

Garuda Robotics Technologies

.....
<https://garuda.io> | hello@garuda.io

Architecture Philosophy

ROS

**Autonomous
and
Coordinated**



5G

**Ubiquitous
and
Private**



AI

**Intelligent
and
Accountable**

Support Garuda Robotics Vision

Autonomous Systems for a Safe, Smart, Secure World

Garuda Robotics Technology Stack



5G Mobile Edge
Compute (MEC)

Global data sources
(maps, terrain, weather)

Deep Learning
ML Models



MyDroneFleets
Net-RID Trackers

Remote ID
Service Provider

**Combined Operations / Airspace
Picture**

Remote ID Display
Provider

[mydronefleets]

Fleet Management &
Airspace Visualizer



GR Cerana UA
5G & AI native UAVs

Flight Control System for BVLOS Operations

Drone Agnostic
3D Flight Planner
Flight Risk Predictor
Real Time Advisories
Routine Flight Scheduler
Strategic Deconfliction
Drone Simulator
Autonomous Flight
Stick Controls over Internet
Telemetry playback
Primary / Secondary Pilots
Selective Backtrack to Land

High volume
message
broker

Drone Fleet Management

Pilot Registration
Drone Registration
Flight Logging
Drone Maintenance
Docks, Batteries, Controllers

OVERWATCH
Infrastructure
Management System



GR aria UA
Indoor Swarm UAVs

Geo-aware
Intelligent
Computer
Vision AI

for Cyber
Physical
Systems

Enterprise Applications

Security Surveillance
Facade Inspection
Mapping and Photogrammetry
Tasking and Spraying
Cargo Delivery

Tenera
Palm Plantation
Spraying System



Other OEM UA
(DJI M30, M3D, etc.)

Adapters and Integrations

National Airspace Picture (eg. NFZs), base maps,
vessel data, custom AI models, other C2s

Developer Programme

APIs: REST, websockets, video
streaming, ROS2

Developer Applications

CAA / ANSP's UTMS
(CAAS CFMS, OneSky)



