

AUTONOMY BOX

ADAS & AUTONOMY FOR GROUND ROBOTICS

Off-road autonomy for UGVs and quadrupeds

A sealed compute module that turns a teleoperated ground platform into an assisted or fully autonomous one. Built for unstructured terrain rather than road lanes: the perception stack expects slopes, vegetation, ruts and dust, and it adapts to both wheeled or tracked UGVs and legged quadrupeds.

ADAS LAYER

- ▶ Obstacle detection with negative-obstacle and ditch awareness
- ▶ Collision avoidance and speed governing under operator control
- ▶ Rollover and slope-limit protection for off-camber terrain
- ▶ Assisted teleoperation over degraded or high-latency links

NAVIGATION

- ▶ GPS-denied localization with visual-inertial odometry and LiDAR SLAM
- ▶ Geo-registration against prior imagery where available
- ▶ Terrain-relative pose estimation for legged gait planning
- ▶ Area and building scanning with mapped output

AUTONOMY LAYER

- ▶ Waypoint and route following across unmapped terrain
- ▶ Traversability estimation and cost-map planning
- ▶ Follow-me, leader-follower and convoy behaviors
- ▶ Return-to-operator and comms-loss fallback behaviors

PLATFORM FIT

- ▶ Off-road UGVs — wheeled and tracked, from light mules to heavy carriers
- ▶ Quadrupeds — gait-aware planning and step placement for robotic dogs
- ▶ Vehicle-agnostic drive-by-wire and actuator abstraction layer
- ▶ Swarm logic and multi-platform coordination

AT A GLANCE

COMPUTE NVIDIA Jetson (Orin family), Qualcomm	SENSORS Stereo, LiDAR, IMU, EO/IR	PLATFORMS Wheeled, tracked, quadruped
INTERFACES ROS2, CAN, serial, custom	NAVIGATION GNSS and GPS-denied	

NVIDIA Jetson

Qualcomm

iMX8

Hailo

Integrate AUTONOMY BOX into your platform

neuronicode.com/products/autonomy-box-ground-robotics

Tell us your compute, sensors and platform, and we will scope the integration.