**The Sinkers**

**BFNVG**

**Vehicle Control/Dynamics**

| Inputs | Outputs | To-do |
| --- | --- | --- |
| Data from front seat | Inputs for autonomy logic |  |
|  |  |  |
| Autonomy Logic Outputs:  BFNVG requests;  Timestamp, latitude, hemisphere (n/s), longitude, hemisphere (e/w), quality of position estimate, altitude, depth, heading, roll, pitch, timestamp of computed navigation solution | BPRMB output;  timestamp, heading, depth, depth mode, rpm, speed mode, and horizontal mode. |  |

**Image Detection + Processing**

| Inputs | Outputs | To-do |
| --- | --- | --- |
| Image from the sensor (front seat) | Colors of buoys and their respective relative angles. |  |
|  |  |  |
|  |  |  |

**Autonomy Logic**

| Inputs | Outputs | To-do |
| --- | --- | --- |
| Outputs of Image Detection:   * Colors of buoys * Angles to buoys * Number of buoy objects detected (as its an array of buoys) | Updated heading, rudder position, and engine state.  In the form of a BPRMB request, which contains the timestamp, heading, depth, depth mode, rpm, speed mode, and horizontal mode. (decision of what to do) | Whose “model” to use/start with.  The code to use. |
| The current heading & rudder position |  |  |
| The current Engine State |  |  |
| The code for autonomy logic (if this classifies as an input), dt, |  |  |

**Software Integration**

| Inputs | Outputs | To-do |
| --- | --- | --- |
| Code from Autonomy Logic | Code that will tell the AUV how to follow the logic; helm commands. In the form of a BPRMB request, which contains the timestamp, heading, depth, depth mode, rpm, speed mode, and horizontal mode. |  |
|  |  |  |
|  |  |  |

**Mission Reconstruction**

| Inputs | Outputs | To-Do |
| --- | --- | --- |
| Outputs of Image Processing:  -how many buoys can be seen  -angles  -buoy color | Knowledge on how the AUV went during the course |  |
| Outputs of Autonomy Logic:  - Commands on the AUV due to certain conditions | Knowledge on what actions that the AUV decided to take, and allowing for better optimization |  |
| Outputs of Vehicle Control:  - |  |  |

**AUV**

* Rudder can go from -25° to 25°
* 500 to 2500 RPM

Joe’s guess for circle diameter at rudder 15° slow speed: 13 yds