

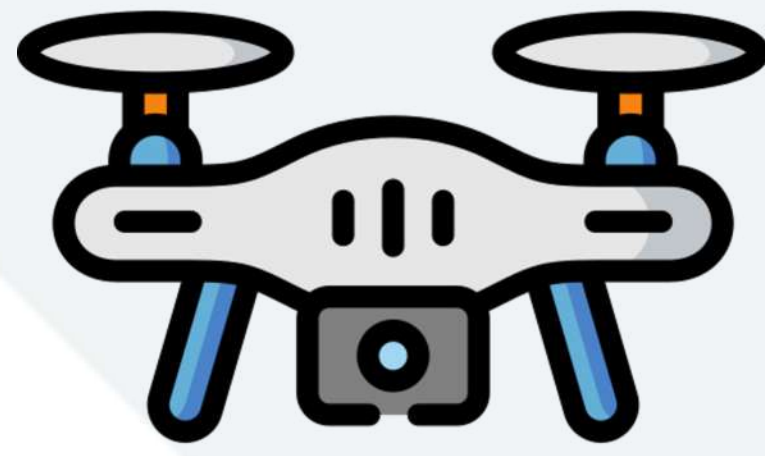


Ege CargoWings

Machine Learning-Enhanced Swarm Drone System for Indoor Cargo Task Allocation Considering Non-Ideal Communication Factors

Disclaimer

This project is still in progress and certain parts of it may undergo changes during the development process.

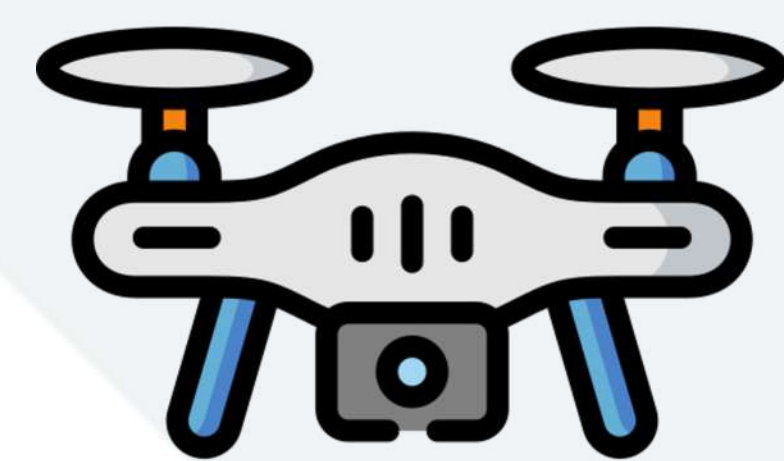


Objective

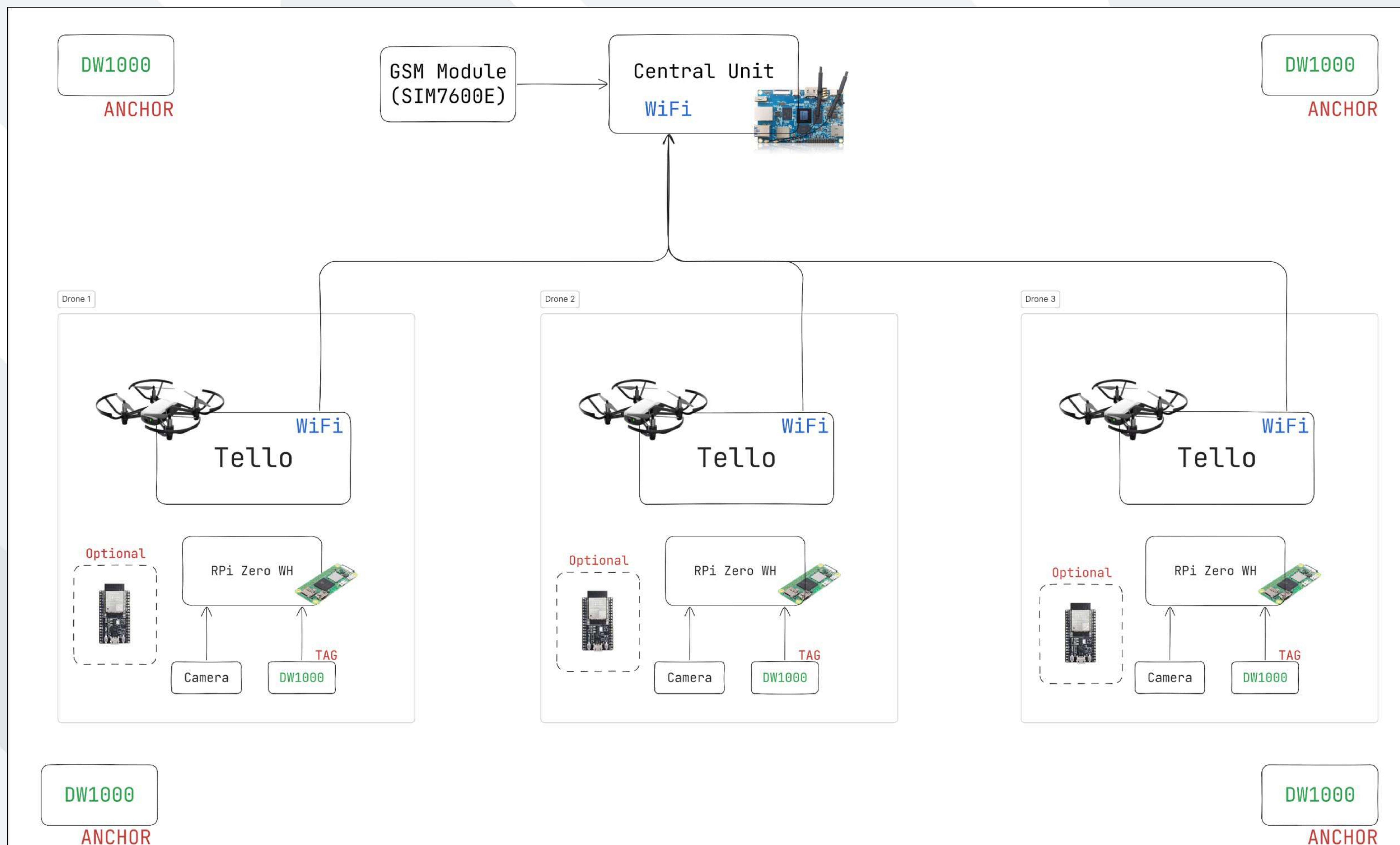
The objective of this graduation project is to design and implement an **indoor** cargo delivery system using a **swarm** of **drones**.

