Hydra®

multi-robot pre-programmed route & mission planning

NORTHERN LIGHTS TACTICAL

Overview

- As the operational needs of special forces grow more demanding, so too do the training requirements. By training beyond normal levels, the likelihood of success on the battlefield can be improved dramatically.
- Stationary targets, while a useful tool, are no longer sufficient. Linear moving targets are an improvement but require fixed rail systems to be installed on a range.
- Hydra is a rail system without the rail.

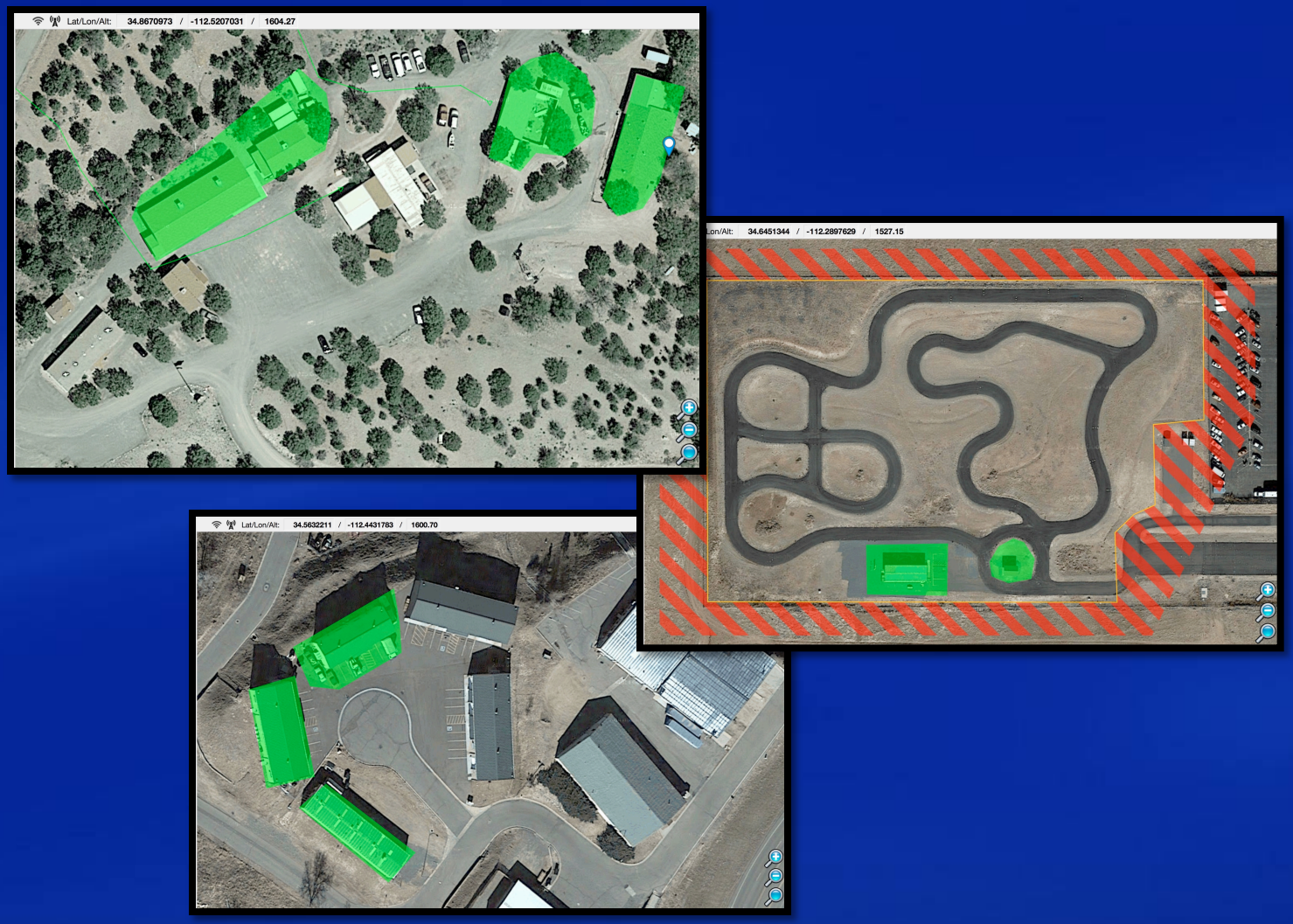
Overview

- The TRACS Robots can be equipped with electronics packages allowing them to know where they are in the simulation area and drive pre-programmed routes uploaded by the operator.
- Mission planning software running at an instructor command & control location allows the instructor to design, execute, and review training scenarios as well as evaluate the performance of the trainees.

Mission Planner Features

- Uses Google Earth imagery, site plans, or other aerial imagery sources
- Can cache imagery offline
- Instructor-defined Containment & No-fly zones
- Measurement tools
- Scripting capability
- Robot telemetry display

Aerial Imagery



No-fly Zones

- Can be of arbitrary size and shape
- One overall operational area boundary
- Multiple no-fly zones to prevent movement through known stationary obstacles prior to operation