Garuda Plex

Identity &
Access

Real Time
Notification

Digital
Assets

Video
Streaming

garuda.io | mydronefleets.com

Core Technologies



**Connected
Unmanned Aircraft**



**Cloud Command and
Control Platform**



**AI and Workflow
Applications Platform**

Core Technologies



Integral Part of your Service Delivery

Value Proposition for

UTM software providers / ANSPs

Compatible regional UTM for autonomous airspace managers



Value Proposition for

Systems Integrators

C2, AI, tracking and surveillance parts of your complex systems



Value Proposition for

Telcos / Web Service Providers

Enhanced service offering legally to the drone players

AIRMAP



ST Engineering

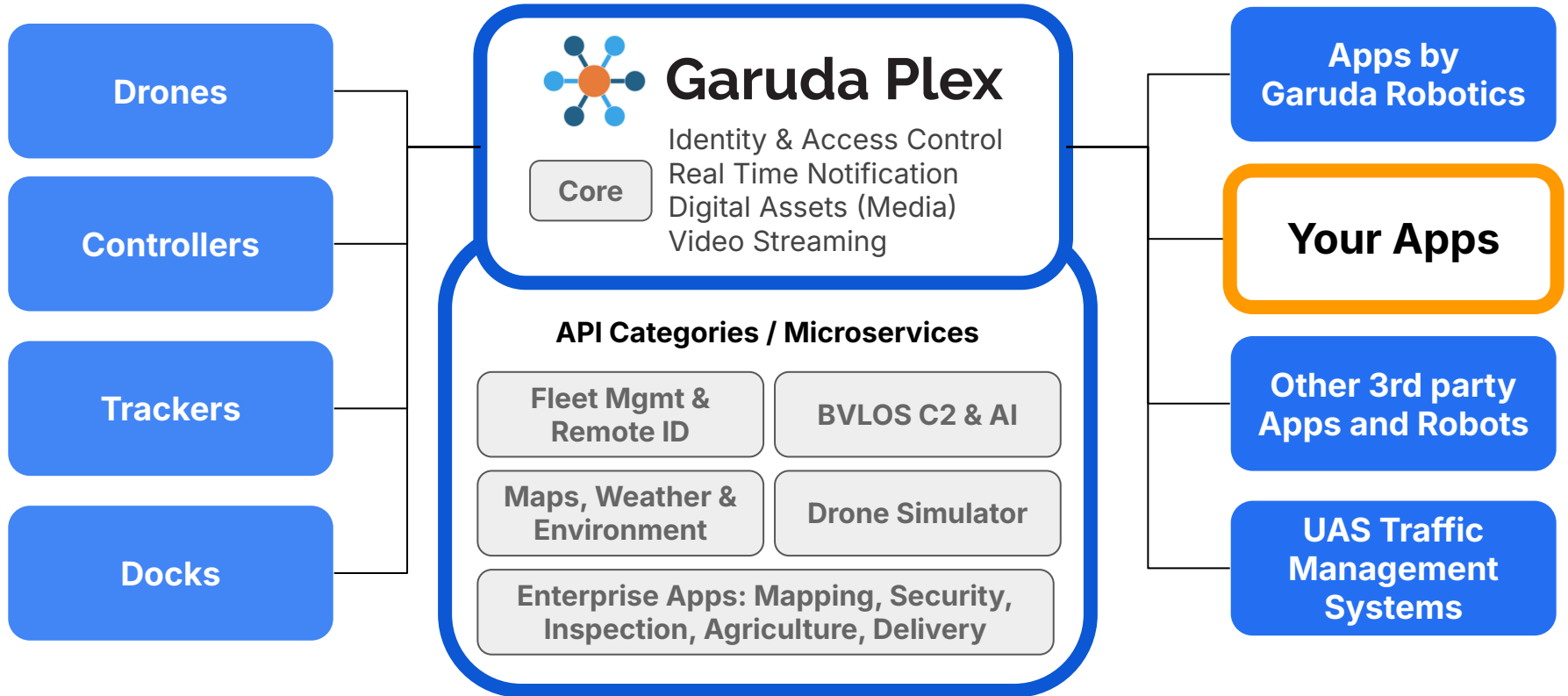


中華電信
Chunghwa Telecom



Independently Made In Singapore

Garuda Plex PaaS & Developer Programme



Intelligent Connected BVLOS Unmanned Aircraft

Standard Features

- CoPilot Gen 2 embedded
- Dual 5G radios for redundant communications
- 4K video streaming with AI (with ClearCam Ultra payload)
- BVLOS ready for C3 from Drone Operations Center
- Onboard AI engine for detection, tracking and recognition



Cerana ONE Pro

- 7.0kg/9.5kg MTOW
- 35 min max endurance
- 2.0kg payload rating
- Tethered option



Cerana X4

- (End of Sale)
- 13.0kg MTOW
- 35 min max flight
- 5.0kg max payload



Cerana X8

- 25.0kg MTOW
- 39 min max endurance
- 5.0kg payload rating (10.0kg max)
- Tethered option



