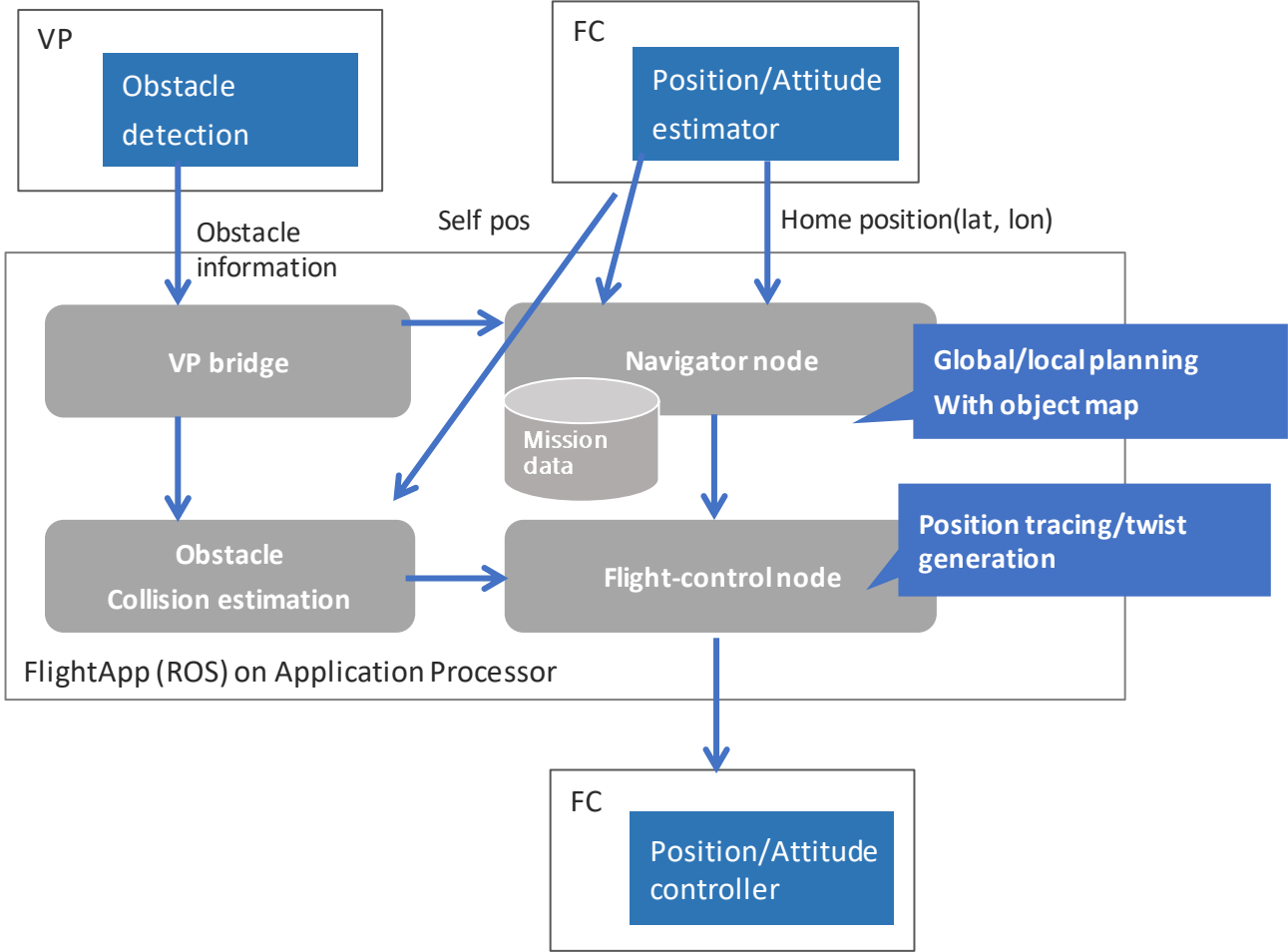
Defining new trajectory based on flight



Upload flight log