No-fly Zone Editor

Arena Boundary

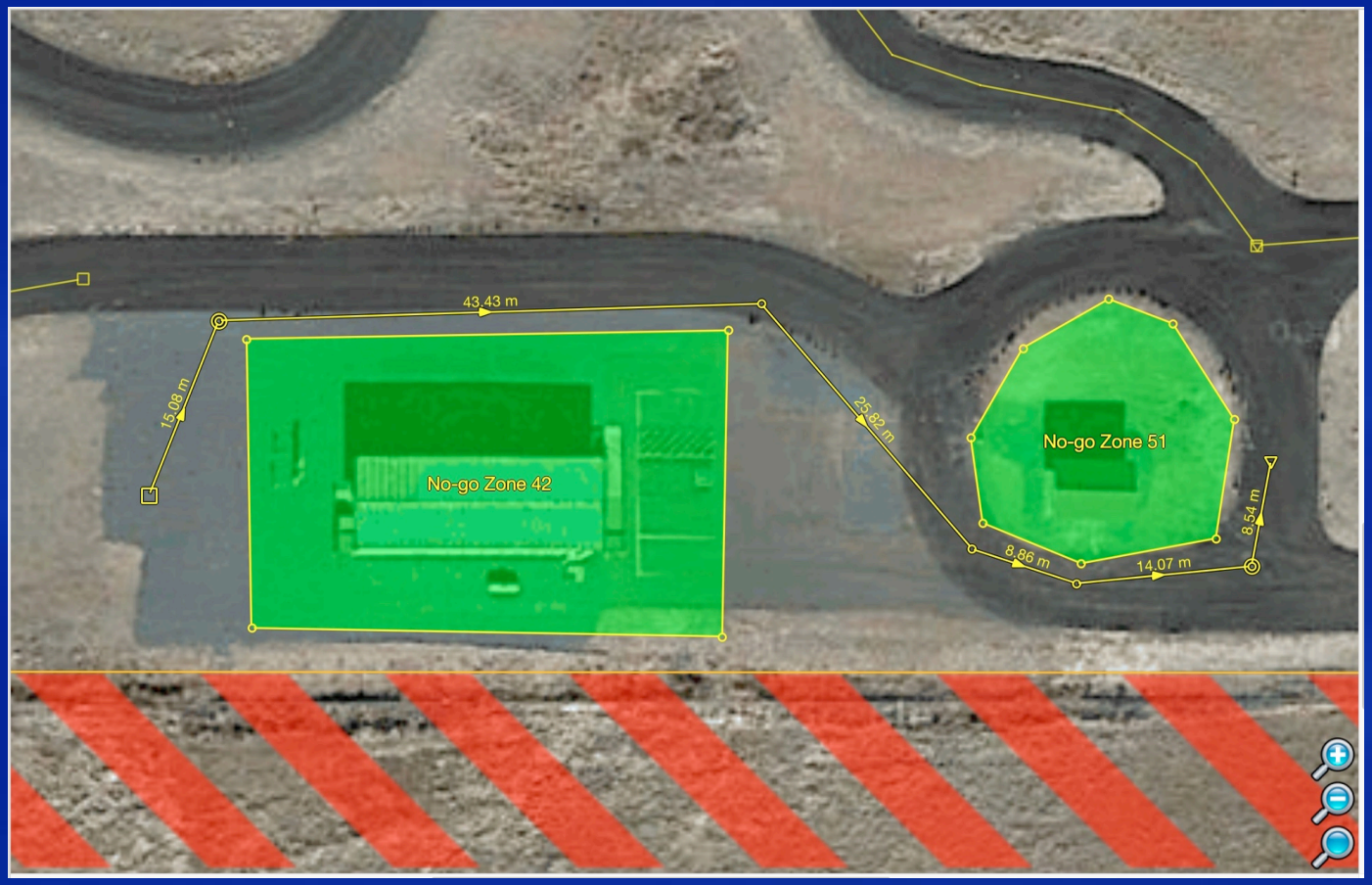
No-fly Zone Editor

Obstacle Boundaries

Individual Robot Missions

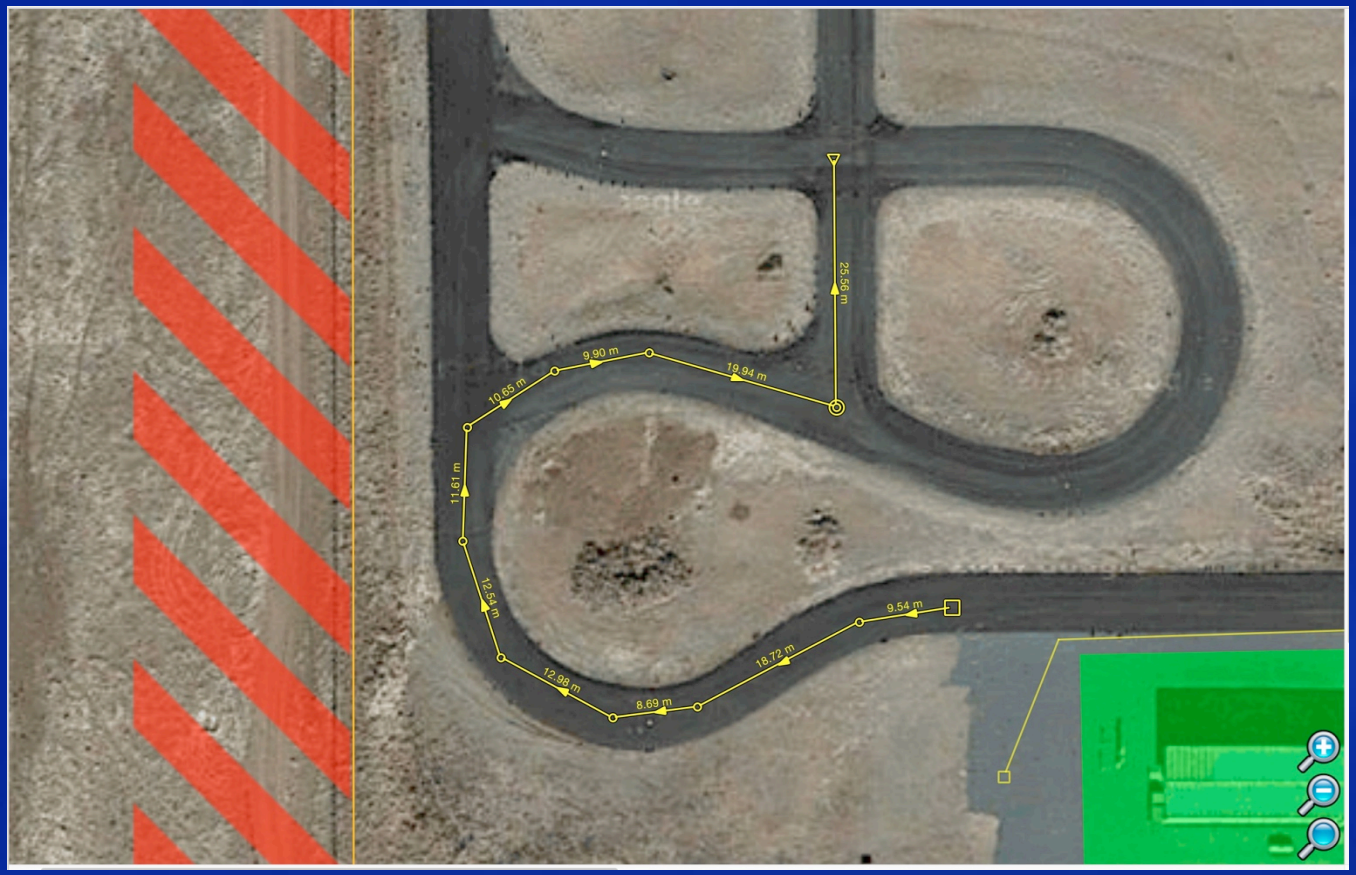
- User-defined, fully editable motion paths of any length and complexity
- Spline-type paths
- Path editor notifies user when a path intersects a no-fly zone
- Path editor can automatically generate a route around no-fly zones before being uploaded to the robot

