Evo Logics®

GEO

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SONOBOT

AUTONOMOUS HYDROGRAPHIC SURVEY VEHICLE

PRODUCT INFORMATION GUIDE

EvoLogics Sonobot – an autonomous unmanned surface vehicle for hydrographic surveys

High Precision

- Differential GPS for high-accuracy cartography (GPS, GLONASS and Galileo)
- S2C ultra-broadband echosounder (depth measurement accuracy 6 mm, min. depth 0.5 m, max depth 60 m)
- Side-scan sonar option

Versatility

- Autonomous and radio controlled operation modes
- Wi-Fi communication (GPRS/UMTS)
- On-board data logging, wireless transmission on demand
- Exchangeable supports for increased stability

Flexibility

- Integrated camera for operation in remote locations and surveillance
- Fast access to points of interest, accurate maneuvers and efficient area scanning with precisely controllable hydro jet thrusters
- Batteries for over 10 hours of operation (at optimum operation speed)
- Software for field operation and data processing with visual georeferenced representation

Robustness

- Carbon fiber floaters, corrosion-free materials, resistant to seawater and industrial waste water

Easy Handling

- Fast assembly without special tools
- Can be handled by a single person
- Fits into a car trunk compartment for transport

THE SONOBOT SYSTEM

APPLICATIONS

Hydrographic survey

- Bathymetry and seafloor imaging in ports, harbors and inland waters

Search and recovery

- Locating archeological artifacts, wrecks

Survey missions

- Exploring shallow waters, natural reserves, restricted and hard-to-reach areas

Monitoring

- Regular examinations of underwater infrastructure

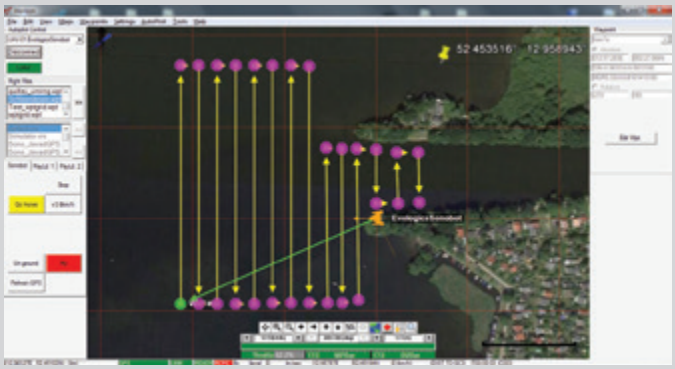
With high usability in mind, the autonomous EvoLogics SONOBOT unmanned surface vehicle was developed to provide surveyors, service providers and researchers with a smart lightweight solution for hydrographic surveys and other applications in harbors and inland waters.

SONOBOT design objectives were usability, robustness and versatility, paired with high-performance of the on-board sensors.

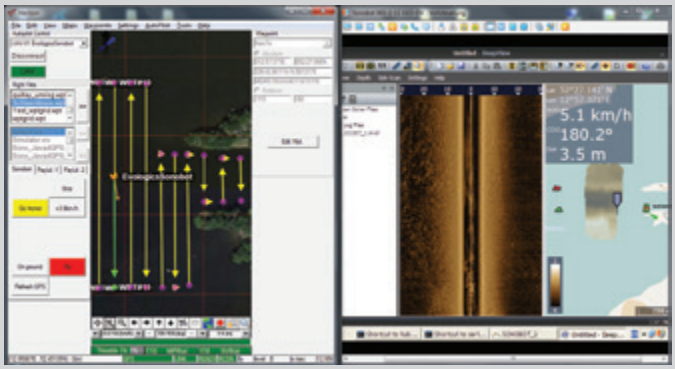
SONOBOT is a small, simple and usable platform for planning and executing a hydrographic survey that can deliver accurate geo-referenced bathymetric measurements and high-quality imagery with minimum transport, launch and recovery efforts.

