

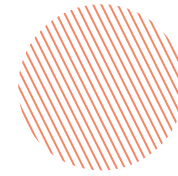


Technically enhancing an ageing ROV

ROV cherokee + TMS

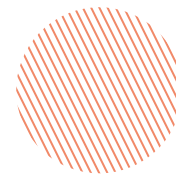


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What ROV system?





VLIZ

Flemish Marine institute

Who are we



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National and international Universities and Research groups



Expertise



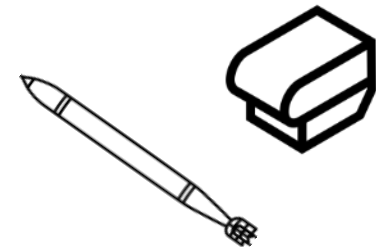
RV Simon Stevin



Datacenter



infrastructure

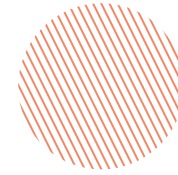




Finished upgrades

- Hydraulic winch upgrade
- New ROV-container
- New Camera's and lights
- Upgrade fiber optics





Hydraulic winch upgrade



- *Remote control*
- *Cooling and brakes*
- *Improving ROV ease of use*



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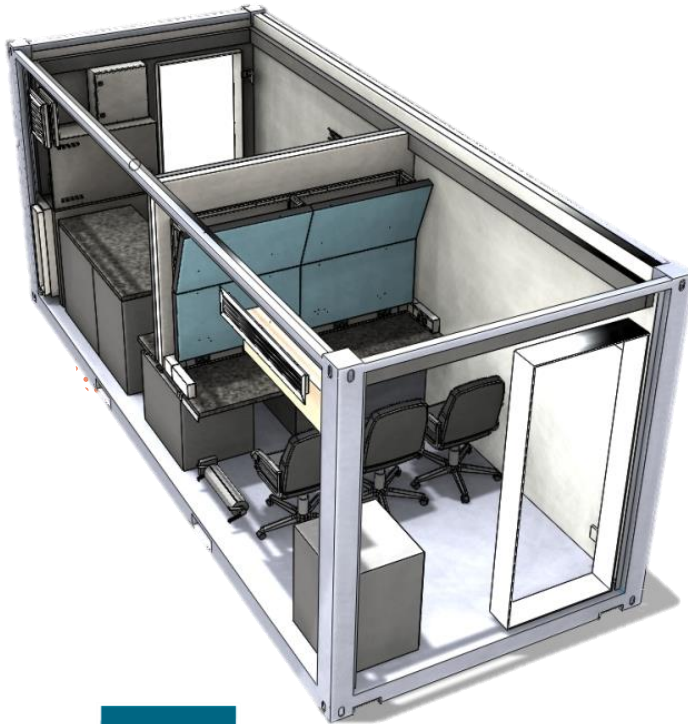


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New ROV-container



- *POWER*
 - *Isolating transformer*
 - *UPS*
- *Climate control*
- *Redundant computer systems*
- *Firewall*
- *Matrox video wall*
Flexible location of inputs on the four screens

