

HYDRUS

THE DRONE REVOLUTION

UNDERWATER



ADVANCED
NAVIGATION

PETER BAKER

Subsea Product Manager – Advanced Navigation

Responsible for Subsea Robotics & Navigation
Product Manager for Hydrus AUV program

Experience

Over a decade in Hydrographic and Offshore Survey
Online & Offline Survey, Party Chief & Project Surveyor
Surface Vessel, ROV, AUV

Education

BSurv (Otago) – 2010 – Specialisation in Hydrography
MBA (UWA) – 2020 – Leadership and Innovation



WHO WE ARE

Advanced Navigation develops AI-based navigation and robotics technologies for air, land, sea and space applications.

Our mission is to be the catalyst of the autonomy revolution



Inertial &
GNSS
Navigation



Acoustic
Navigation



Photonics



Robotics

Our expertise encompasses



UNDER THE HOOD

Navigation & Communication

USBL Positioning

Acoustic positioning provided by Advanced Navigation [Subsonus](#)



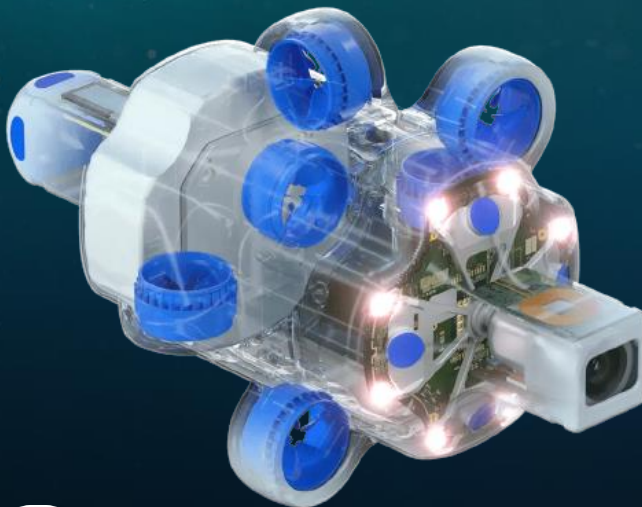
Acoustic Modem

Long range underwater communication



WiFi

Plan missions and offload data



GNSS Receiver

Absolute positioning and timing when on the surface



Inertial Navigation System (INS)

AI-Enhanced MEMS based INS



Optical Modem

High speed near-range communication



Doppler Velocity Log (DVL)

High frequency DVL for accurate relative positioning and bottom tracking



UNDER THE HOOD

Payload Capability

Oceanographic

Conductivity, Temperature and Depth sensor, allowing speed of sound in water to be determined



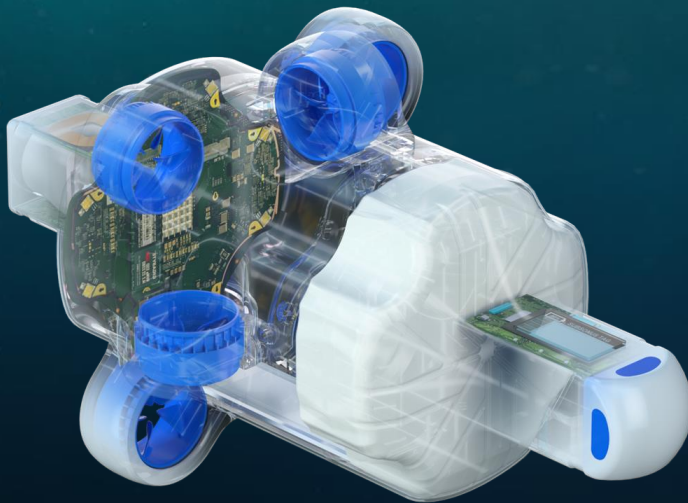
Third-party Sensors

Architected with third-party sensor capability



Dynamic Imaging

AI-enhanced imaging system that combines low-light sensitive camera sensor, dynamic LED lighting & sonar tracking for focal range



3D Reconstruction

Combine sonar point clouds with SfM photogrammetry for high resolution digital twins of the seabed



Software Payloads

Run your own code with allocated hardware resources and direct access to sensor data with API access to control system