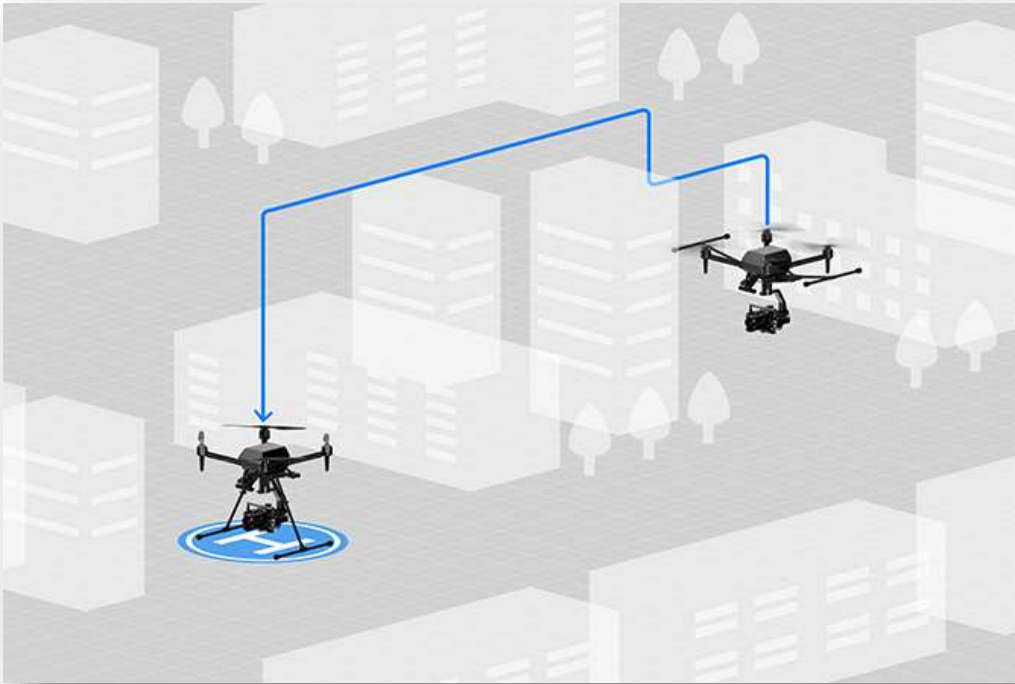


# Mission Flight at Flight Application



# Cases of safety