

# **Hackley Whirlpool Robotics Float Non-ROV document**

## **"Hopes and Dreams"**

Our float continues with the main goals of our ROV. It is designed to fit perfectly into the ROV's primary gripper. This allows the operators to deploy the float easily. Its simple design is highly cost-effective, allowing many to be constructed and deployed. Once deployed, it begins to relay information to the main ROV seamlessly. This information can include data from the top layer of the water column to a surface monitoring station.

### **Specifications:**

"Hopes and Dreams" has been programmed to send data to a surface control monitor autonomously. "Hopes and Dreams" is both a cost-efficient and data-effective device. Our float device, "Hopes and Dreams" consists of a buoyant PVC pipe that has an Arduino, which is sending information to a surface monitoring station. The float contains an electronic component consisting of a T200 thruster controlled by an Arduino Uno microcontroller. The Arduino is also programmed to communicate important information from a 2.4 GHz module (including the time and team details) to a 2.4 GHz module controlled by another Arduino located on the surface. The float is also positively buoyant and uses a thruster to move down the water column. When the thruster is not in operation, it floats back to the surface. This up-and-down motion creates profiles of the water column, which is then communicated to a receiver on land. The profiler can be easily retrieved by the ROV. "Hopes and Dreams" is designed to float and sink autonomously, enabling it to survey the top layer of the water column with minimal human intervention. This device is cost-effective and highly efficient in collecting data from various sources of water.