Artifact ID:	Artifact Title:	
ART-011	XPRIZE System Overview (Professional)	
Revision:	Revision Date:	
01	2025-02-25	
Prepared by:		Checked by:
Isaac Davies		Jonah Lowther
Purpose:		
Outlines general system setup with high-quality connection diagrams, including wiring diagrams		

Revision History			
Revision	Revised by	Checked by	Date
01	Isaac Davies	Jonah Lowther	2025-02-25

High Altitude Drone

xT60 Parallel Adapter

3300mAh Zeep
3300mAh Zeep

Landing Servo

Back View of Pixracer Pro

A-tail and Aileron Servos

Front View of Pixracer Pro

ER8

USB-C

Propeller Motor

WIFI Antenna

USB

Seek Thermal Mosaic Core Camera

ROS Network runs on PI

ROS2 Img_capture folder

odometry.py
Gets the attitude and gps data, then publishes a combined odometry message.

cam_node.cpp
Receives data from thermal camera and sends it to ROS network

GUI.py
Creates a GUI for instant visual confirmation and debugging

logger.py
Records odometry data from flights

high_alt_filter.py
Receives images from network and filters them for use of high altitude drone

low_alt_filter.py
Receives images from network and filters them for use of low altitude drone

kmeans.py
Gathers known hot spots to decide where a fire is located

Direction

Waypoint

Symbol	Meaning
→	Primary Relationship
⇢	Secondary/Backup Relationship
▬ (green)	Ground Control Workflow
▬ (blue)	ROS2 Network Workflow
▭	

Legend

Low Altitude Drone

Battery, 6s 22000mAh

PDB-BAT-GND

Power Distribution Board

5V 3A

5-12V

BAT+

PDB+

Pixracer Pro

PWM outputs

2 A-Tail Fin Servos

5 ESCs Power

5 ESC Controllers

Servos

Seek Thermal Mosaic Core Camera

WIFI Antenna

USB

USB

Key:

Indicates Multi-wire

High Power

High Power GND

PDB Wires

PWM Wires

Ground Control

Radio 1

Radio 2