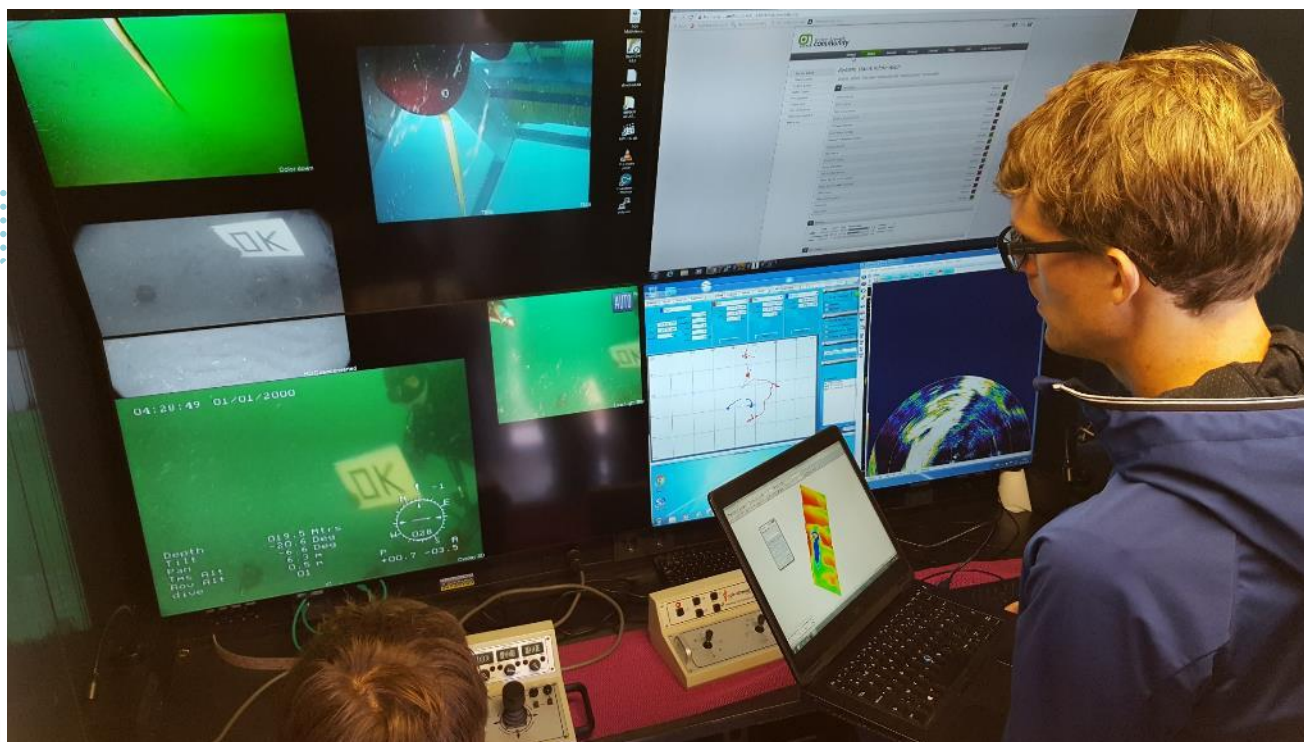


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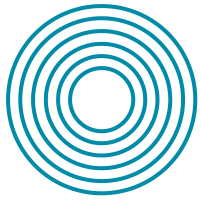
New ROV-container



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New Camera's and lights



MacArtney
UNDERWATER TECHNOLOGY



IMENCO
SMART SOLUTIONS

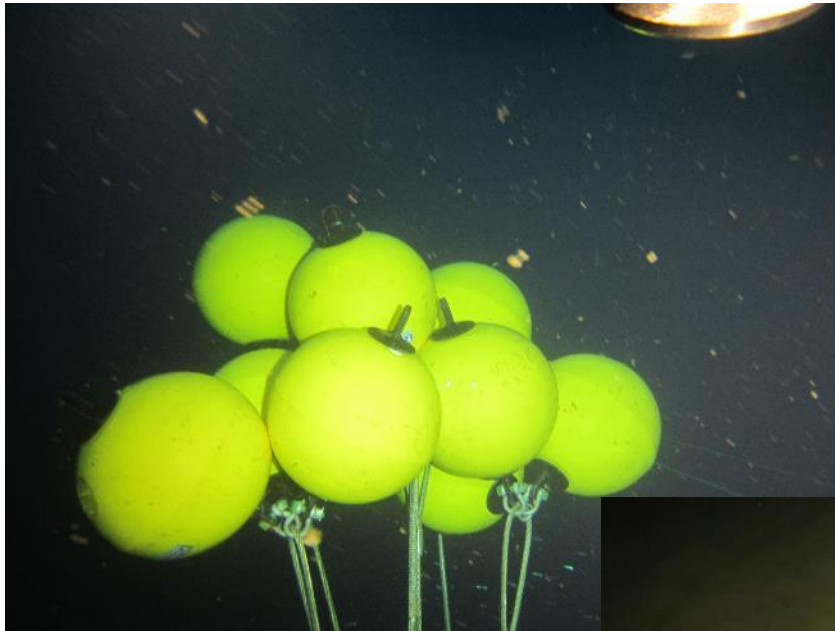
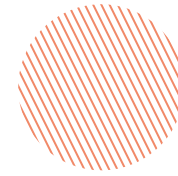


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TELEDYNE BlueView



New Camera's and lights



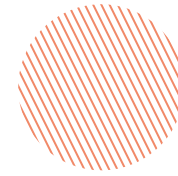
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New Camera's and lights



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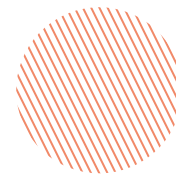
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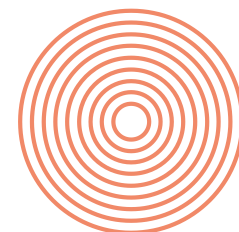
New Camera's and lights