UHD 4K 60 fps camera

Simultaneously capture cinema-grade video, and 12MP stills



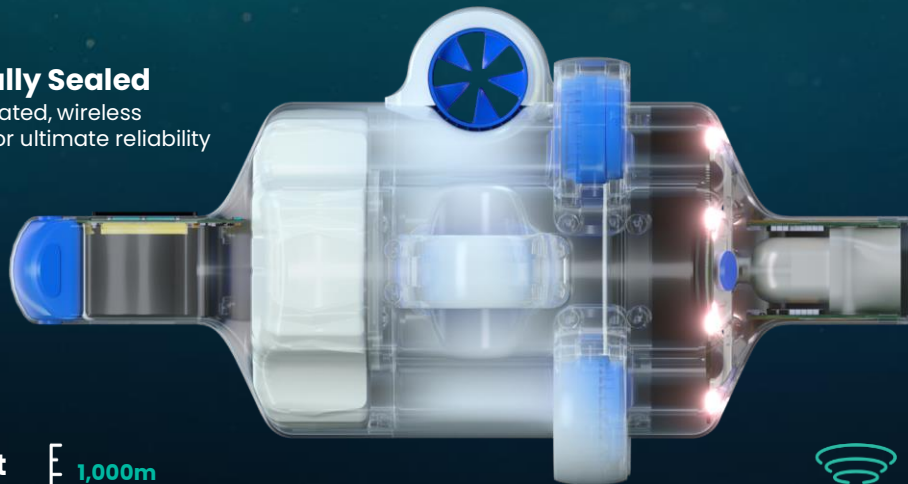
UNDER THE HOOD

Physical Features



Hermetically Sealed

Fully encapsulated, wireless construction for ultimate reliability



Pressure Tolerant

Different depth variants available, to suit your needs



Inductive Charging

Safe, reliable, and fast wireless charging - even underwater



Small and Affordable



Stunning Imagery



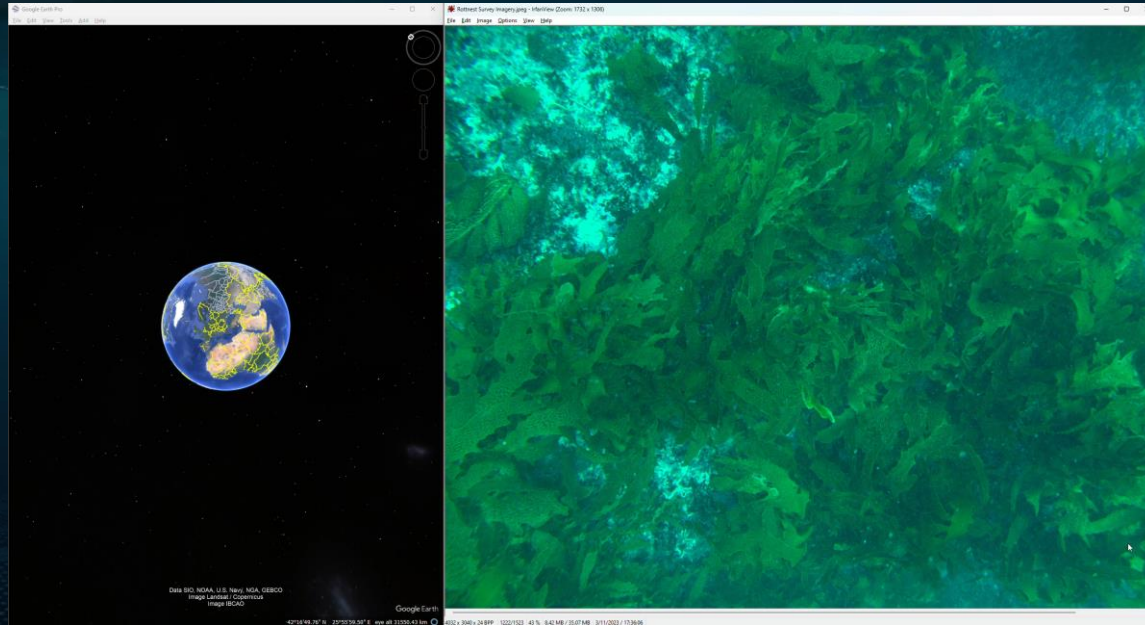
