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