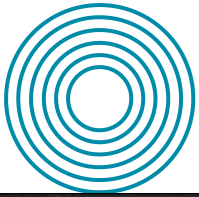
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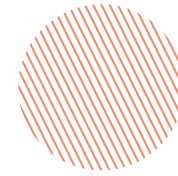
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New Camera's and lights



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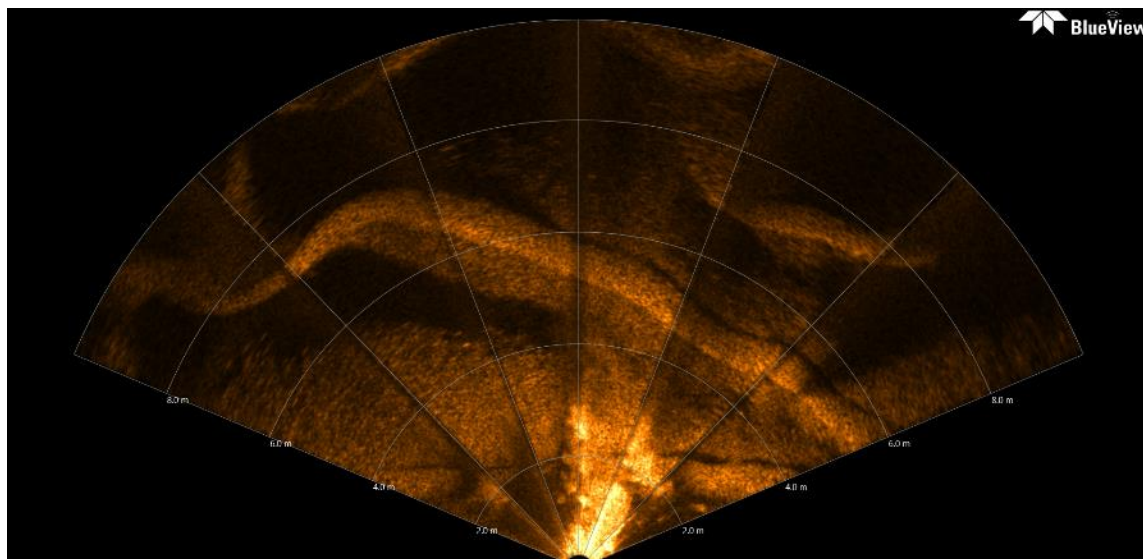
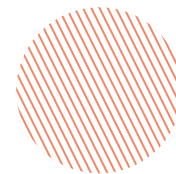
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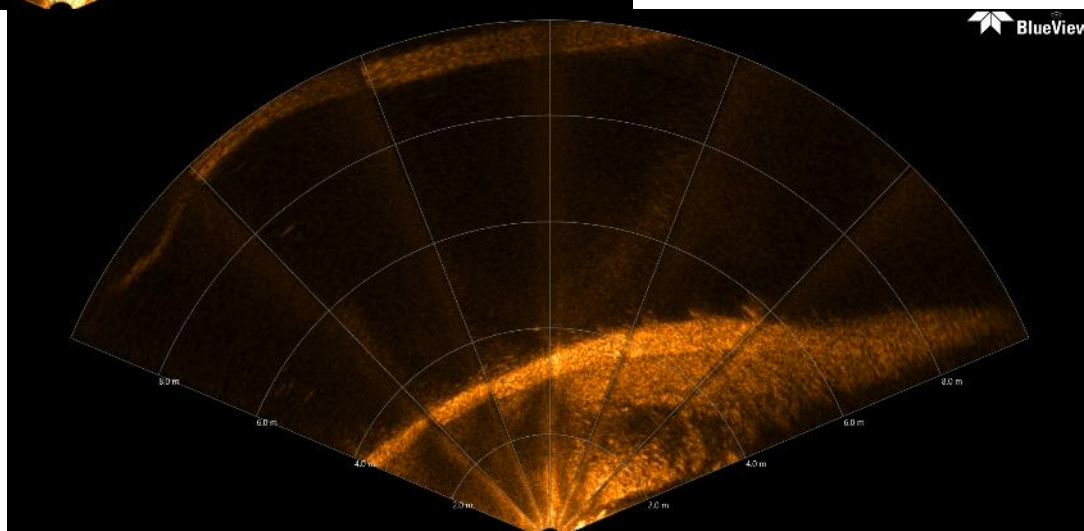
New Camera's and lights



blueview m900-2250-130

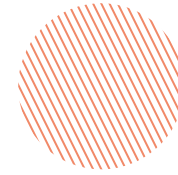


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Fiber upgrade



Multi mode to Single mode fiber

- *New slipring in hydraulic winch*
- *New slipring in TMS winch*
- *Focal 914HDE*
 - *HD-SDI + gigabit ethernet + 2 serial channels*
- *Focal 914VDX expansion card*
 - *2 SDI channels + 4 serial channels*