function

Return to Home

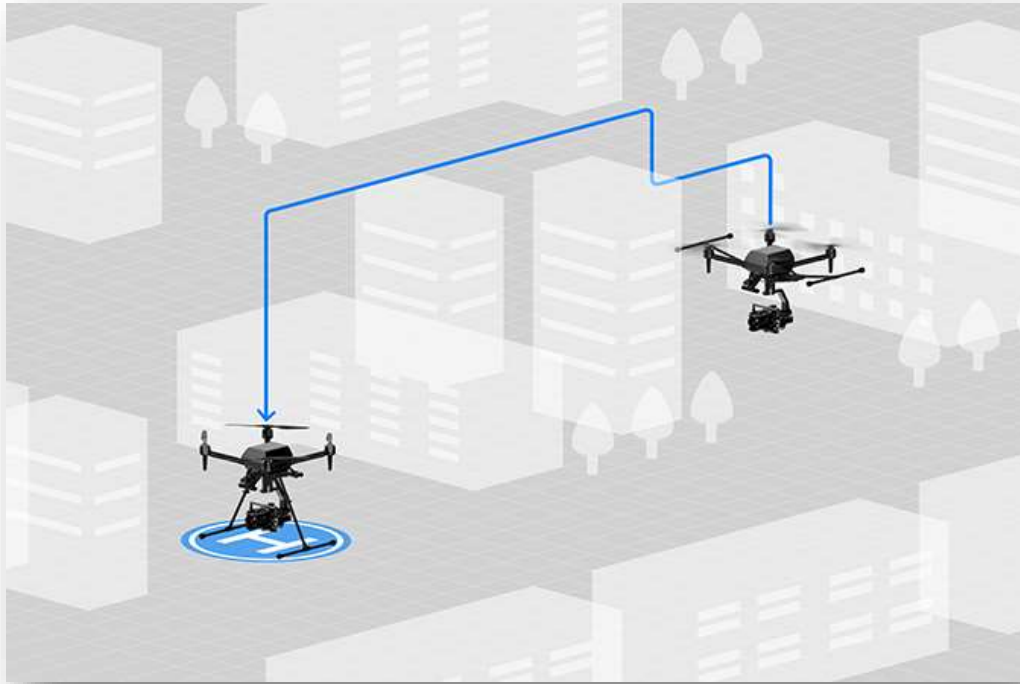


Geo-Fencing

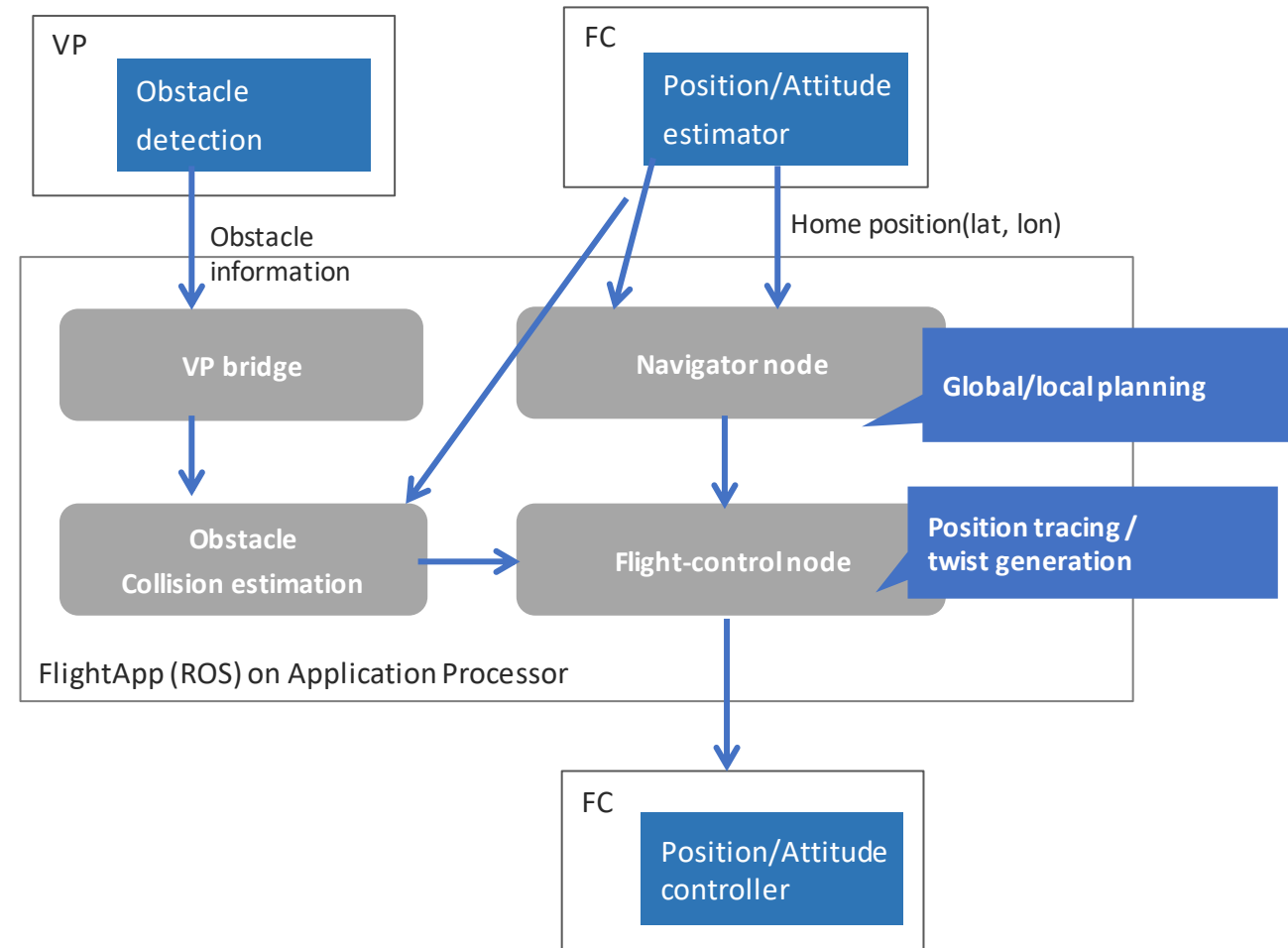




