

RescueEagle

FORUM8

14th CPWC

Mobius

THE PROBLEM

Disasters cut off every path to rescue



Lang Nu, Lao Cai, Vietnam
Flash flood after Typhoon Yagi, 09/2024

Communications down



Son La, Vietnam (07/2025)
8 suspension bridges swept away, the only road blocked

Roads cut off



Papua, Indonesia (11/ 2025)
Located deep in the remote regions of Papua

Can't locate victims

THE SOLUTION

RescueEagle reaches victims from the sky



NO ROAD ACCESS
→ Flies straight in - on site in a **few minutes**

NO WAY TO LOCATE
→ A **4-sensor array** finds people under rubble

NO COMMUNICATIONS
→ Drops supplies, opens an **emergency comms channel**

MULTI-DRONE DEPLOYMENT SUPPORT
→ Supports **simultaneous deployment** of multiple drones

All coordinated from a single Command Dashboard

Four signals, one decision



A decision is triggered only when fused confidence exceeds the required threshold.

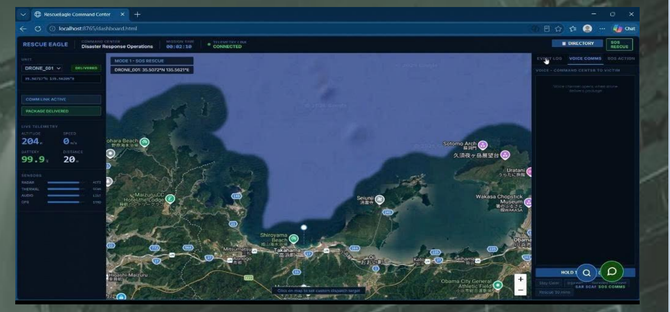
SCENARIO

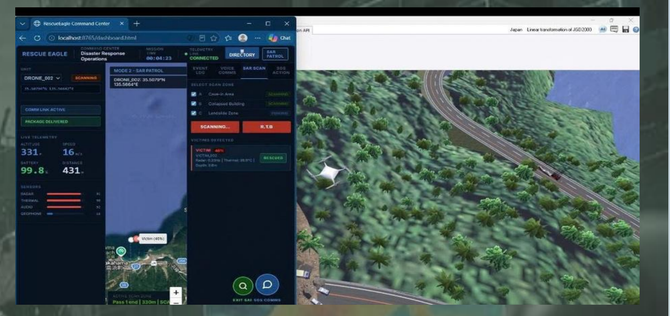
SCENARIO 1: SOS EMERGENCY RESCUE
Victim presses SOS, the drone arrives

1. **Press the physical SOS button**
   The alert appears on the Command Dashboard
2. **Flies straight to the target**
   Unaffected by cut-off roads
3. **Orbits and drops supplies**
   The relief box lands right at the victim
4. **Opens Voice Comms**
   Hold to speak · Stay Calm · Rescue 30 mins

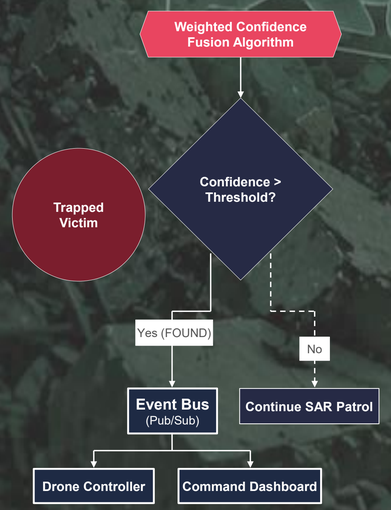
SCENARIO 2: SAR AREA PATROL
The drone finds people on its own

1. **Select a scan zone**
   Landslide · Collapsed building · Cave-in
2. **Zig-zag flight (boustrophedon)**
   Full strip-by-strip coverage, no gaps
3. **Signal > threshold → verification orbit**
   Auto-reports location, depth and readings to the Dashboard





SYSTEM ARCHITECTURE



Pub/Sub Event Bus
Decoupled modules that talk through events

Scale without rewrites
New drone or sensor = one more publisher

Multi-drone operation
DRONE_001 and DRONE_002 run side by side on the Dashboard

4-Sensor Array (Drone Payload)

Acoustic Mic (Distress Calls)	Radar UWB (Breathing Detection)	Thermal Camera (Body Heat)	Geophone (Ground Vibrations)

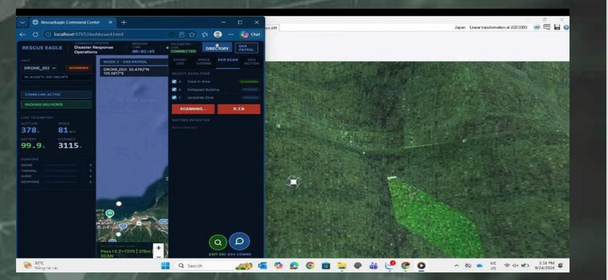
Signal Processing (Edge AI)

Acoustic Analysis (MFCC Extraction)	Radar Doppler (Range Equation)	Thermal Analysis (Stefan-Boltzmann)	Seismic Analysis (Wave Attenuation)

SIMULATION

Validated in 3D simulation on UC-win/Road





UC-win/Road - terrain, floods and landslides in 3D physics simulation

Python Core SDK ↔ real-time Command Dashboard

Recreate dangerous scenarios and rerun them without limits	Validate the full end-to-end workflow	Sensor data is currently simulated - PoC stage

ROADMAP

RESCUEEAGLE
DRONE RESCUE SYSTEMS

01 Refine the algorithm in simulation
02 Field tests with real sensor hardware
03 Coordinated drone fleet linked to rescue teams

No one left behind when disaster strikes

Team Mobius - Bringing hope from the sky