In-house electronics

- PDM (Power Distribution Module)
- Touch screen pilot assist screen *
- Experimental upgrade of the hydrolek 5-function manipulator *

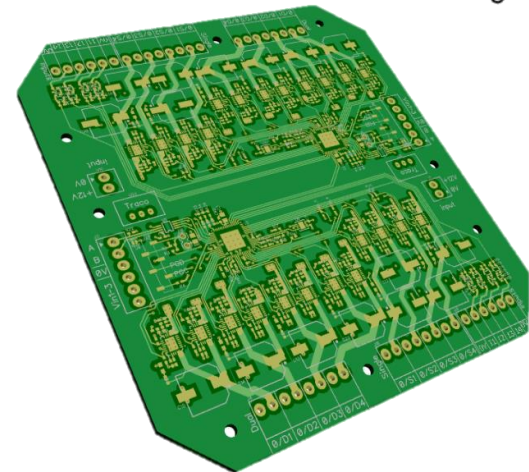
* In development





PDM (Power Distribution Module)

- Why ?
 - Load balancing Power supply's
 - Current sensing to see if component is working
 - Failing components don't kill the entire system





PDM

(Power Distribution Module)

- What have we made (*mainly Michiel 'Tjampens)
 - 2 separate stand-alone parts with **2 microprocessors**
 - Balance **three** 24V or 12V power supplies
 - **8 balanced outputs** (states : Primary/Secondary/Off) 2A max
 - **8 switchable outputs** 2A max
 - 8 inputs up to 12Volt state monitoring
 - 2 x RS 485 connection with **failover**
 - Temperature and humidity sensor

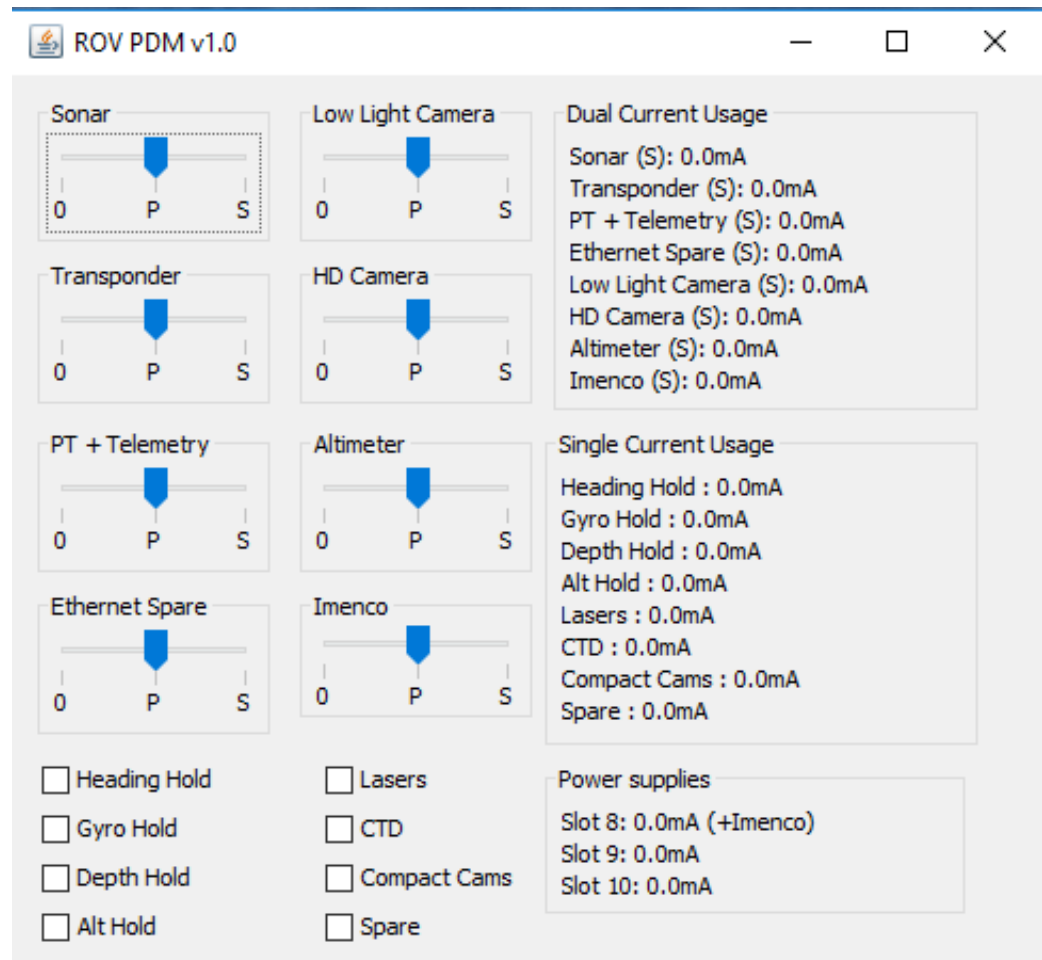




PDM

(Power Distribution Module)