Cerana 10

- (2024 launch)
- 10.0kg payload rating

V220

- 16.0kg MTOW
- 120 min max endurance
- 1.5kg payload rating

Flight Control System for BVLOS Operations

BVLOS Flight Control used in OVERWATCH

Drone Agnostic

GR Cerana UA

Autonomous Flight

3D Flight Planner

Other OEM UA

Flight Risk Predictor

BVLOS Features

Primary /
Secondary Pilots

Routine Flight
Scheduler

Stick Controls
over Internet

Drone Simulator

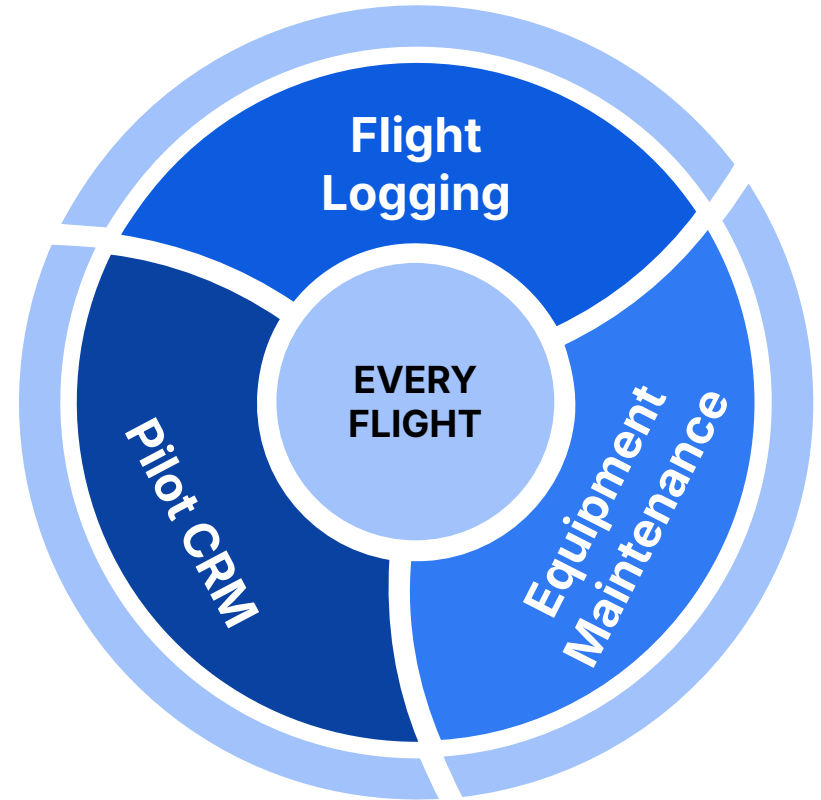
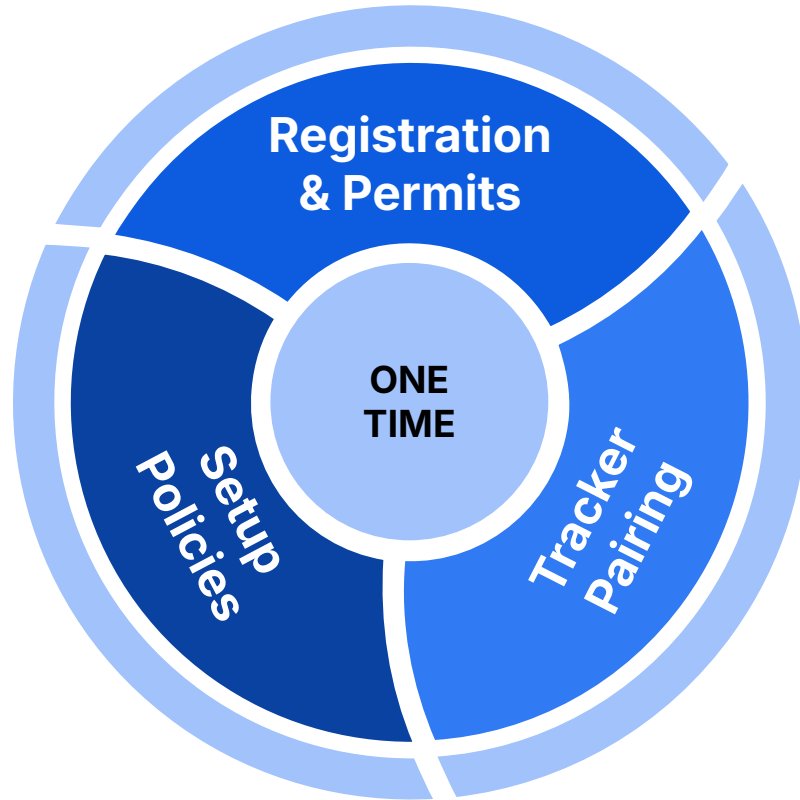
Selective
Backtrack to Land

