Artifact ID:	Artifact Title:
ART-003	Drone Communications Strategy
Revision:	Revision Date:
08	Feb 25, 2025

Prepared by:	Checked by:
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Purpose:
Outlines general drone communications setup as well as problems to overcome in the future with potential proposed solutions.

Revision History			
Revision	Revised by	Checked by	Date
01	Joshua Crookston	Israel Zenteno	Oct 10, 2024
02	Joshua Crookston	Israel Zenteno	Oct 14, 2024
03	Joshua Crookston	Israel Zenteno	Oct 18, 2024
04	Joshua Crookston	Jacob Wilkins	Oct 21, 2024
05	Joshua Crookston	Jacob Wilkins	Nov 18, 2024
06	Joshua Crookston	Jacob Wilkins	Jan 31, 2025
07	Joshua Crookston	Israel Zenteno	Feb 6, 2025
08	Joshua Crookston	Jonah Lowther	Feb 25, 2025

Low-Altitude Deployment Drone

High-Altitude Detector Drone

Wing Flap Servos

GPS

Infared Camera

ROS 2 "Jazzy"

Wing Flap Servos

GPS

Central Motor (Propellor)

Electronic Speed Controller

Flight Controller (PixRacer Pro)

ROS 2 "Jazzy"

ROS 2 "Jazzy"

Rasberry Pi 5

ROS 2 "Jazzy"

Deployment Servo

Infared Camera

ROS 2 "Jazzy"

Rasberry Pi 5

ROS 2 "Jazzy"

Flight Controller (PixRacer Pro)

Electronic Speed Controller

Central Motor (Propellor)

HolyBro Sik Telemetry Radio V3 433 Mhz (300+ m range)

Telemetry I/O Antenna

Radio Reciever

Long-range USB-A Wifi Antenna

Long-range USB-A Wifi Antenna

Radio Reciever

Telemetry I/O Antenna

HolyBro Sik Telemetry Radio V3 433 Mhz (300+ m range)

Wireless Ad-hoc Network (WANET)

From Wifi Hotspot on High-Altitude Ground Control Laptop

ROS 2 "Jazzy"

ROS 2 "Jazzy"

HolyBro Sik Telemetry Radio V3 with custom patch antenna

Patch Antenna

Radio Controller

Radio Controller

Patch Antenna

HolyBro Sik Telemetry Radio V3 with custom patch antenna

Connection Type

→ **Wired Connection**

⇠--→ **Radio Connection**

⇠····→ **Wi-Fi Connection**

⌐····⌐ **Within Line of Sight**

Connection/Item Color

→ | Item **Fully Functional**

→ | Item **In Progress**

→ | Item **Stalled Progress**

1. *Each connection line in this diagram has both a TYPE and a COLOR.*
2. *Each colored item (see the legend above) represents the status of a communication protocol that must be programmed.*

Laptop with QGroundControl

In-built Wifi Module

Long-range USB-A Wifi Antenna

Laptop with QGroundControl