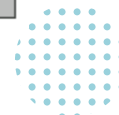
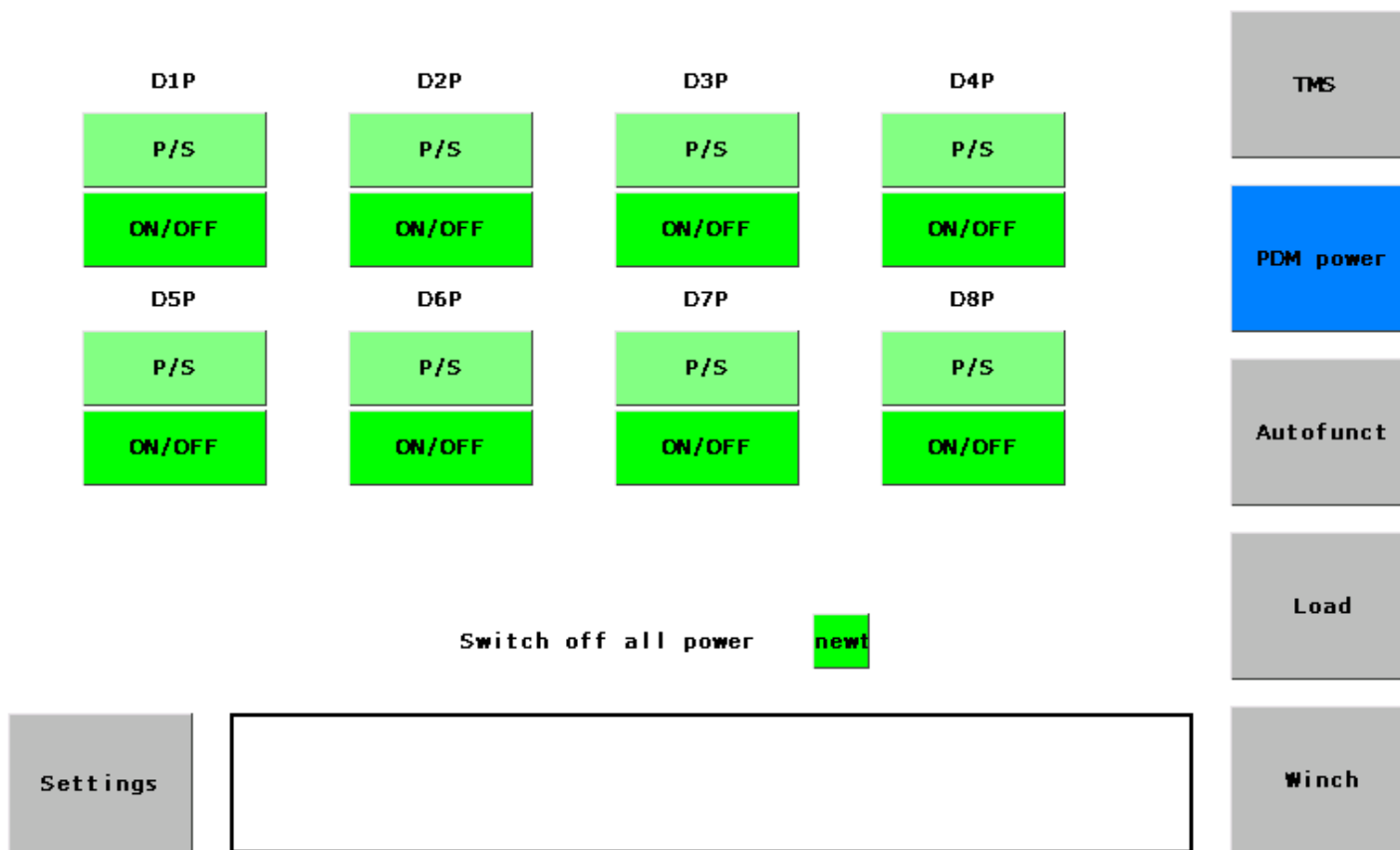
- Controlling
- Automatic logging