Real Time
Advisories

Strategic
Deconfliction

Telemetry
playback

Drone Fleet Management



Enterprise Applications

MAPPING

3D digital surface models

Base maps for flight operations

FACILITIES

Periodic facade inspection

Visual / Thermal Payload Cameras

SECURITY

Perimeter Surveillance

Large Area Search & Rescue

AGRICULTURE

Spray Fertilizers & Insecticides

Precision spraying & harvesting

LOGISTICS

Parcel & Cargo Delivery

Emergency Medical Delivery

OVERWATCH: Drone Infrastructure Management System



Taskable autonomous inspection and surveillance system

Real-time video analytics in the cloud and at the edge

BVLOS-ready, remotely operated from a command center

AI-powered applications for decision support and rapid, automated insight generation



Utilities

Regular asset inspection

Detect anomalies

Secure compound

Infrastructure

Inspect assets at height

Change detection

Monitor safety risk

Oil & Gas

Fault/leak/failure detection

Minimize downtime

Prevent catastrophic failure

Drones made for work

Autonomous
5G connected
4K live video



Cerana ONE Pro



Cerana X8



V220

TENERA: Precision Aerial Spraying for Agriculture



Efficient precision spraying system for pest management

High-precision mapping with RTK GNSS drones

Automated and accurate tree identification, localization and counting

Spot precision and blanket pesticide spraying for effective pest management

Minimize waste, environmental impact, and HSSE risk to manpower

40%

Average production loss in Malaysian oil palm plantations due to *Oryctes Rhinoceros* beetle

50%

Potential crop loss from caterpillars (bagworms/nettle/hairy)

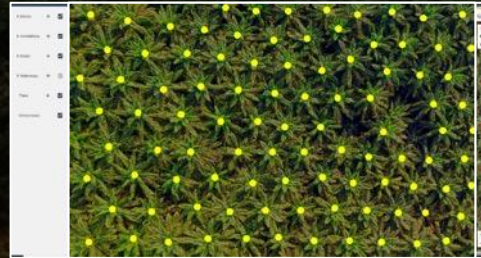
Pest Identification



Estate Management



Asset Identification



Precision Spraying



MyDroneFleets: Airspace Management for Unmanned Aircraft Regulators



Visualize small UAS flight operations in low altitude airspace with cellular coverage.

UAV Trackers are fully self-contained with integrated GNSS, IMU, 4G LTE, and a rechargeable battery.

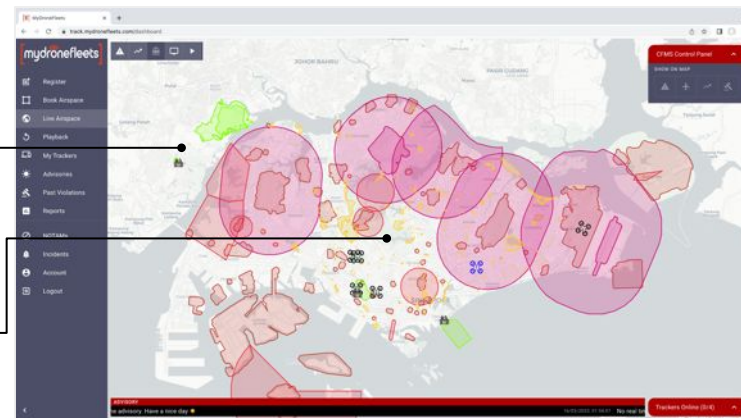
Singapore is first country to mandate and roll out Network Remote ID tracking, with hundreds of trackers deployed.

UAV Tracker G2



Weight	45g
Endurance	60+ min
Positioning	GNSS
Communications	4G LTE

Centralized Flight Management System Dashboard



Mandatory equipment for all UAS at DRZ Iskandar Drone Test Site as part of CAAM segregated airspace since **2022**

Selected by CAAS as sole Network Remote ID solution for all commercial UAS in Singapore in **2019**

Nationwide commercial rollout commenced **2022**

Republic of Singapore Air Force usage commenced **2023**



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