

Underwater Challenges

RESEARCH FIELD

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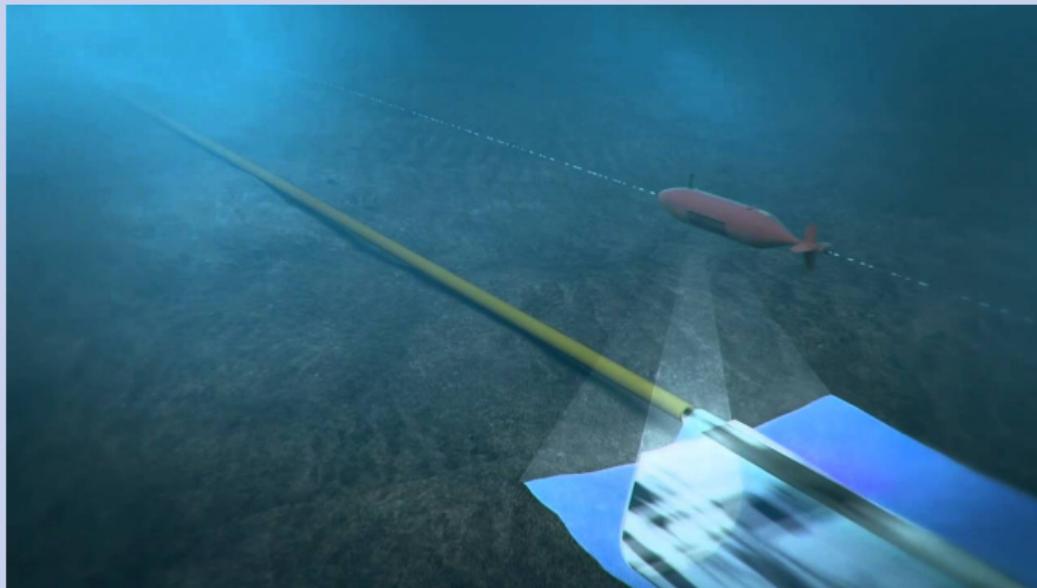
A problem

Subsea pipe monitoring is an important application for the oil and gas industry to carry out **maintenance** that can **predict great damage** to the environment and monetary loss.



A solution

Underwater robotics are a good way to try solve this problem or at least minimize.



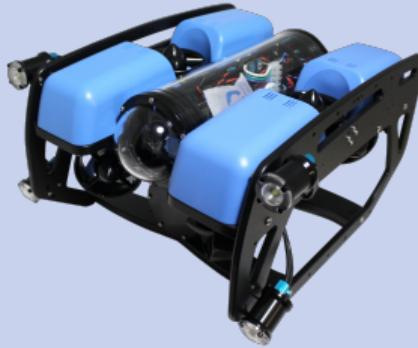
A Solution Equals A Challenge

The Challenges

The tasks the should be implement is operate a **pipe-following** using underwater vehicle **BlueROV** in a simulation at Gazebo and ROS2.

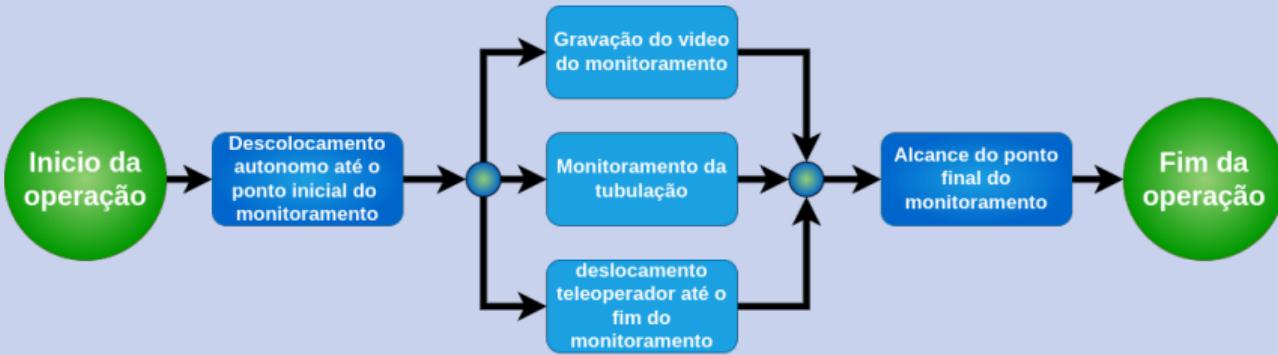
There are two challenges:

- A global
- A focused on underwater robotics field researchers



Global Challenge

This challenge is broken down into **two stages**. The first execute the displacement of the vehicle from the initial point of the simulation to the initial pose of the identification of the pipe **autonomously**. The second is **monitoring the pipeline**. Artag will be placed at the initial and final point of identification



Minimal requirements

It is necessary to have:

- an intermediary knowledge in ROS
- C++ and/or Python
- Computer Vision
- Will



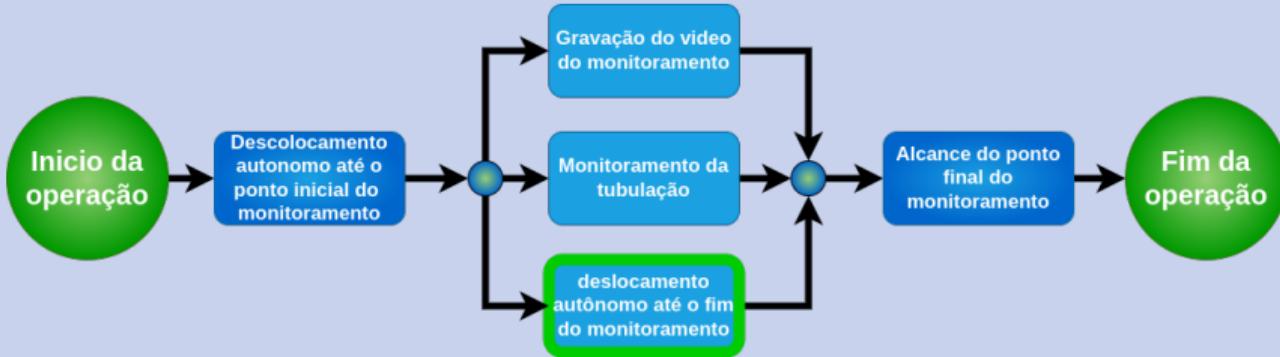
Gains

- Hand on experiences on ROS2 and Gazebo
- developments Skills in coding
- Experience and knowledge with Computer Vision
- knowledge in underwater robotics



Field Challenge

This Challenge has the objective of performing out the the pipeline following 100% **autonomously**. The vehicle must execute go-to-goal tasks to the initial point of pipeline and execute the pipeline following **without human interference**.



Minimal requirements

It is necessary to have:

- an intermediary knowledge in ROS
- C++ and/or Python
- Computer Vision
- **Had realized the global challenge**
- Will

ROS



Gains

- Hand on experiences on ROS2 and Gazebo
- developments Skills in coding
- Experience and knowledge with Computer Vision
- knowledge in underwater robotics
- **Experience in executing a fully autonomous task in an underwater robot**



Are you ready?



Questions?

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