PDM

(Power Distribution Module)





Touch screen pilot assist screen

- Why ?
 - Quickly accessing the new and old features
 - Improved **Thether counter**
 - Automatic **latch controll**
 - PDM
 - Lights and latch
 - Easy programming
 - Multiple screens possible





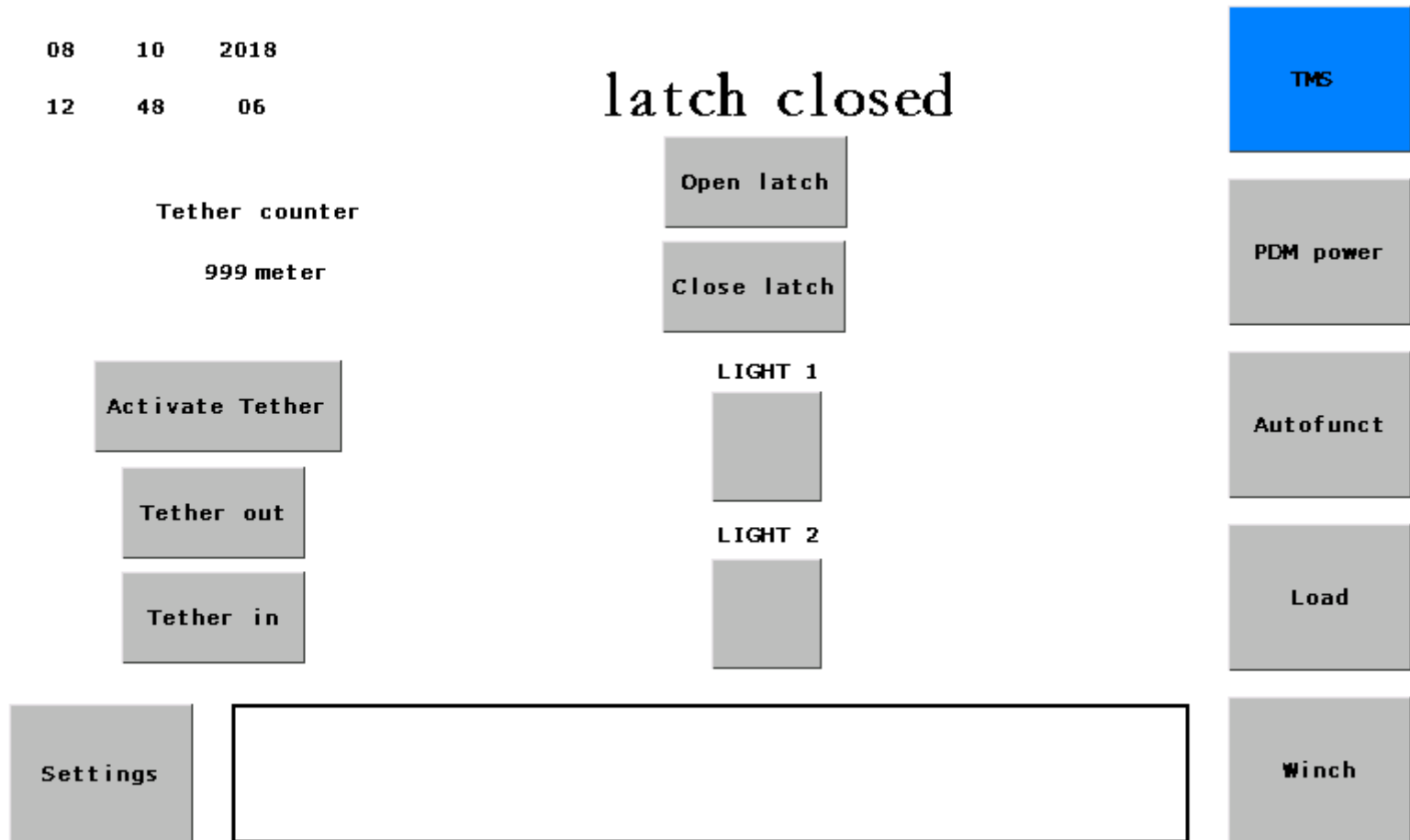
Touch screen pilot assist screen

- How ?
 - Off the shelf components
 - Nextion 7 inch **programmable display**
 - Arduino mega + ethernet shield