Specifically for the SONOBOT, EvoLogics utilized the patented S2C broadband communication technology to build an advanced single-beam echo sounder, capable of delivering precise and accurate depth measurements even in very shallow waters.The side scan sonar, GPS system and other equipment options were pre-selected among commercial off-the-shelf products to best fit the SONOBOT platform and offer the user the best configuration for his particular requirements.

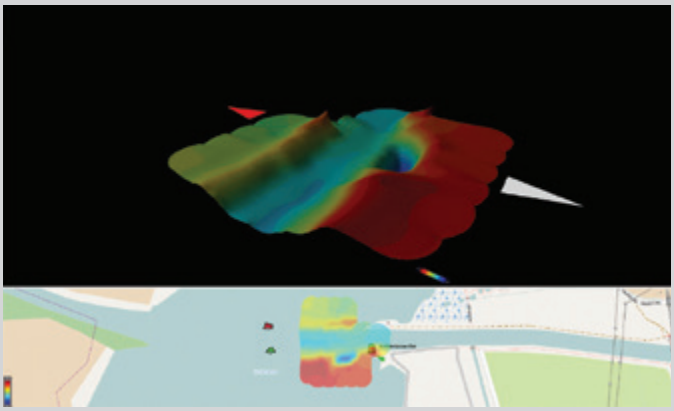
SONOBOT MISSION



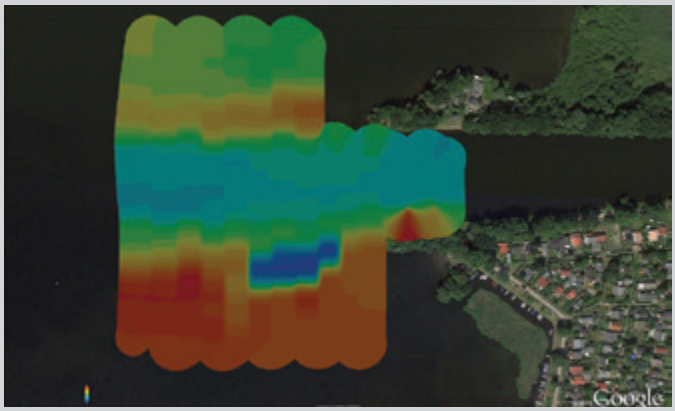
MISSION PLANNING
Creating the autopilot grid