Robot Path Editor



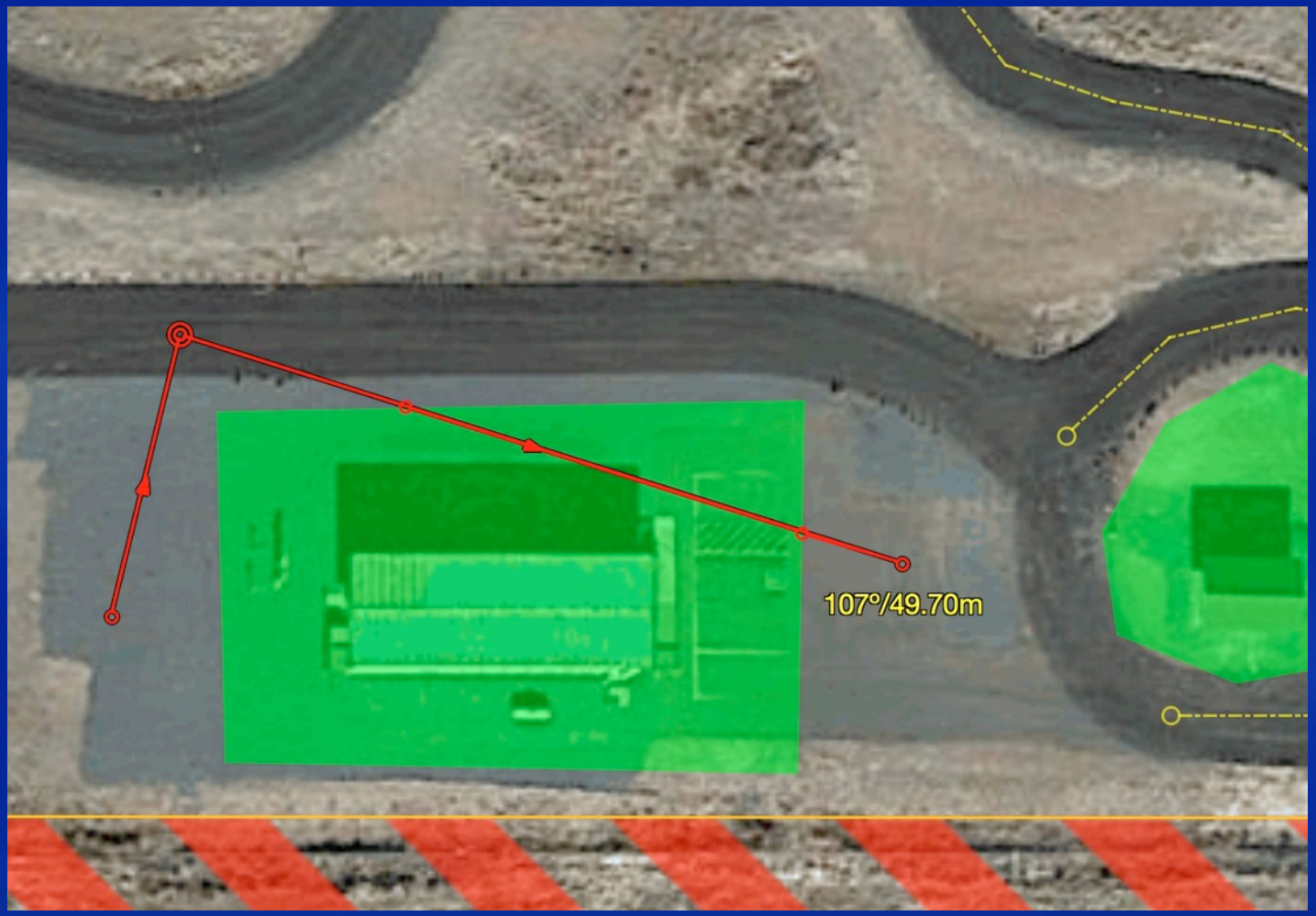
Robot Path Editor

Complex paths with sharp turn indications



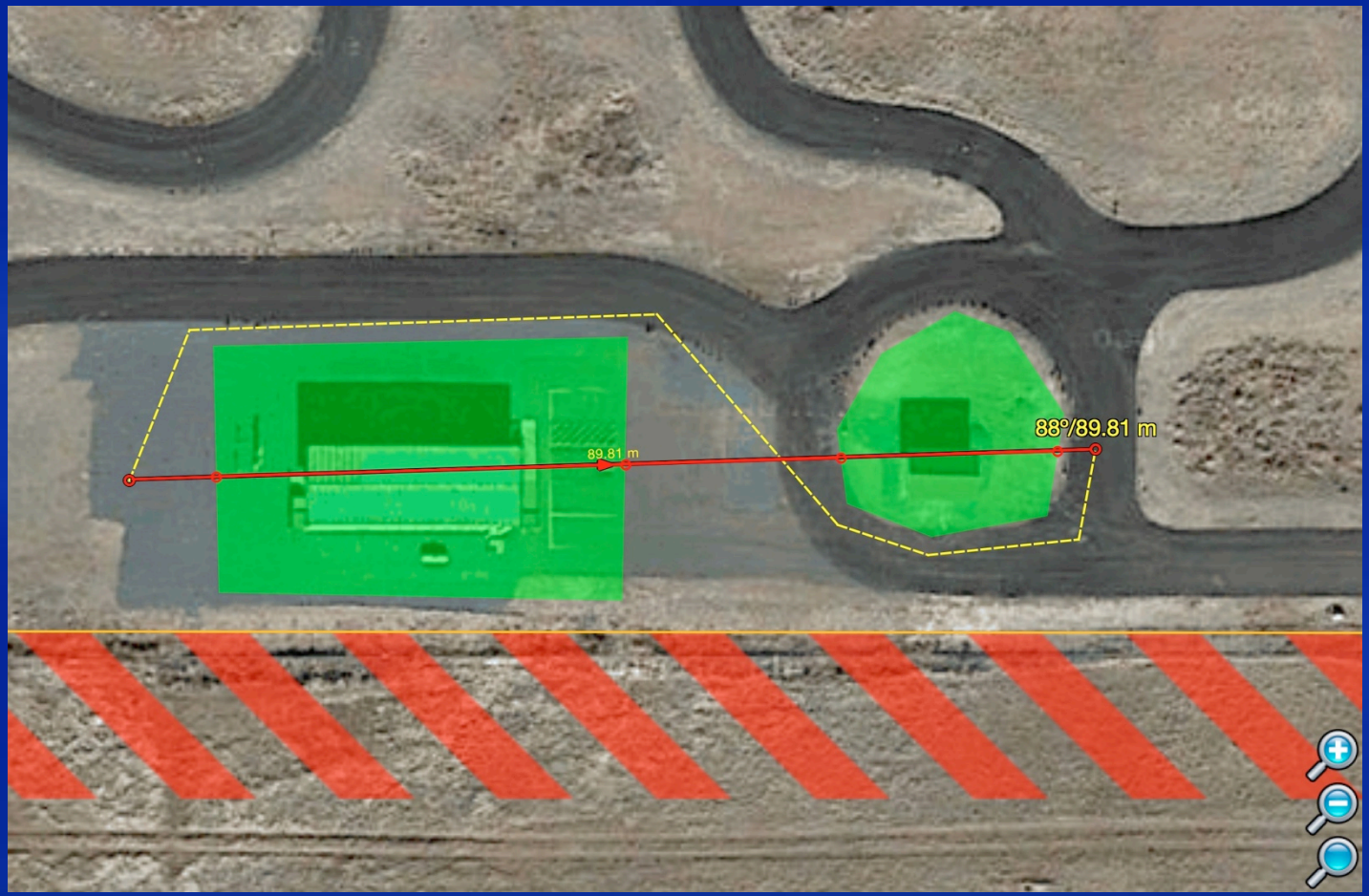
Robot Path Editor