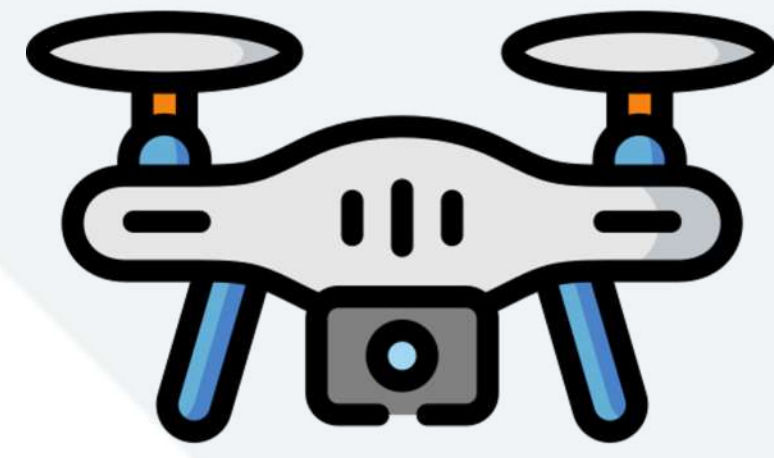
This system will leverage **machine learning** algorithms to optimize task allocation among the drones while taking into account non-ideal communication factors that are commonly encountered in indoor environments.

Moreover, we will incorporate **computer vision** capabilities to handle critical tasks such as obstacle avoidance and emergency situation detection.