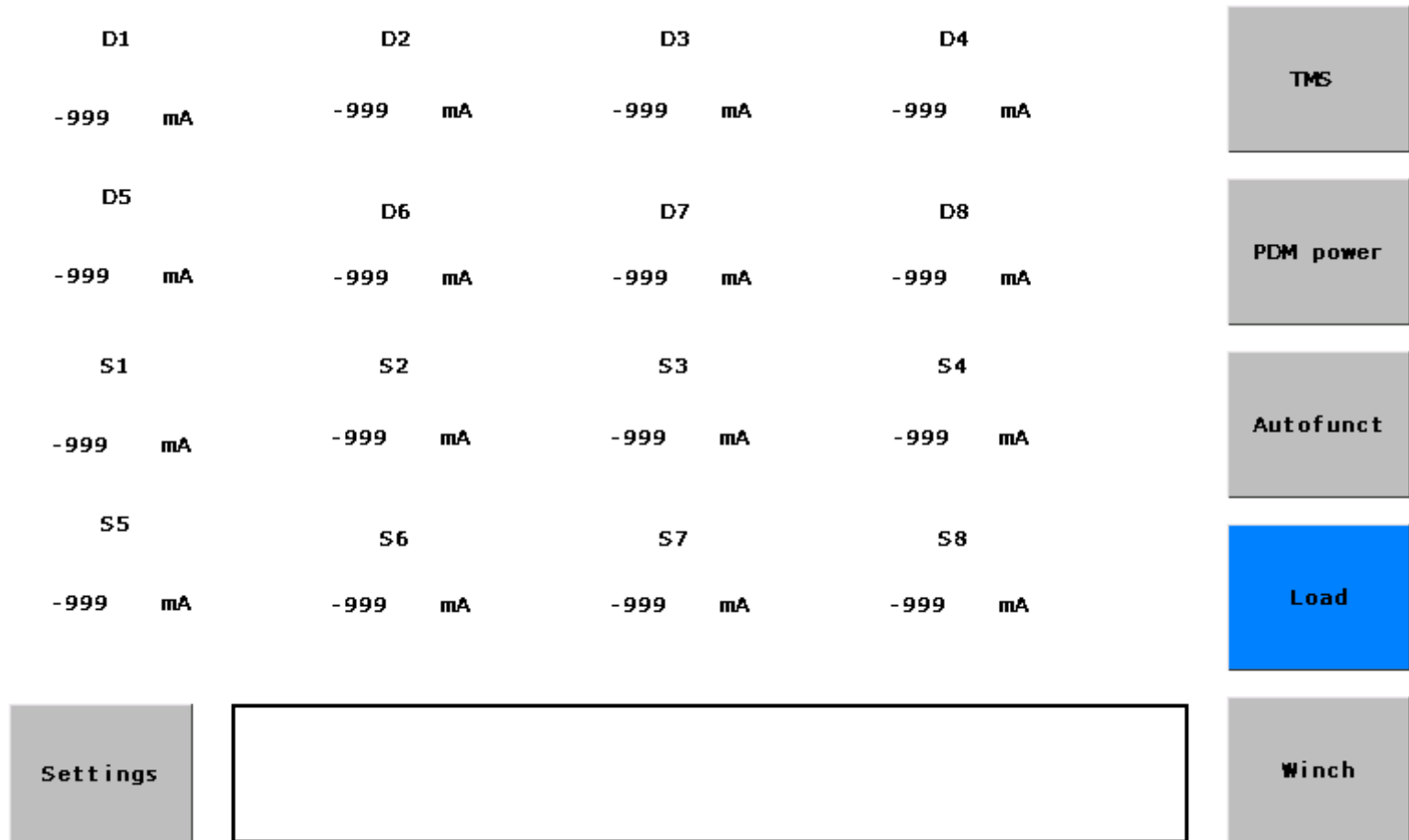


Touch screen pilot assist screen





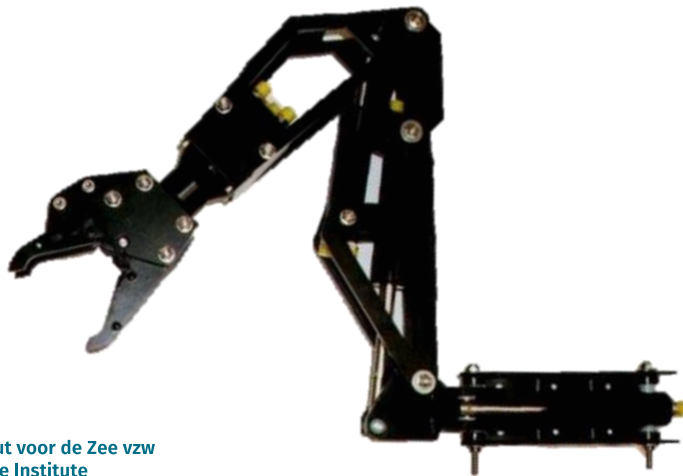
Touch screen pilot assist screen





Experimental upgrade of the hydrolek 5-function manipulator

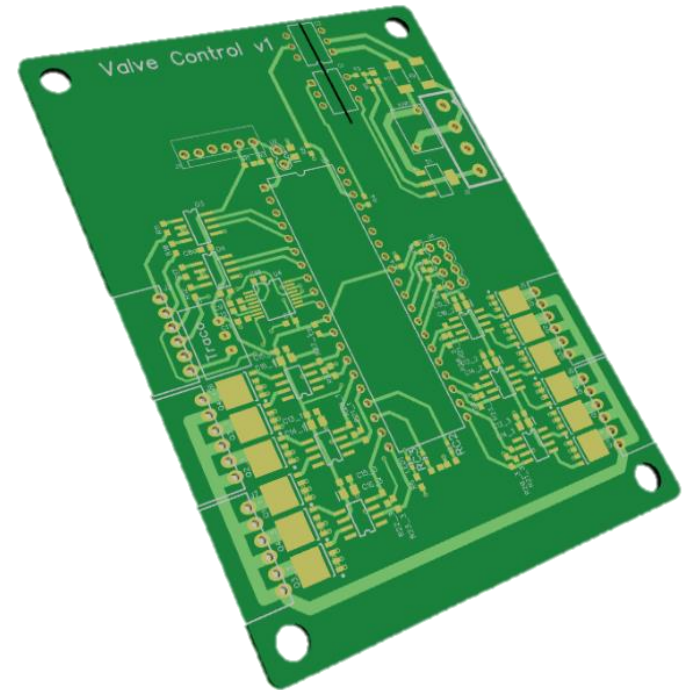
- Why ?
 - To get rid of the **Hum** forever
 - Introduce a degree of **proportional control**
 - Multiple movements at once





Experimental upgrade of the hydrolek 5-function manipulator

- How ?
 - Custom PCB
 - New controller





Future upgrades + discussion points

- Telemetry system
- New front upper deck
- Tether replacement





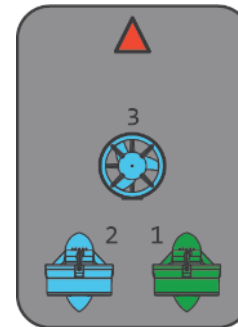
