# **ROS Topics**

This page is a description of all the topics we are using (or plan to use) on the sub.

# Sensors

### /orientation

Message: geometry\_msgs/Quaternion

The current orientation of the sub, given as a quaternion. Any code wanting to know the sub's orientation should use this topic, not /orientation/rpy.

### /orientation/pretty

#### Message: robosub/Euler

The current orientation of the sub, given in roll, pitch, yaw. This is meant just for human readability of the sub's orientation, code should use the /orientation topic.

### /depth

Message: std\_msgs/Float32 The current depth of the sub.

# Movement

### /thruster

Message: robosub/thruster

Dynamic array of commands going to the thrusters. Order of the thrusters is dependent on their order in the settings file.

### /control

#### Message: robosub/control Send messages to this topic to move the sub around, the control system subscribes to this topic.

### /joystick\_driver

Message: robosub/joystick This is the raw joystick state, published by the joystick driver. Shows the

current state of all axes and buttons on the joystick.

# Vision

### /camera/(left|right|bottom)/image

Message: wfov\_camera\_msgs/WFOVImage Images from our cameras.

### /vision/buoy/(red|green|yellow)

Message: robosub/visionPosArray Describes where the buoy is in the sub's view.

#### /vision/start\_gate

Message: robosub/visionPosArray Describes how many posts of the start gate can be seen and where they are located in the sub's view.

# **Hydrophones**

#### /hydrophones/[Frequency]/deltas

Message: Duplicated for all frequencies in the pool. Contains the latest time deltas between the reference and other 3 hydrophones.

Header header duration d1 duration d2 duration d3

#### /hydrophones/[Frequency]/timestamps

Message: Duplicated for all frequencies in the pool. Contains the latest timestamps recorded by the system.

Header header Time ref Time t1 Time t2 Time t3

## /hydrophones/[Frequency]/debug

Message: Used for debugging the hydrophone system.

Header header Int64 frequency Int64 avg\_sig\_strength Float64 approx\_angle

### /hydrophones/[Frequency]/output/direction

Message: robosub/Euler

Used for sending the angle from the forward direction to the pinger. Roll will always be zero while Pitch and Yaw should be filled out.

### /hydrophones/[Frequency]/output/location

Message: geometry\_msgs/Point Used for sending the final result of the Trilaterization calculations.

From: https://robosub.eecs.wsu.edu/wiki/ - **Palouse RoboSub Technical Documentation** 

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