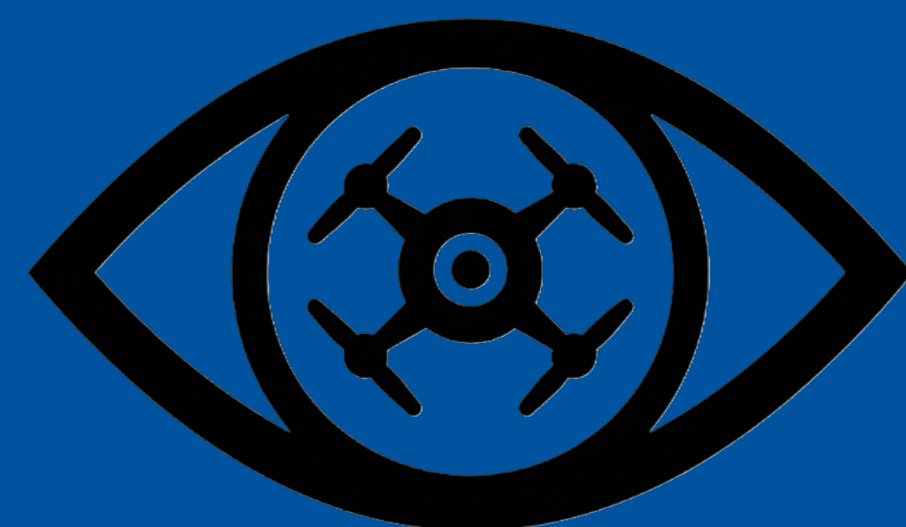




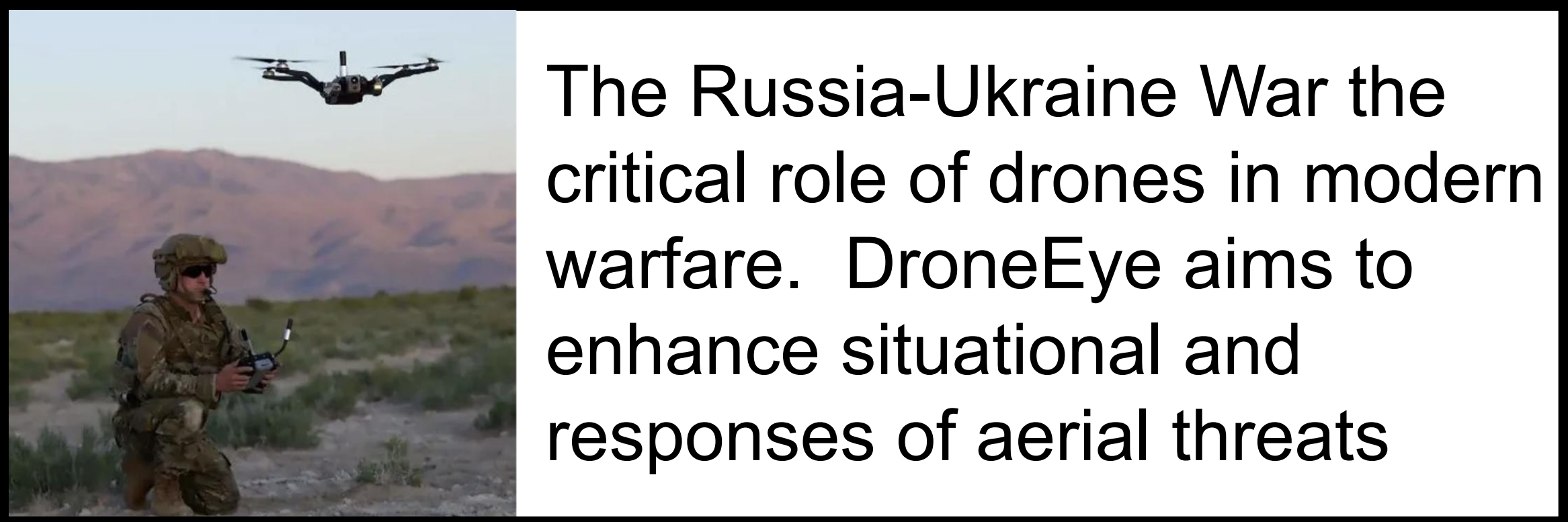
Research Objective

- Detect drones in real-time and classify them as **Friendly**, **Unknown**, or **Enemy**.
- Track drone movement using an autonomous pan/tilt system.
- Provide live video, telemetry, and system control through a web interface.
- Develop an embedded, low latency system suitable for real-world applications inspired by modern drone warfare.

