Autonomous Robotic Submarine Project / Supervisor Meeting Agenda
(Meeting #5)

Fifth Meeting:
Day: Wednesday, July 11, 2018
Place: Innovation Den, 418 E Lakeside Ave, Coeur d'Alene, ID 83814
Time: 9:30 am

Team Members:
Adrian Beehner
Samantha Freitas

Supervisor:
Dr. John Shovic

Points of Discussion:

- Accomplishments (10-20 min)
    - Samantha
        - Raspberry Pi Access Point Done
        - MQTT message transmission done
        - Arduino Wi-Fi up
        - Schematics drawn for fuses and power dependency
        - Operations Manual
            - Controller schematics done
            - Submarine parts list done
            - Wiring pins list added
            - Power instructions added
            - Charging instructions added
            - Deployment instructions added
            - Collection instructions added
            - Checks section added
                - Preoperational, Postoperational, Software
            - "Getting inside the Catfish" section added
            - Connecting to submarine added
                - Wi-Fi and Ethernet
            - Acquiring code added
                - Gitkraken, Python3, Pygame, cloning repo

        - Moving the submarine added
        - Running in simulation mode added
        - Running in simulation mode added
        - Taking pics & video added
        - Basic layout added
        - Troubleshooting added
            - Thruster issue, buttons off, pygame (but Adrian fixed these issues now)
    - Shirts, polos, extra polos ordered and received
    - Extra tools ordered and received
    - Received new trough
- Adrian
    - Fixed PWM motors overload issue
        - Edited thruster_settings.json
    - Added feature to shut down software and turn off motors properly
    - Added proper controller check for controller software (thruster_client.py)
    - Discovered reason why Ubuntu Laptop was not properly running the submarine software
        - Why thrusters would start out of nowhere & why when providing controller input the motors would lose connection with pi
    - Added 3D printed sensor holders to turtlebot
    - Reconfigured ROS publish/subscribe for sonar sensors on turtlebot (frequency was off) and set up code as ROS package
    - Configured python3 “control” code to python2 (for ROS)
    - Fixed controller support for Kernel 4.10+
    - Configured thruster_client.py for Windows, Linux
    - Modified/enhanced “verbose” mode of code
    - Sanity checks on websockets and also on byte data being packed and received properly
    - Got submarine software properly working on Ubuntu laptop
    - Got our GitHub repo interfacing directly with submarine software
    - Fixed original software issue with motors still running after “proper” exit

- Set up proper GitHub forking for using “G2X V2 Repo”
- Successfully installed Pygame on both Windows and Linux
- Fixed controller mapping issues with PS4 controller
- Tested that thruster_automation.py works correctly
    - This will be how we code the sub to move
- Edited/fixed message.py (byte message) so that it correctly does bit masking in python2
- Added additional user feedback when running submarine software in general
    - Know when program is shut down, when thrusters are being shut off, etc
- Discussed with Kraig from Gizmo tank alternatives and setup
- Discussed with Kevin from Gizmo about Software and Hardware pitfalls
    - “Prototype” software/hardware
- Researched underwater lidar
- Researched acoustic modem
- Prep for ROS and submarine software interfacing
- Tested out all 6 sonars on turtlebot
    - Made sure correct data being read
- Fixed controller threading (multi-threading) issue on submarine software

- Both
    - Submarine Launch Test 1,2,3
    - Opened and Examined Components
    - Fixed blown fuse issue
    - Met with Marty from Gizmo to further explain internal components of submarine
    - Set up water tank for testing submarine
    - Recorded video from submarine
    - Tool-chain tested thoroughly
    - Equipment purchased for submarine
    - Examined boat for July 26th launch
    - Sat down with Alan Kolak and Charles Buck to discuss the breakdown of that day
        - Also possible prep work to accomplish beforehand

- Sensor Pod (5 min)
    - Samantha
- Operations Manual Fixes (5 min)
    - Samantha
- Ordering Additional Items (5 min)
    - Samantha
- MQTT Message Transmission Testing (5 min)
    - Samantha
- Submarine Toolchain Report (10 min)
    - Adrian
- Software fixes for submarine (10 min)
    - Adrian
- Hardware/Software Shortcomings/Issues (5-10 min)
    - Adrian
- Underwater lidar discussion (5 min)
    - Adrian
- ROS & Submarine Software Interface (5 min)
    - Adrian
- July 26th Launch (10-15 min)
    - Adrian, Samantha
- Additional Testing of Toolchain (5 min)
    - Adrian, Samantha
- Size and weight of Handling Gear (5 min)
    - Adrian, Samantha
- Research Funding (10 min)
    - Adrian, Samantha

- Goals (5-10 min)
    - Samantha
        - Fixes on Operations Manual
        - Converting Sensor data to char to publish
        - Water testing MQTT messages
        - Stickers for sub
    - Adrian
        - Testing all edited modified software (toolchain)
            - Thorough Tests
        - Catch up on documentation
            - Fixing toolchain has put it on backburner
        - Testing ROS and Submarine Software communication
        - Editing/fixing publishing/subscribing on sonar data
        - Begin or get more familiar with 3D Mapping