

# Cutting the (literal) cord



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# Introduction

- Who am I? Bob, former student here.
- Where do I work now? Ystumtec.
- What am I doing? Spending too much time thinking about submarines.

# Looking at glaciated fjords

- Monitoring climate change.
- Hostile environments.
- Unmanned probe.



Figure: Caption of the image

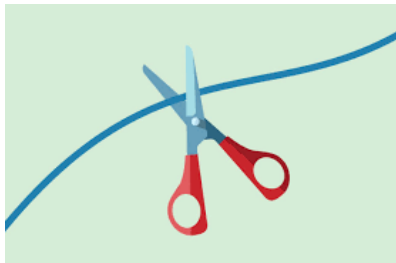
# The GROV

- Glacier Remote Operated Vehicle G.R.O.V
- 2m Long.
- Bow sonar array.
- "Remote" control.
- 5,000m tethered fibreoptic cable.
- 300m depth.



Figure: The GROV, on location

# The FAUV



- Cut the cord!
- Over 1000m depth.
- 25km round trip.
- 24hr missions.
- Fully autonomous.

Figure: Death to wires!

# My role in all this is

- Program the "brains".
- Route planning.
- Obstacle avoidance using sonar.
- Safe descent and ascent through the ice.
- Handling failure modes.
- Testing.
- Testing and more testing.

# Simulator Development

- Fill in the blanks as we go.
- Meshes.
- Sonar.
- Physics of movement.
- Hardware communication.
- Faking noise, faults and more.

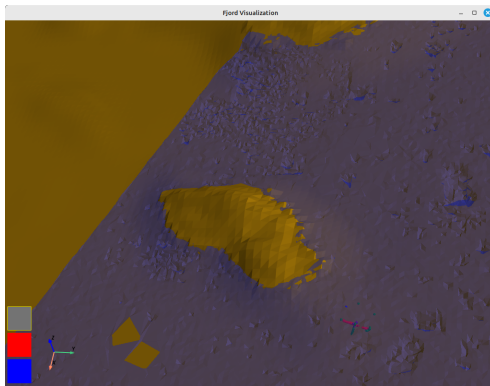


Figure: The Simulation

# Controller Development

- State machine.
- Occupancy grid.
- Path planner.
- Hardware interface.

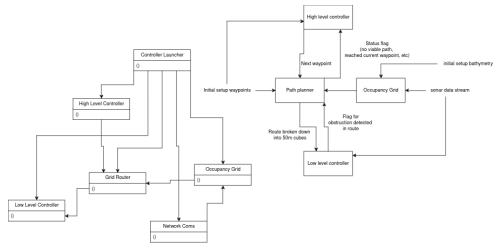


Figure: The Simulation



# Conclusion

- Any questions?
- If you want to see a demo of the simulation as it is, come see me after or during the break