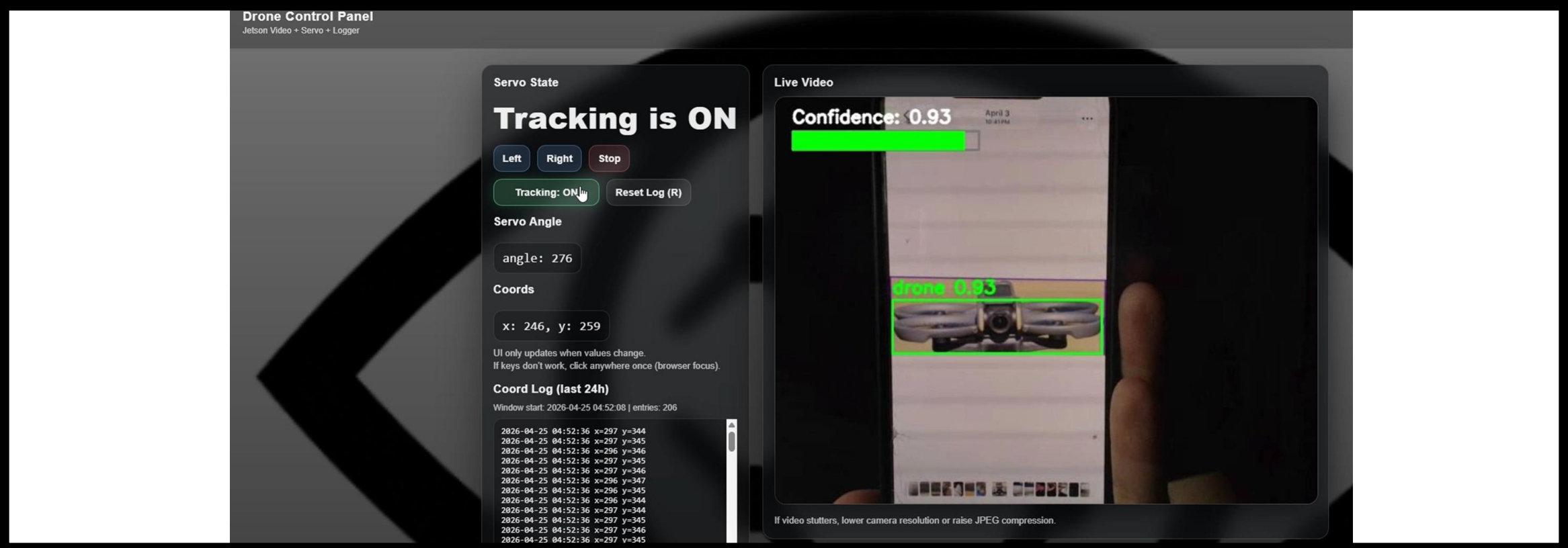
Drone Eye Device



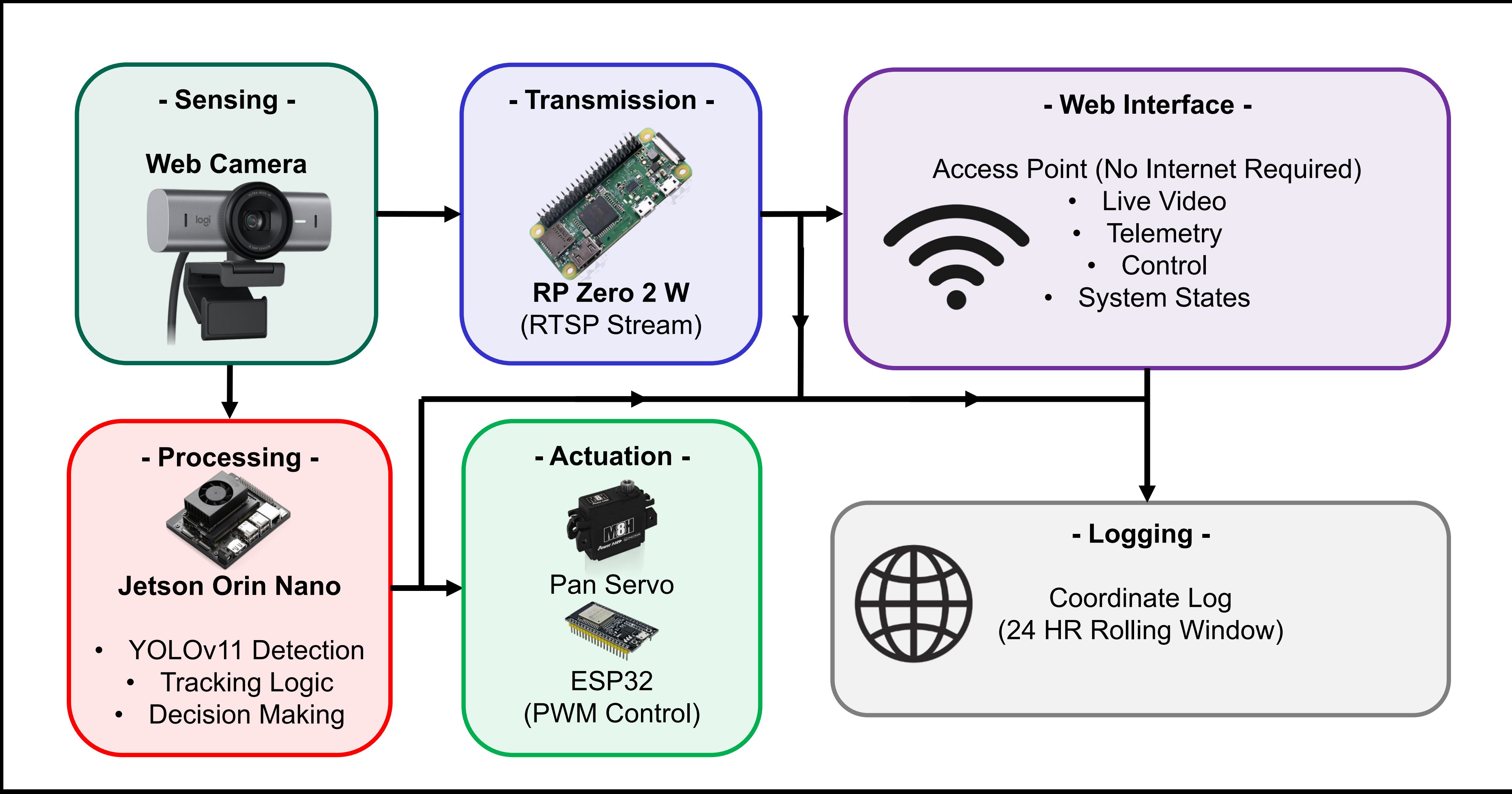
Motivation



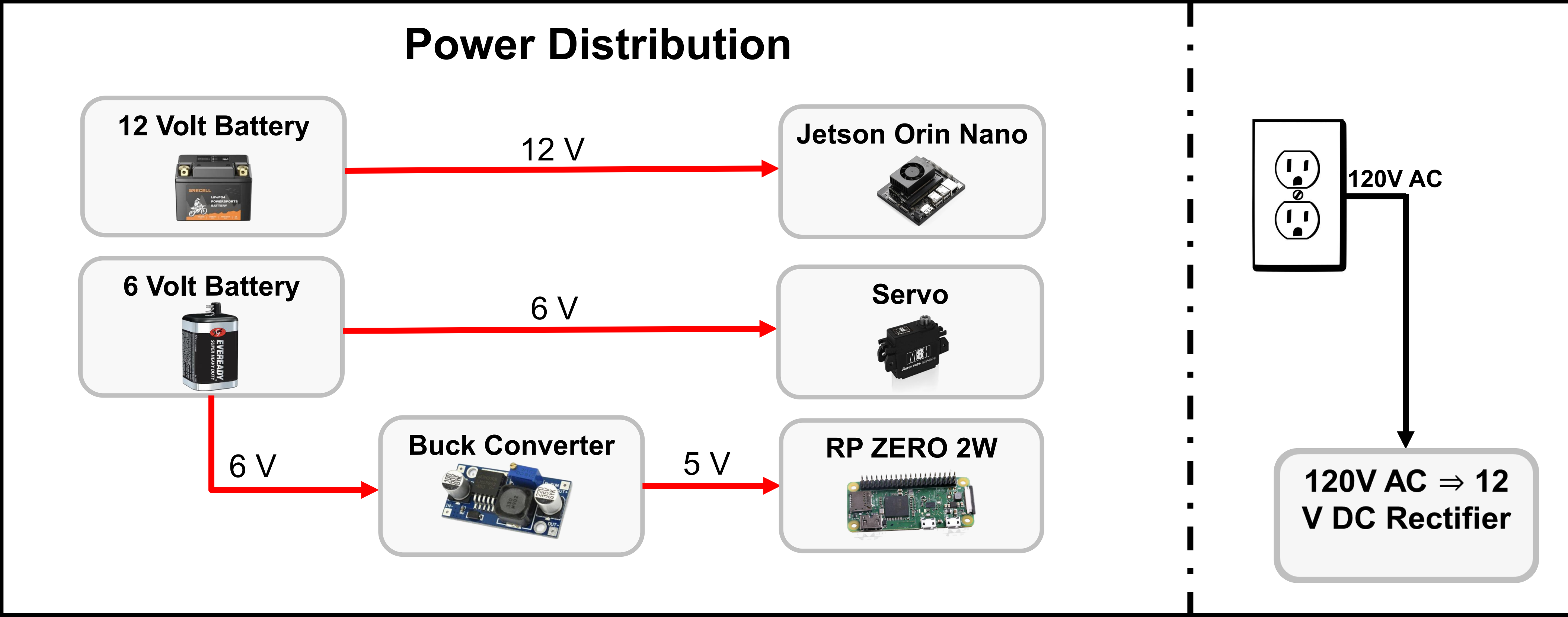
Motivation



Drone Eye System



Power System

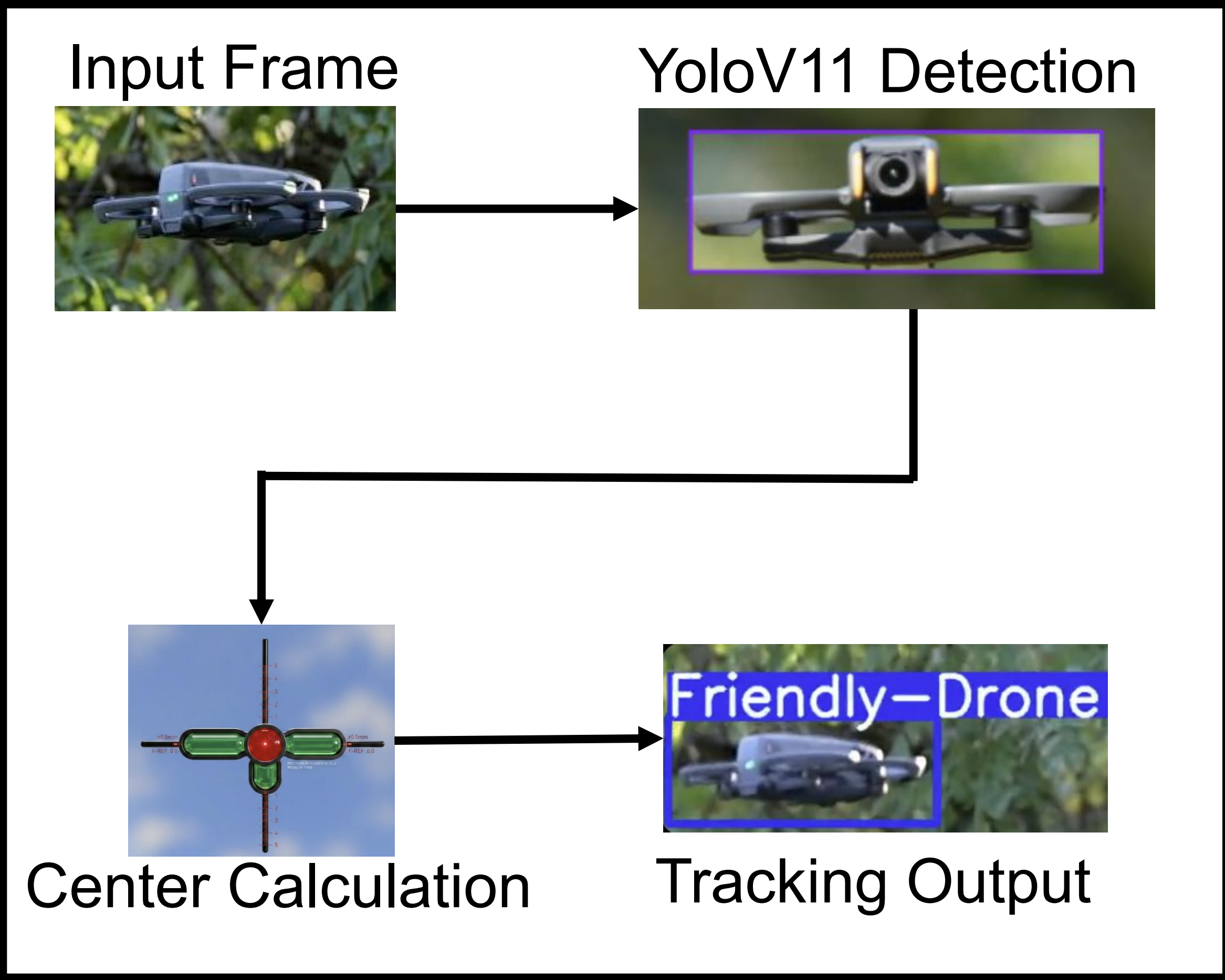


Data Logging

- Logs all valid drone coordinates with timestamps ($\geq 50\%$ Confidence)
- Ignores Duplicate positions
- Rolling window resets every 24 hours

Timestamp	X	Y
2025-06-10 14:20:15	-24	37
2025-06-10 14:23:17	-20	33
2025-06-10 14:23:20	-18	29
2025-06-10 14:23:23	-15	22
-	-	-

Tracking Pipeline (YOLOv11)



Tracking Logic

- Calculate error from frame center
- If error > threshold → move servo Left/Right
- If within threshold → stop servo
- Skip frames to reduce jitter
- Precision timing for smooth motion

Error Charts (??) FEW_FW