DURING THE MISSION
Bathymetric survey, Side Scan Sonar mapping



MISSION RESULTS
3-dimensional bathymetric image



MISSION RESULTS
Projection onto cartographic material

SPECIFICATIONS

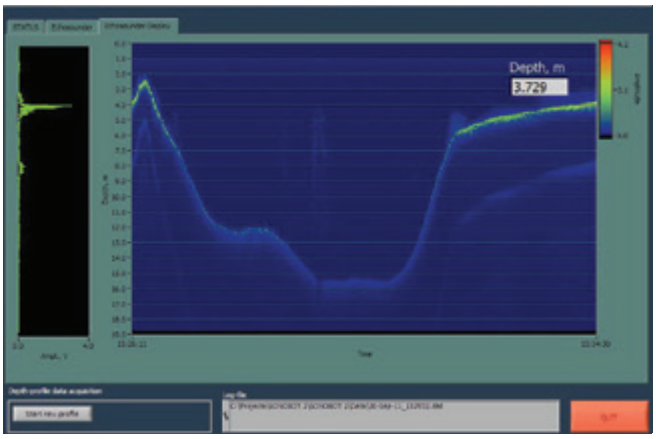
MODULES	WLAN	IEEE 802.11 a/b/g/h & super AG standards, data rate up to 108 MB/s
	AUTOPILOT	Flexible grid-based path planning, real-time navigation control
	DGPS	Javad® GPS L1/L2/L2C/L5, Galileo E1/E5A, GLONASS L1/L2, SBAS Accuracy: ±4 cm (horizontal), ±2 cm (vertical); RTK (Real Time Kinematic)
	ECHOSOUNDER	S2C (Sweep Spread Carrier) broadband single-beam 80 kHz to 120 kHz, min. depth 0.5 m, max. depth 60 m, accuracy 6 mm
	SIDE SCAN SONAR	Deep Vision®, 670 kHz, integrated in the float, resolution 2 cm, opening angle (vertical) 60°
	DATA COLLECTION	PC, 2 GB RAM, 2.5" SSD, 128 GB, plain text data output, compatible with multiple GIS, CAD and spreadsheet software
	PROPULSION	2 x 43 mm jets, 700 W each, total thrust min. 100 N 2 x brushless electric motors, 2 x 4 Lithium Polymer accumulators 14.8 V/10 Ah
OPERATION	WLAN RANGE	up to 2 km
	OPERATING RANGE	40 km
	OPERATING SPEED	optimum 4 km/h (2.2 kn), maximum 13 km/h (7 kn)
	OPERATING TIME	over 10 hours at optimum speed
	WIND/WAVE	up to 3 Bft (3.4 m/s to 5.4 m/s)/0.5 m
DIMENSIONS	HEIGHT	450 mm
	WIDTH	920 mm
	LENGTH	1320 mm
	WEIGHT	30 kg

CONFIGURATION

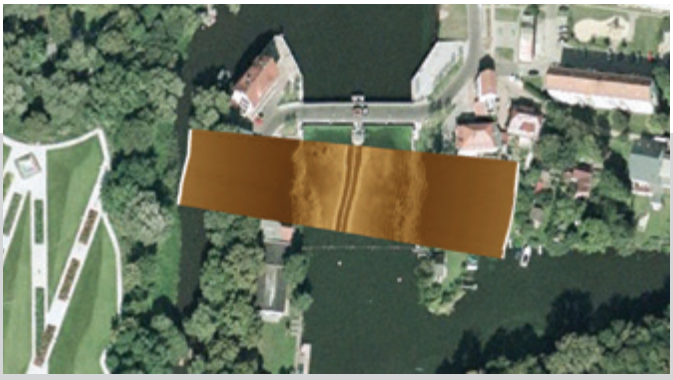
SONOBOT BASIC	2 floaters with integrated propulsion system, main body hull, S2C Broadband-Echosounder, GPS, on-board PC with SSD, WLAN station, field-PC, remote control unit, power-supply units for payload and propulsion, transport boxes, carrier system
SONOBOT STANDARD	Sonobot BASIC + DGPS (RTK), autopilot, video camera
SONOBOT ADVANCED	Sonobot STANDARD + Side Scan Sonar, software package

For pricing and configuration information contact us at sales@evologics.de or call +49 30 4679 862 - 0