Invalid path indication



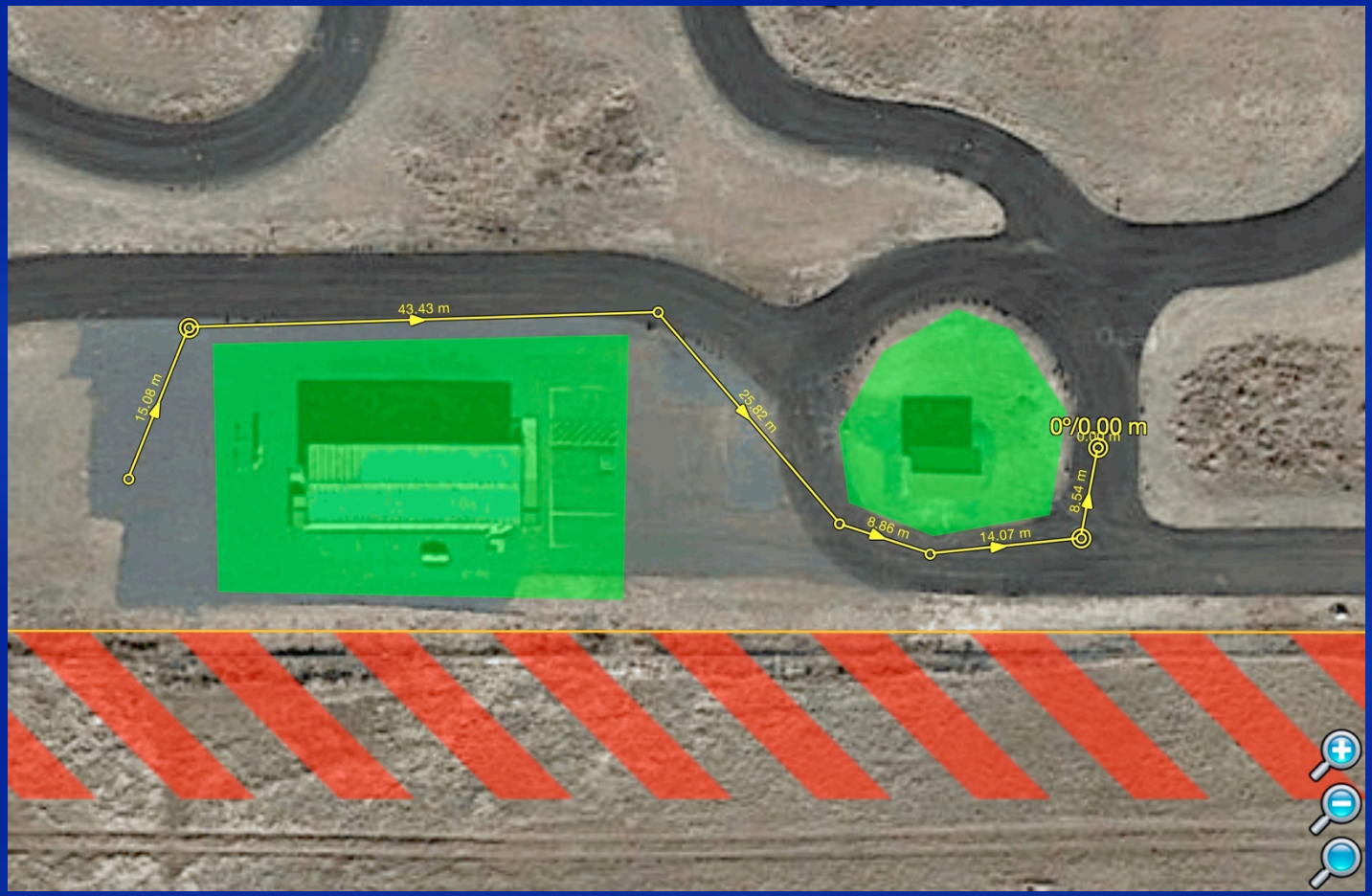
Path Pre-flight Error-checking

Invalid path indication & No-fly Zone avoidance



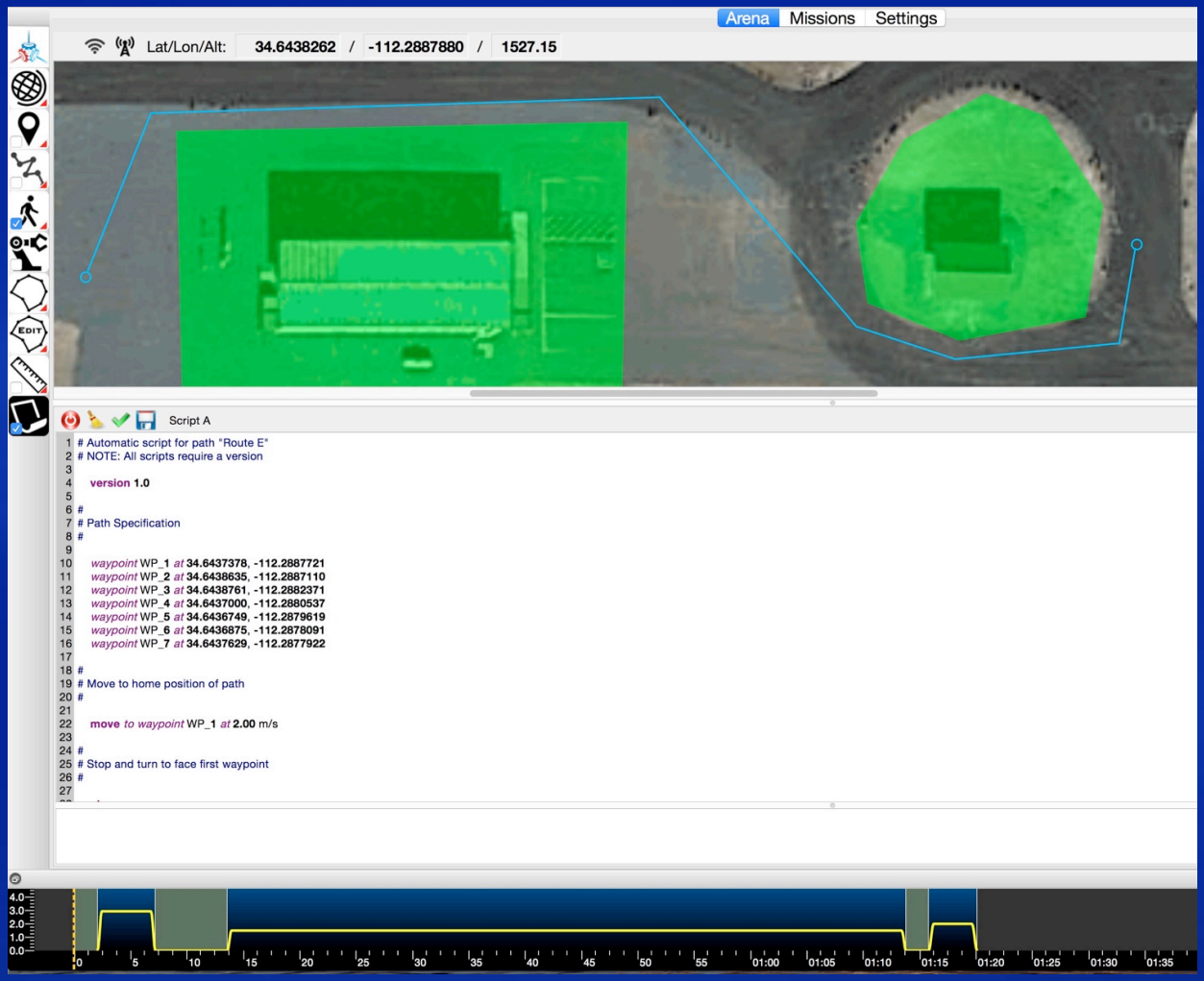