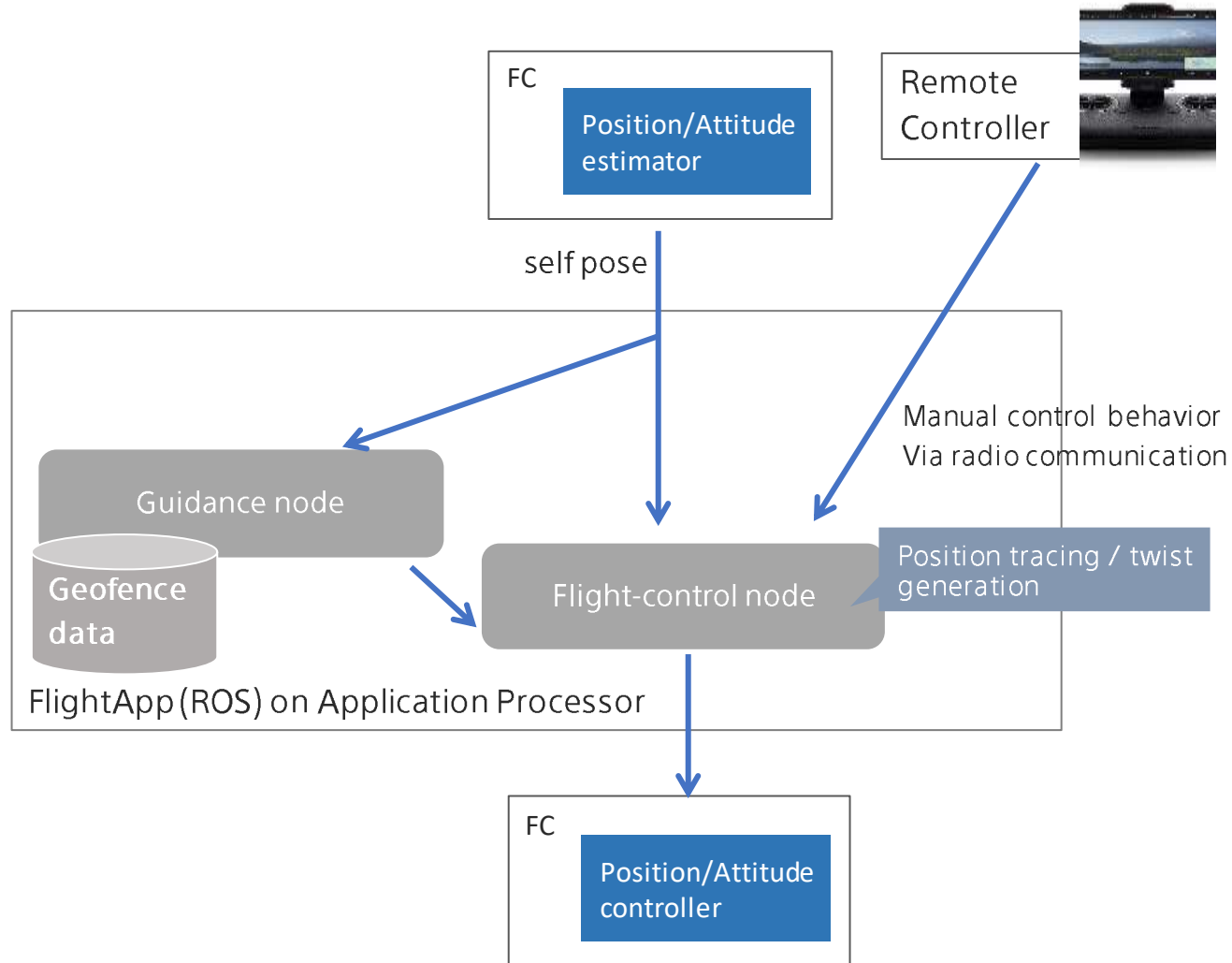
# Cases of safety function – Return to home



