

TTK22 Software Toolchain for Networked Vehicle Systems Project

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November 2020

1 Approach

For this project, I wanted to see what would be required for SINTEF's JavaScript Graphical User Interface, Aqueous, to communicate with DUNE, instead of the FhSim it is set up to communicate.

1.1 Aqueous

Aqueous is developed in the JavaScript framework React, and is used as the interface between the control system of one of SINTEF's ROVs. The GUI has two components. The first is a Video HUD for displaying the video feed from the ROV as well as visualize the location of the ROV. The second is a control view for visualizing the current control situation, as well as issuing some controls. In the control view, the user can switch between three different modes: NF (NetFollowing), DP (DynamicPositioning) and Manual. The manual control and changing of biases in the other modes are done either by a gamepad or the keyboard.

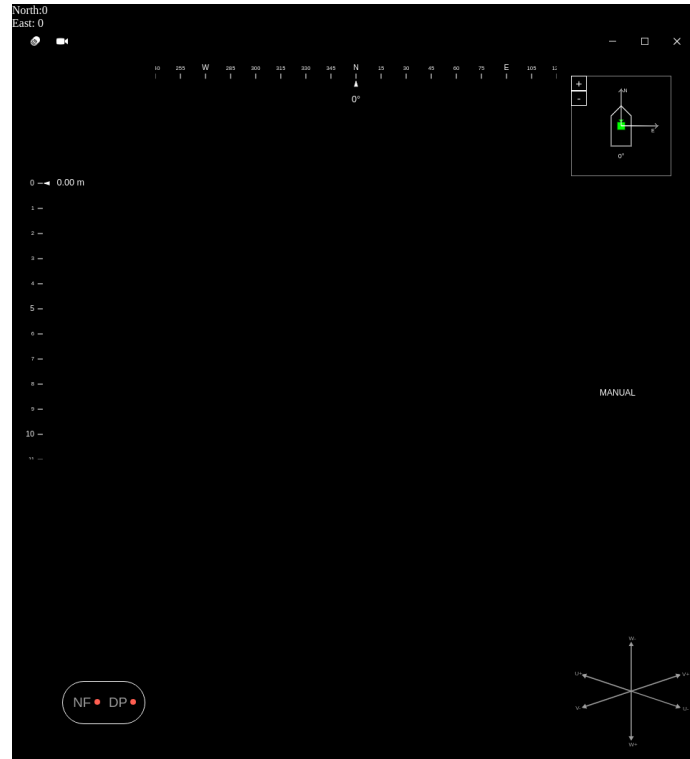


Figure 1: The video HUD. When no ROV/video is connected, the screen is black

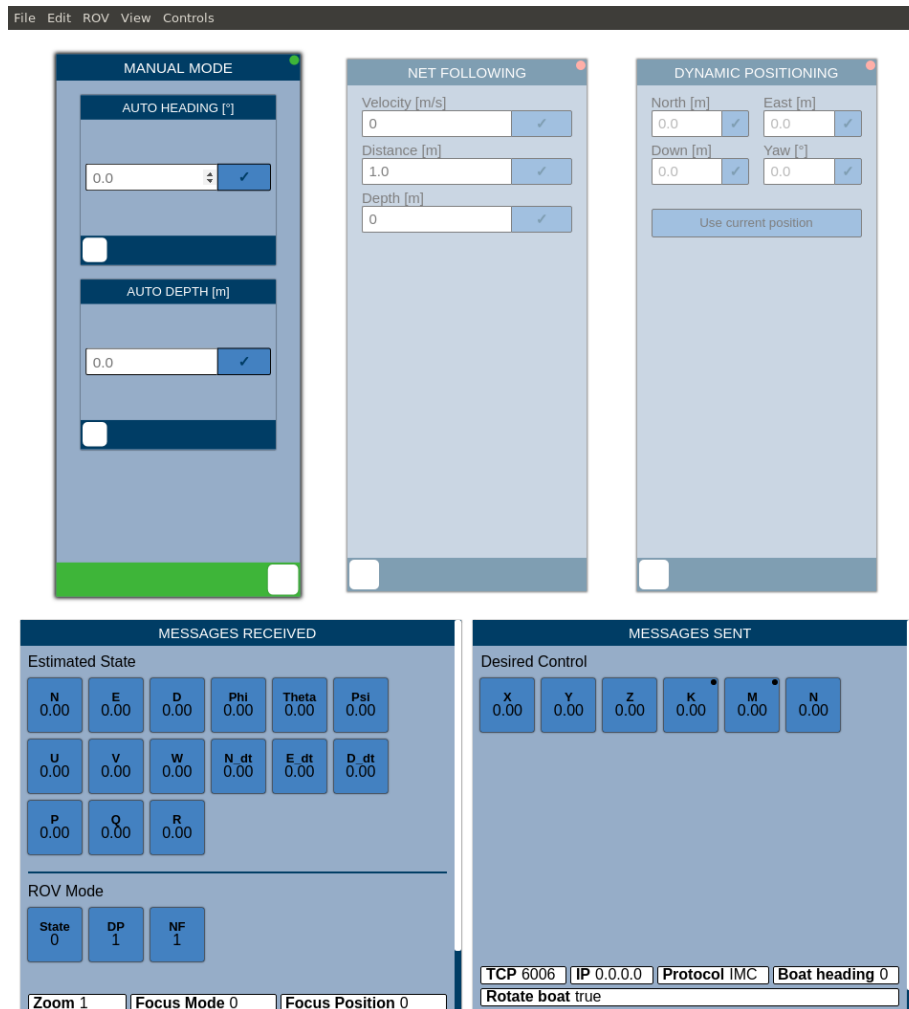


Figure 2: The control view when no ROV is connected.

The relevant parts of Aqueous for this project is the communication with FhSim, which I will look into changing in this project, such that it can be used to communicate with DUNE.

1.1.1 Communcations

Aqueous is already set up to use IMC for communication with FhSim, but it uses a few custom messages, and does not follow the same "structure" "Paradigme?" "Taxionomy" of communication as DUNE. I was told by people at SINTEF that Aqueous would not work "out of the box" with DUNE. So I started with trying to get them connected through TCP. After finding the right addresses I was

able to get a connection between them, but Aqueous instantly crashed as it was not prepared to receive unknown messages. I started by looking into the way Aqueous receives these messages, such that I could add support for the

2 Organization

3 Results