Path Auto-routing

Auto-routed path becomes fully editable before being uploaded to the robot



Robot Script Editor

With time line edit capability



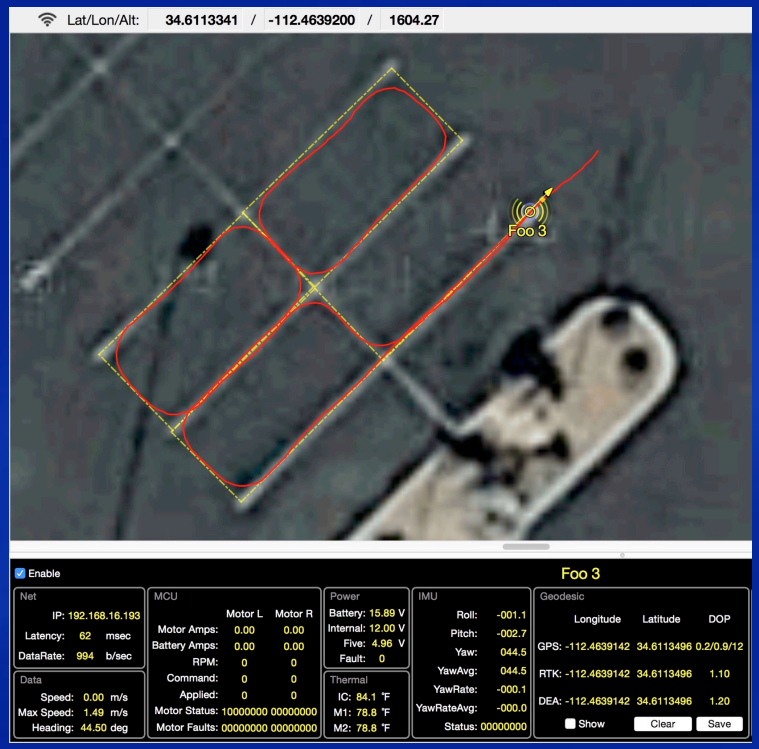
Robot Operation & Feedback

- Multiple robots operating independently on pre-programmed routes.
- Uses GNSS and Inertial Measurement to follow any pre-defined path.
- User-defined robot velocity and timing.
- Live scenario status feedback

Multiple Robot Scenarios

Real-time status of the scenario

Live tests



Accuracy

350 meter course over 6 minutes

Repeatability