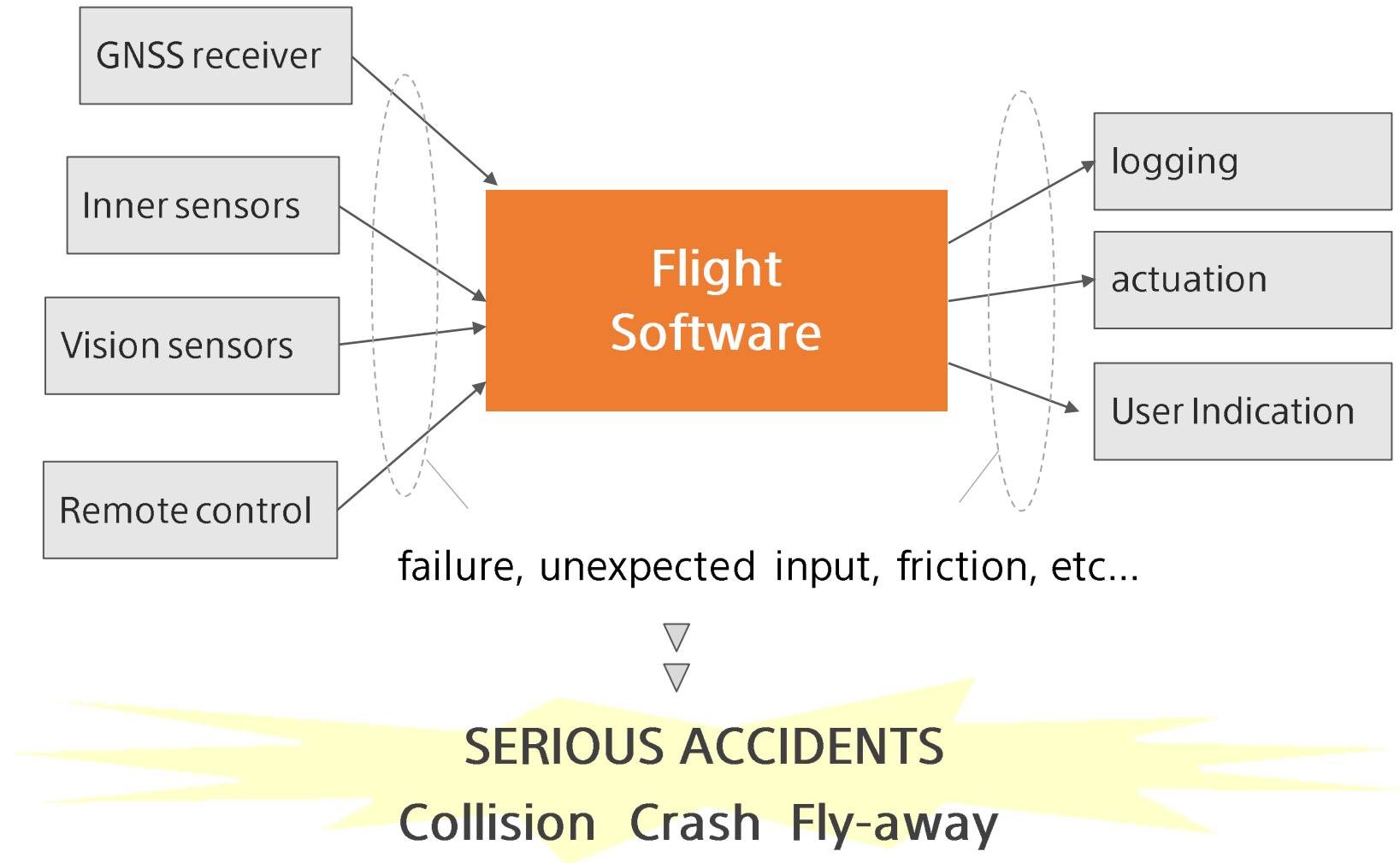
Return to Home



# Cases of safety function – Geo fencing

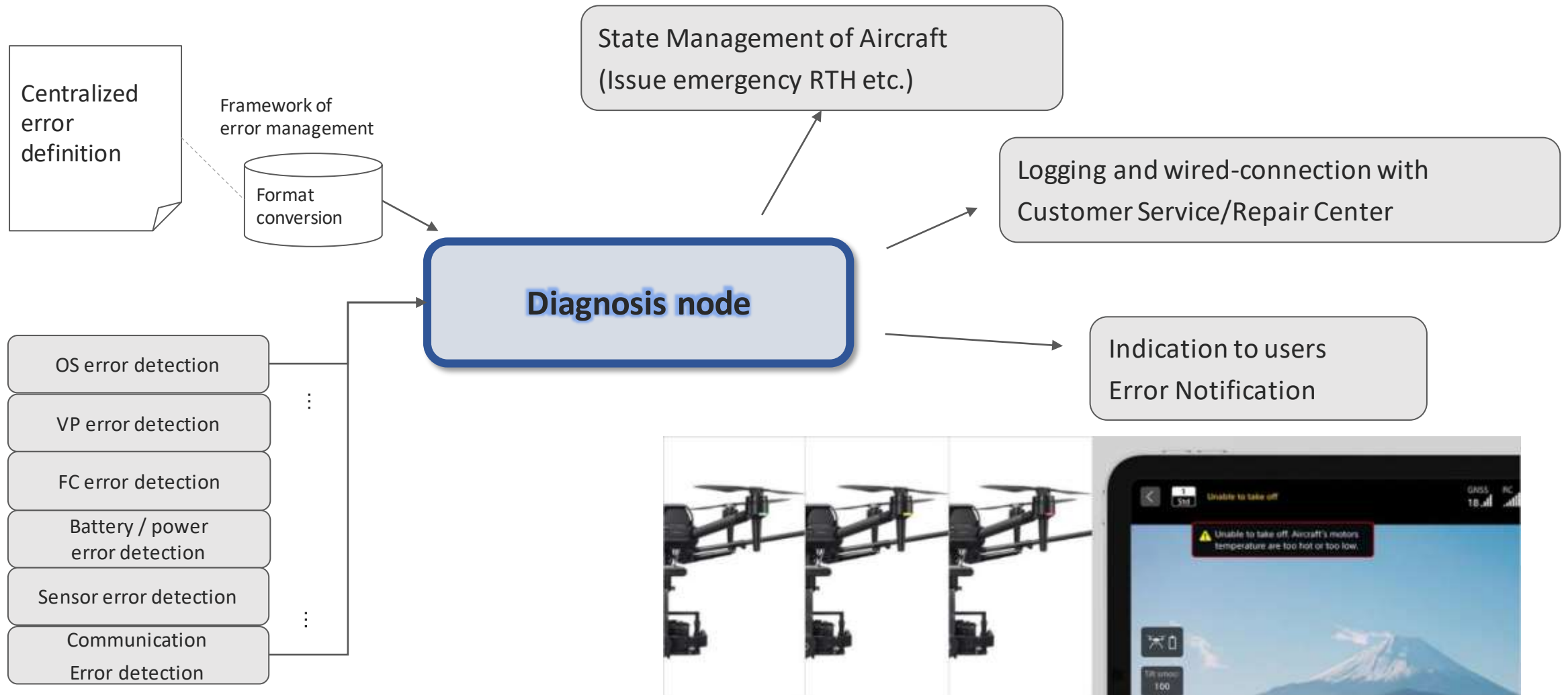


# Drone as mission critical system





# Airpeak's centralized diagnosis system on pub/sub



# Thankfulness

- We really appreciate to great work of the open source community
  - Powerful development tools and ecosystem
    - rviz, gazebo, tf, rosbag ,...., are much helpful for the complex drone system <https://oss.sony.net/License/ARS-S1/index.html>
  - Accumulation of know-how for efficient robot development



