

SYSTEM ARCHITECTURE (UR): COMPONENTS, COMMUNICATIONS, GROUND CONTROL STATION.

SAAB SEAEDGE FALCON



Components:

- Main ROV body: Aluminum alloy frame, depth-rated to 300m
- 5–6 Brushless thrusters (vectored layout for full movement)
- Electronics pod: IMU, depth sensor, compass, CPU
- Sonar & camera system: Optional add-ons
- LED lighting array
- Tether management system (TMS)

Communications:

- Tethered control via fibre optic or copper umbilical
- Data types: Video feed, sonar, telemetry, sensor data
- Protocols: RS232, RS485, Ethernet, CAN bus internally

SAAB SEAEDGE FALCON

GCS:

- Control Console: Ruggedized workstation with GUI
- Features:
 - Joystick for maneuvering
 - Real-time overlays: Depth, heading, pitch
 - Graphical sonar display
- Data Recording: Logs video and all telemetry to SSD



BLUEROV2



Components:

- Main Frame: 3D printed & anodized aluminum chassis
- 6-8 T200 thrusters
- Electronics enclosure:
 - Raspberry Pi + Pixhawk flight controller (ArduSub firmware)
 - IMU, barometer, leak detector, voltage sensors
- HD camera with tilt servo
- Add-on modules: Sonar, gripper arm, laser scaler

Communications:

- Tethered communication via Fathom-X interface (Ethernet over twisted pair)
- Protocol: MAVLink
- Telemetry & live video stream: 1080p via Ethernet link

BLUEROV2



BLUEROV2

GCS:

- Software: QGroundControl or BlueOS
- Features:
 - Live HD video with OSD (on-screen display)
 - Adjustable PID settings for tuning
 - Mission planner (waypoints, depth control)
- Hardware: Laptop with joystick/gamepad + tether interface



REMUS 600 (HYDROID/KONGSBERG)



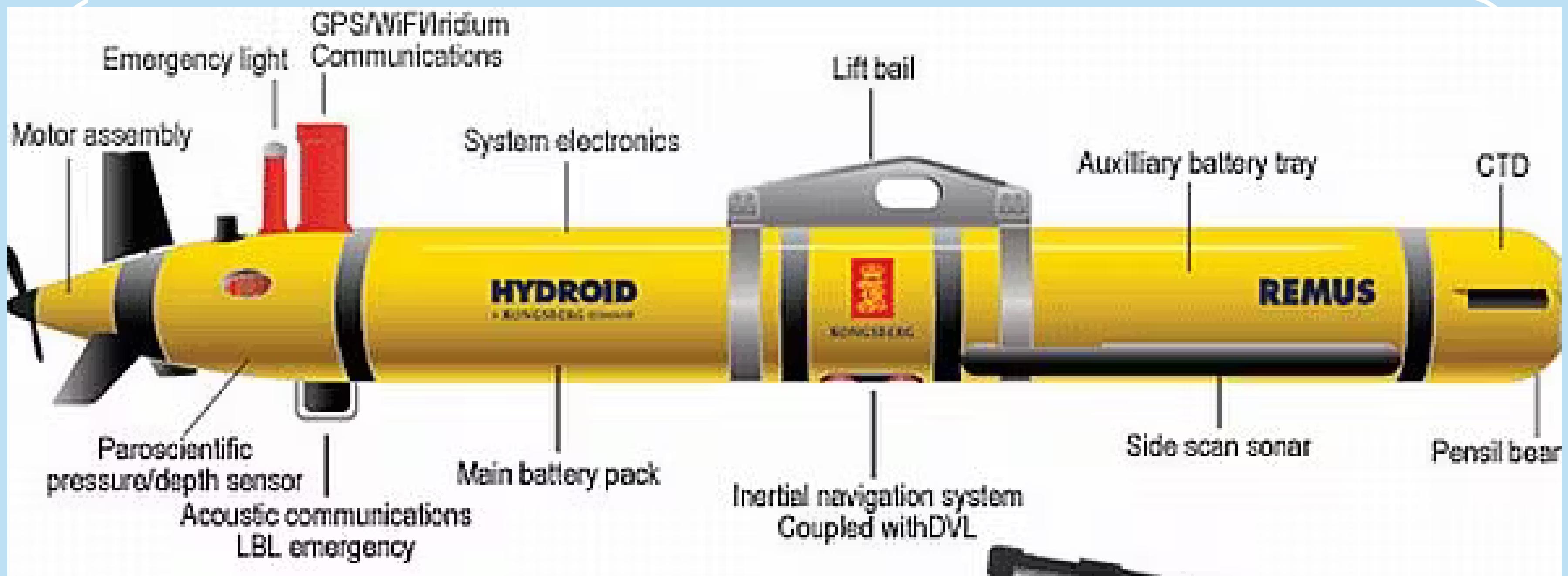
Components:

- Torpedo-shaped hull with nose cone and propeller
- Navigation suite: INS, DVL, GPS (surface fix), CTD
- Payload bay: Side-scan sonar, camera, acoustic modems
- Battery bay: Swappable lithium-ion packs
- Antenna mast: For RF/GPS on surface

Communications:

- Underwater: Acoustic modem (low bandwidth, ~300 bps)
- Surface: RF (900 MHz or Wi-Fi), GPS for fix
- USBL (Ultra Short Base Line) for tracking

REMUS 600 (HYDROID/KONGSBERG)



REMUS 600 (HYDROID/KONGSBERG)

GCS:

- Software: REMUS Vehicle Interface Program (VIP)
- Features:
 - Graphical waypoint editor
 - Sensor status monitor
 - Post-mission playback
- Mission Upload/Download: Via Wi-Fi, Ethernet, or acoustic link



HUGIN (KONGSBERG/OCEAN INFINITY)

Components:

- AUV body: Hydrodynamic design with keel-mounted payload bays
- Navigation: Dual DVL, INS, GPS (surface)
- Sensor Suite: Synthetic aperture sonar, magnetometer, CTD
- Battery Compartment: Li-ion packs with energy monitor
- Control CPU: Redundant processing unit onboard
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Communications:

- Underwater: HiPAP (High-Precision Acoustic Positioning) system
- Above Surface: RF, satellite uplink, Wi-Fi
- Protocols: TCP/IP, acoustic telemetry, Modbus for industrial interfaces

HUGIN (KONGSBERG/OCEAN INFINITY)



We call it
Seabed
Intelligence

HUGIN (KONGSBERG/OCEAN INFINITY)

GCS:

- Software: NavLab + Launch & Recovery System interface
- Features:
 - 3D mission map
 - Bathymetric data overlay
 - Real-time sonar rendering
- Remote Operation: Can monitor multiple HUGINs simultaneously



DEEP TREKKER DTG3



Components:

- Spherical Hull with magnetic coupling thruster pods
- Control Module: Embedded computer with IMU & compass
- Camera Module: 330° rotating HD camera
- Power Source: Rechargeable Li-ion battery inside ROV
- Add-ons: Grabber arm, sonar, sensors (optional)

Communications:

- Tethered: Copper cable (twisted pair or coaxial)
- Data: Video feed, control commands
- Internal Bus: CAN Bus or I²C for internal modules

DEEP TREKKER DTX2 VECTORED ROV

Battery Powered Observation Class ROV
Extremely Robust for the Toughest Environments

The diagram illustrates the Deep Trekker DTX2 ROV's vectored thruster system. It shows two large, independently steerable thrusters at the bottom, each with its own motor and gear assembly. A central vertical axis supports the camera and other internal components. Labels indicate the vectored thrusters, the central vertical axis, and the integrated camera system.

DEEP TREKKER

CUSTOMIZE WITH ADD-ONS

Surveillance Camera	IR Color Video Recording	Fluorescent Color Camera	Laser Ruler	Custom Wheels	Autonomous Navigation
Underwater Vacuum	Directional Camera	UV Camera	Thermal Camera	Water Pump	Water Sampler
Hydrocamera	Video Camera				

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DEEP TREKKER DTG3



DEEP TREKKER DTG3

GCS:

- Controller: Handheld console with 7" integrated screen
- Features:
 - Thumbstick navigation
 - Video recording & snapshot
 - Onboard data overlay
- HDMI Out: For a larger external display or recording



CONCLUSION

Robot	Key Components	Communication Type	Ground Control Station (GCS)
Saab Falcon	Thrusters, sonar, IMU, camera	Tethered (Ethernet, RS232)	Rugged console + GUI overlay
BlueROV2	Pixhawk, camera, sonar (modular)	Tethered (MAVLink, Ethernet)	<u>QGroundControl</u> + Joystick
REMUS 600	DVL, INS, payload bay	Acoustic, RF, Wi-Fi	REMUS VIP + Mission Planner
HUGIN	SAS, CTD, GPS, battery pods	Acoustic + Satellite/RF	<u>NavLab</u> with real-time data
DTG3	Rotating cam, internal sensors	Tethered analog/digital	Handheld LCD console

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**THANK
YOU**