Telemetry system

With pixhawk px4



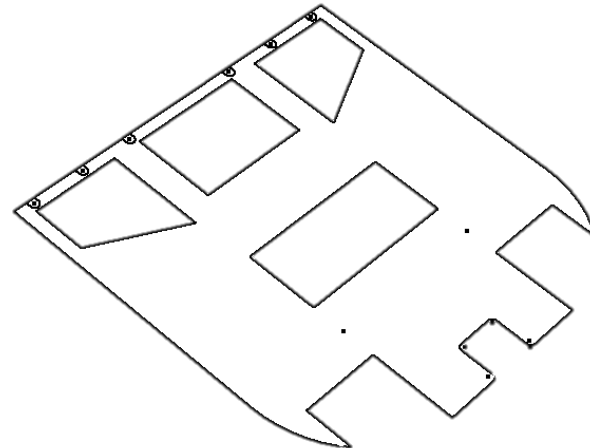
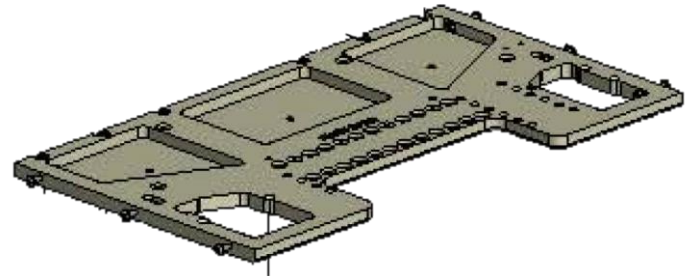
- Open source autopilot
- Built in redundancy
- Open source software ardusub used in BLUE ROV 2
- Use of **external sensors** and gps possible

Good Idea ?





New front upper deck





Tether replacement



NOW :

- 10 x 1mm² copper wire
- 5 x twisted pair
- 5 x multi mode fibre
- 2 x single mode fibre

What we need :

- 3 x copper wire 12KVA/440V
- 2 x copper wire 2KVA /240V
- 2 x single mode fibre (1 spare)





Thank you for your attention



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