POIO



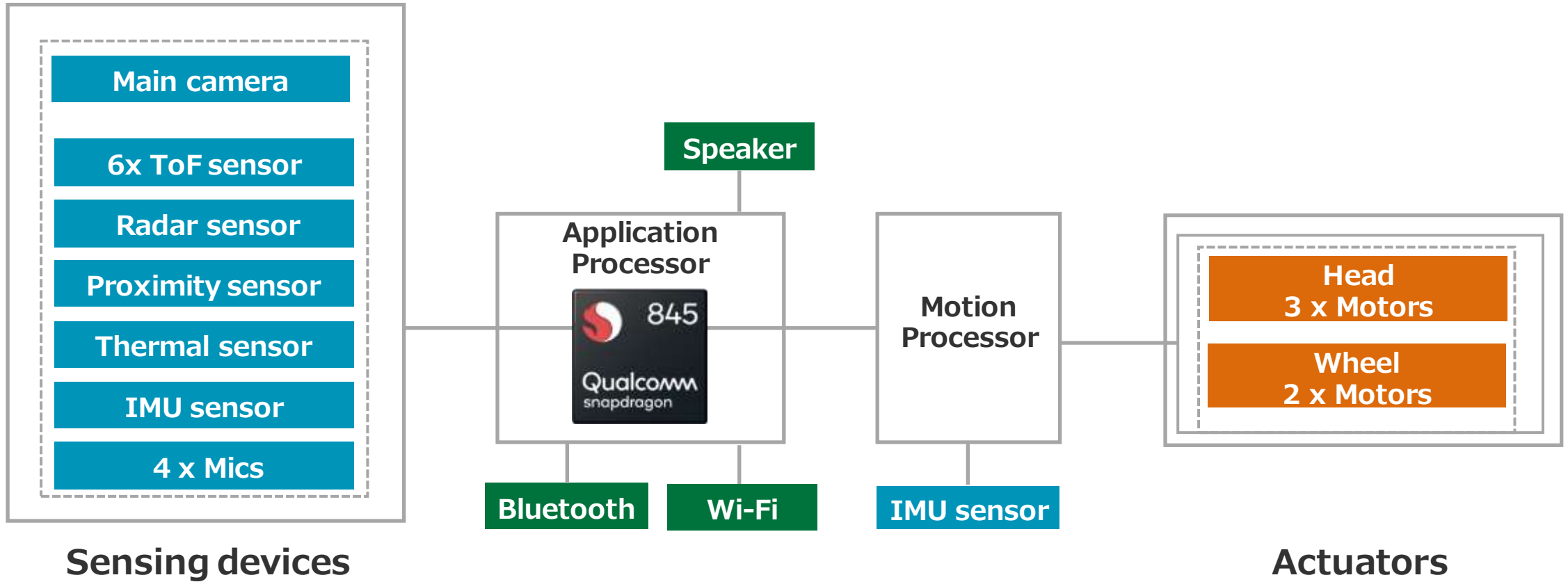




# POIO

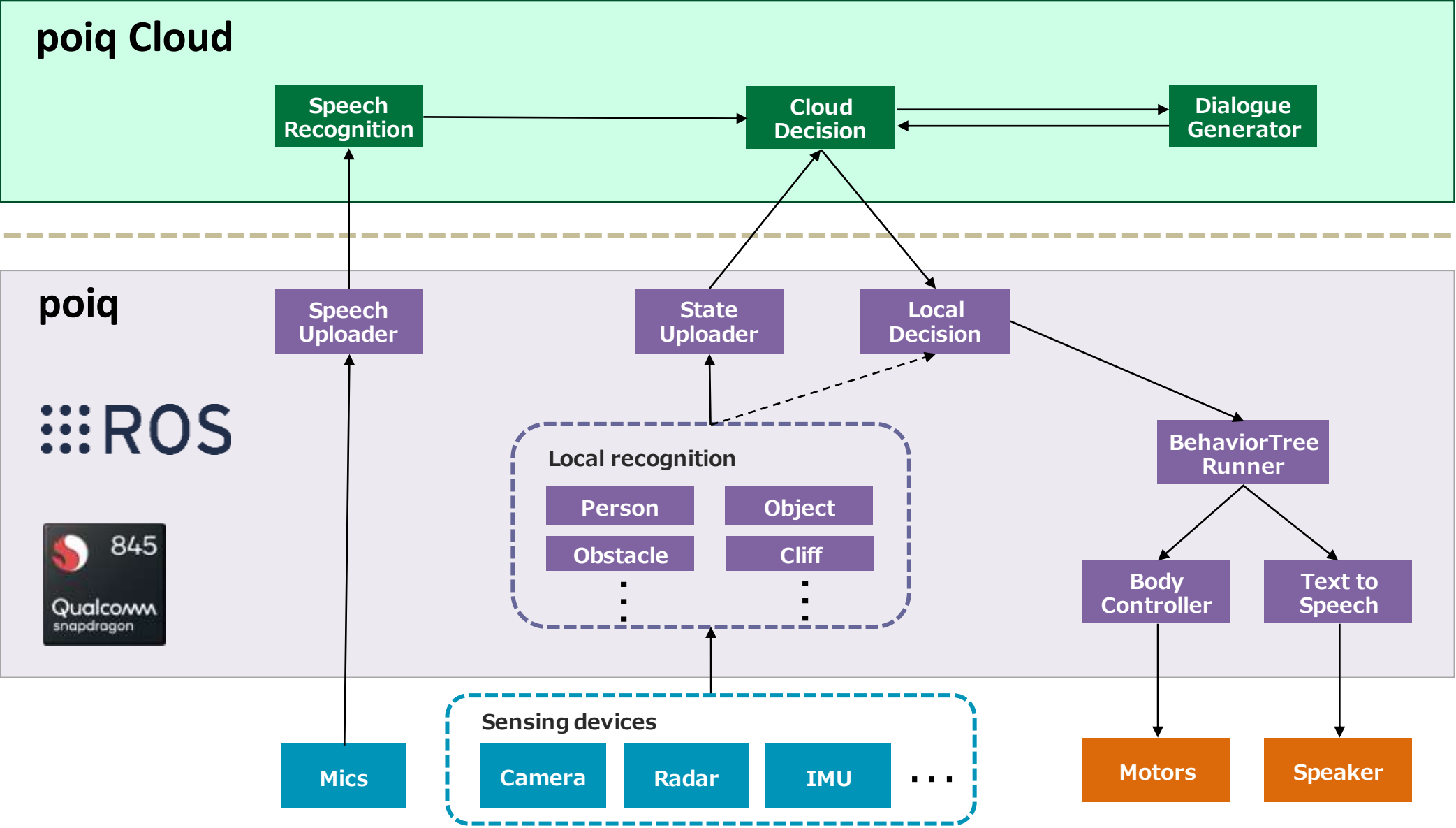


# System components of poiq





# poi System



**Let's do  
something creative  
with poiq!!**



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