Field Data

Strong currents in a complex terrain



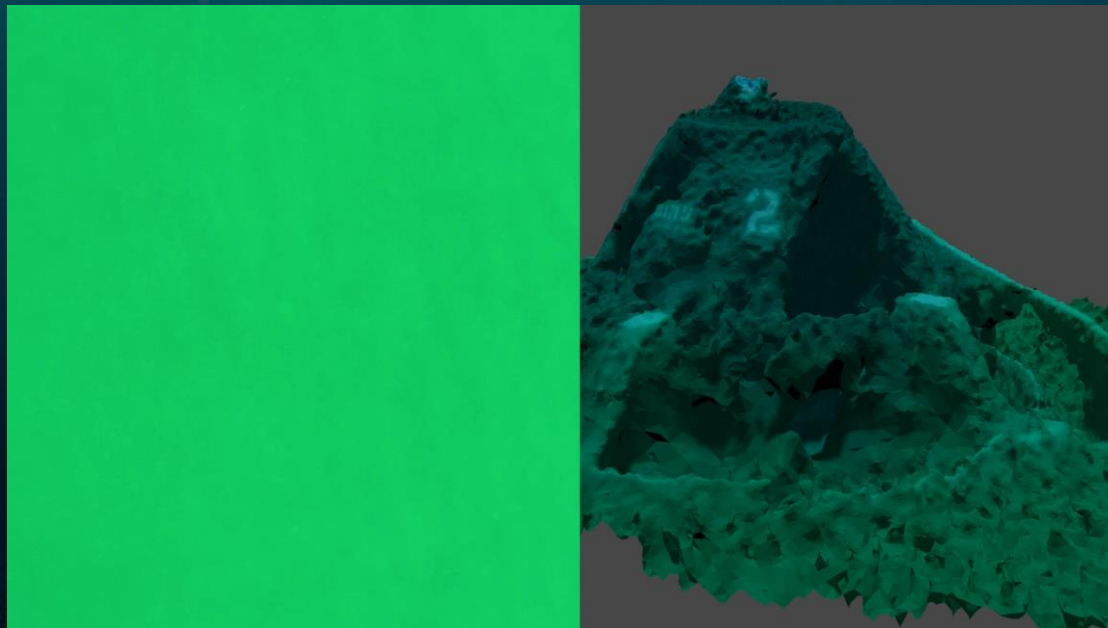
Precise image georeferencing

Precise image georeferencing



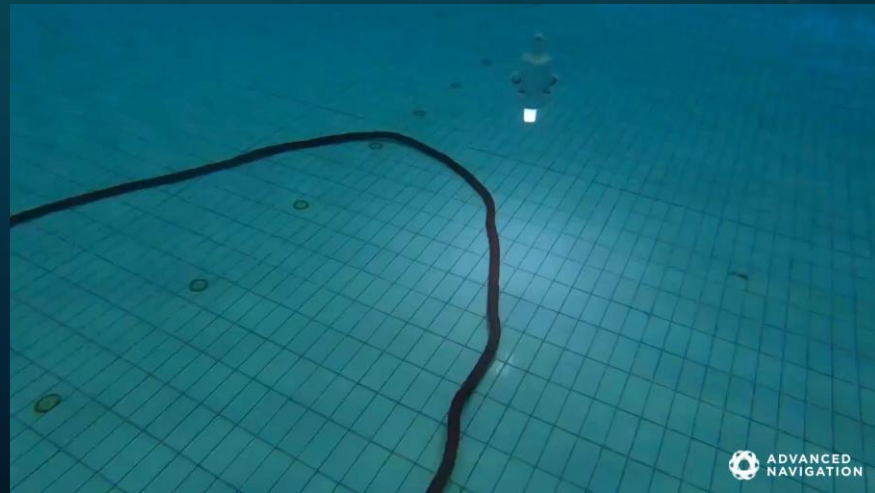
Field Data

Turbid water object identification



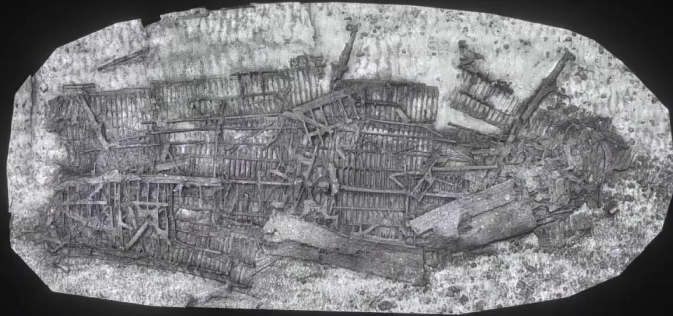
Field Data

Onboard AI rope following



Field Data

Underwater object investigation



SAVE VIEW



THANK YOU



ADVANCED NAVIGATION

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