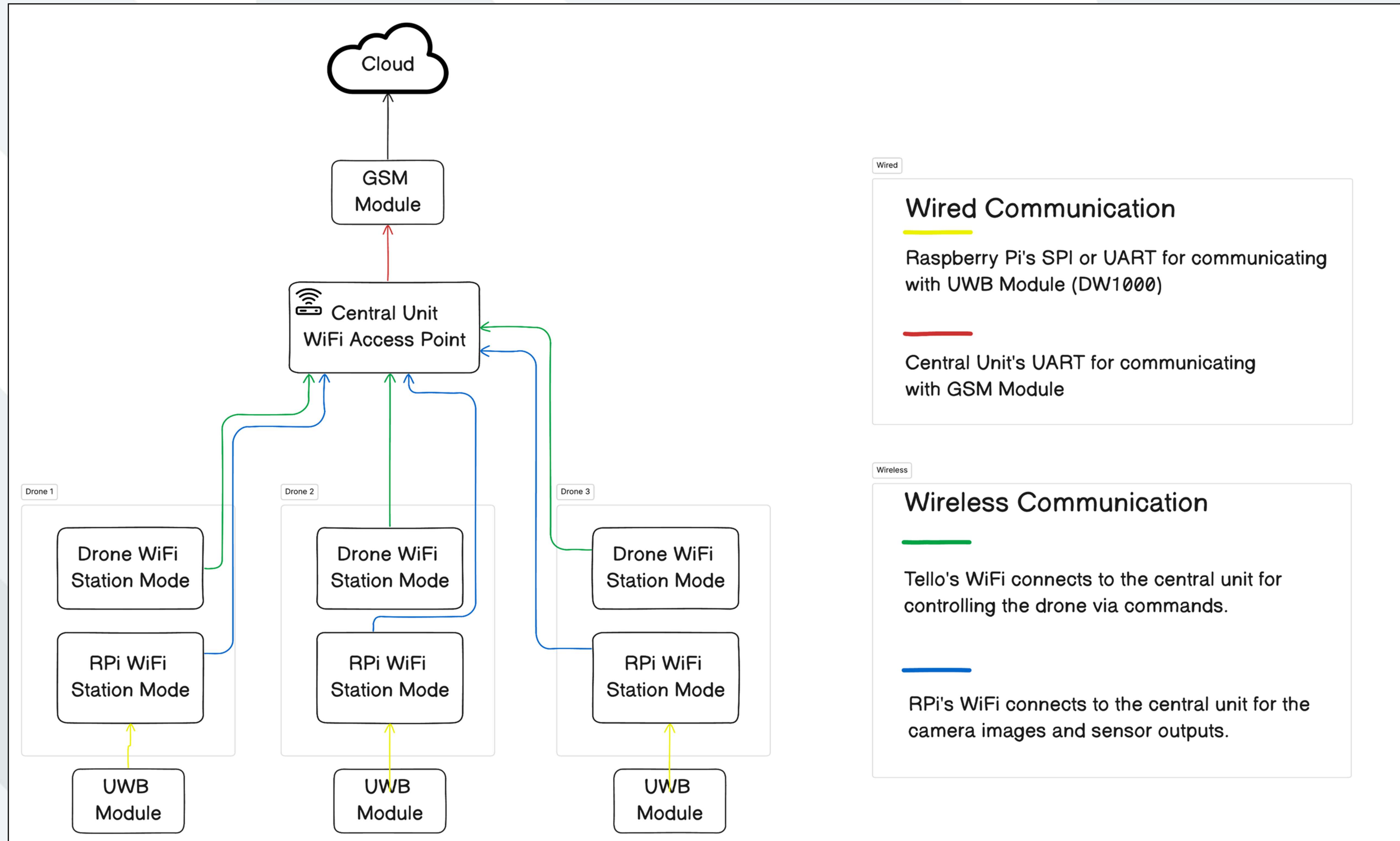


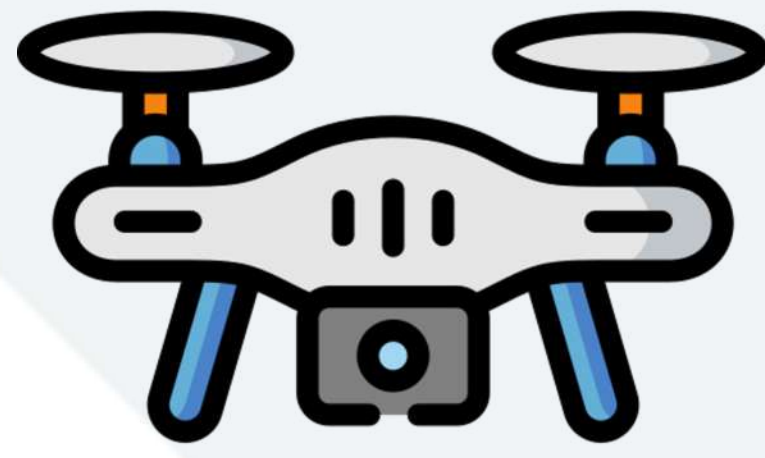
System Architecture (Hardware)





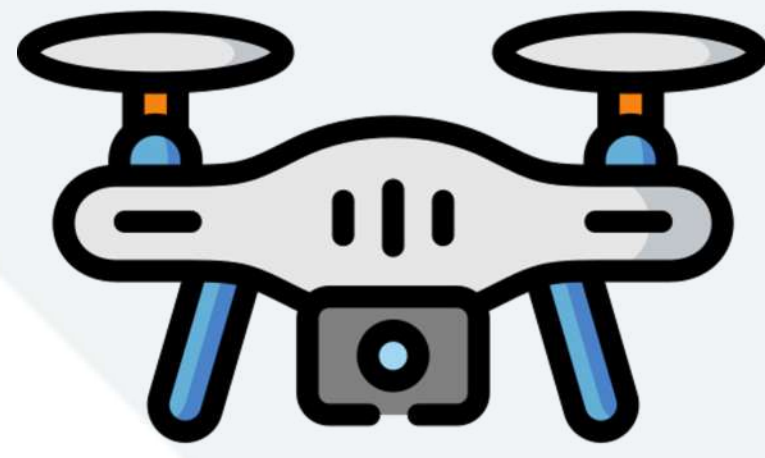
Network Architecture (Wired & Wireless)





Required Components

Components	Quantity	Price(peace)	Sum (\$)
DJI Tello	5	130	650
Raspberry Pi Zero W2	5	15	75
Orange Pi 5B	2	150	300
GSM Module SIM7600E	2	75	150
DW1000-DEV Module	10	35	350
Camera Module	5	40	200
Orange Pi compatible touch display	2	30	60
			1785



Questions

- Why did you choose DJI Tello ?
- Why did you put the Raspberry Pi Zero on top of that drone?
and why did you choose the Orange Pi5 B for the central unit?
- Why not use GPS for position information?
- How do you plan to integrate machine learning algorithms into the system?
- Why do you have ESP32 optionally in the system design part?



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Thank You