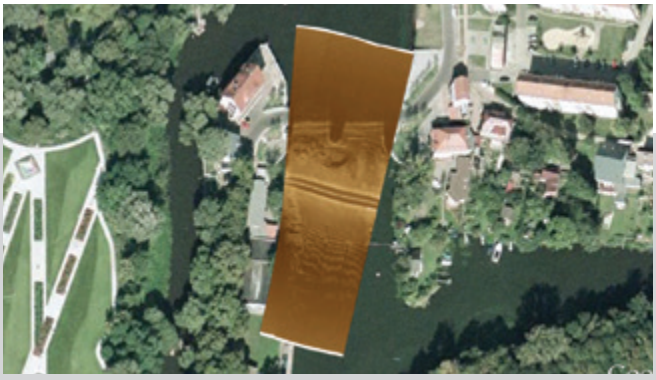
STATUS DISPLAY



ECHOSOUNDER DISPLAY



SIDE SCAN SONAR IMAGING



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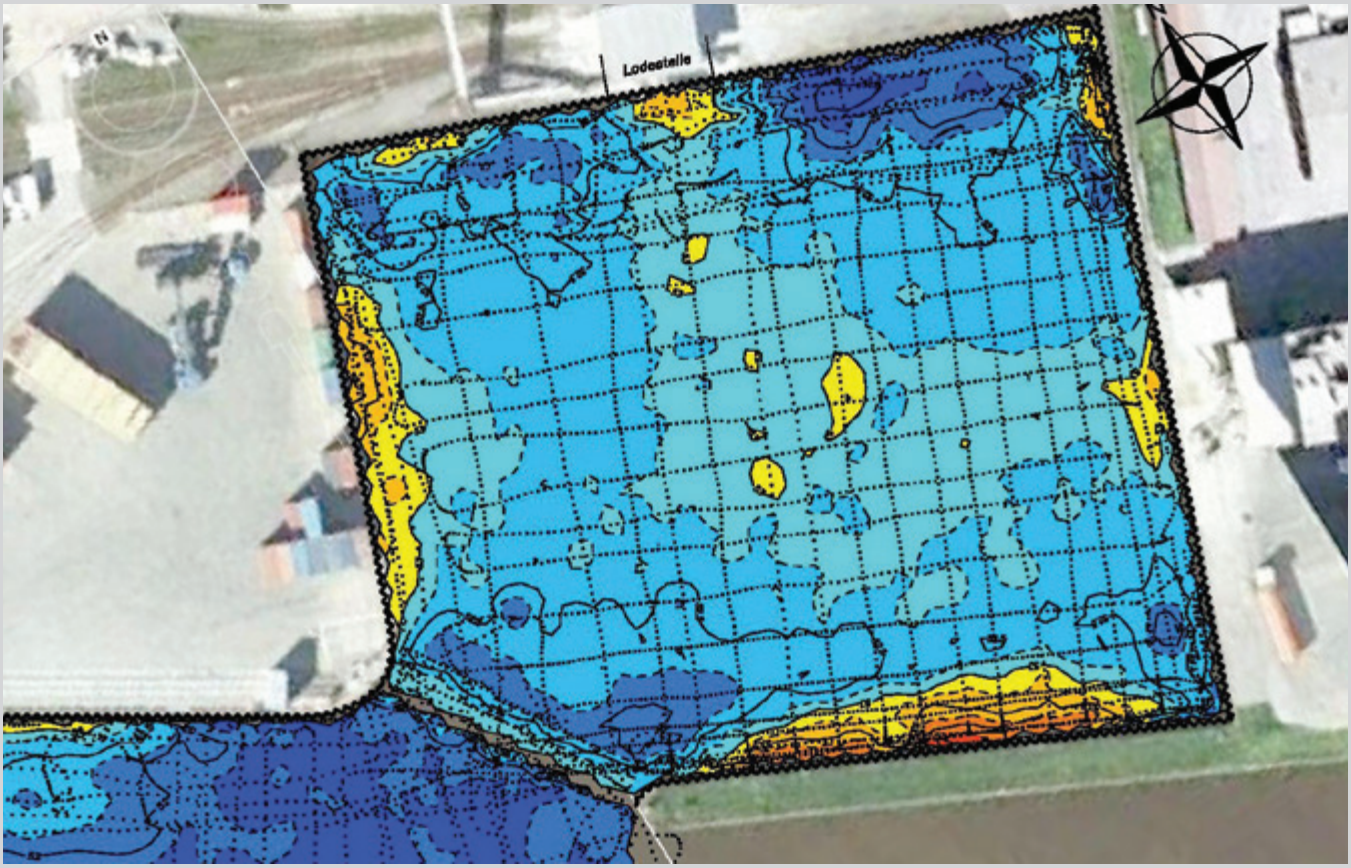
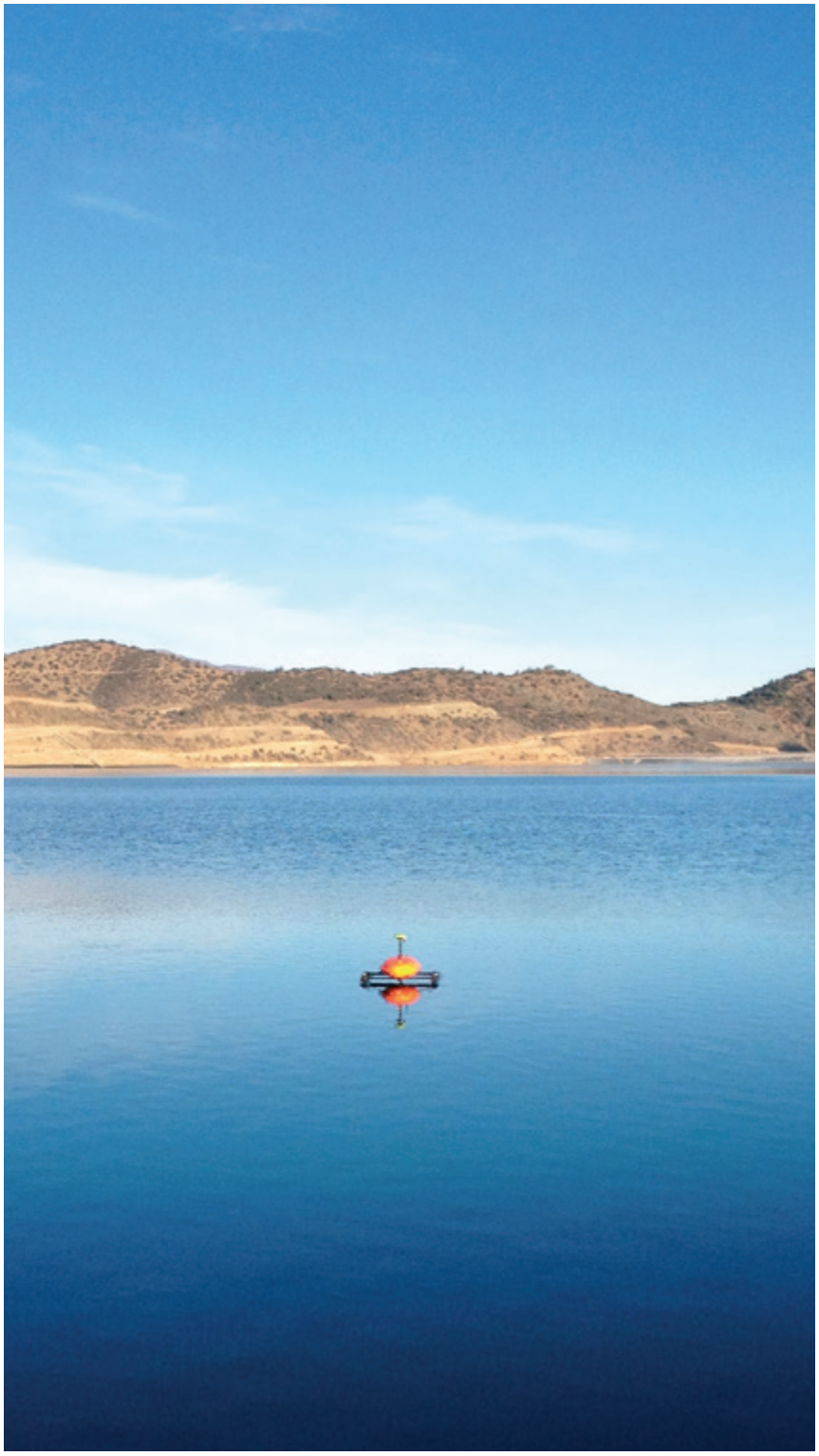


ISOBATH MAP SHOWING THE MEASURING POINTS



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