**Objective**

Construction of an Unmanned Underwater Vehicle (UUV) that is capable of autonomous navigation and garbage collection in a body of water.

**Item List**

Tube Structure

-1/2 inch PVC pipes for the frame

Main Module

* <https://www.amazon.ca/Waterproof-Plastic-Enclosure-Junction-265x185x125mm/dp/B00N41E6WU/ref=sr_1_262?ie=UTF8&qid=1496699338&sr=8-262&keywords=waterproof+box>
* https://www.amazon.ca/265mmx185mmx95mm-Power-Connector-Waterproof-Junction/dp/B00N41E7W4/ref=sr\_1\_22?ie=UTF8&qid=1496699916&sr=8-22&keywords=waterproof+box+265

Two Large Tubes

* ABS pipes

4 motors and ESCs

http://www.ebay.com/itm/2212-920KV-CW-CCW-Motor-for-DJI-Phantom-30A-Simonk-Brushless-ESC-4Pcs-/111842854427?hash=item1a0a5a861b:g:gsIAAOSwOdpXxkg~

Gyroscope

Camera

Flash Light

SONAR/Waterproof Ultrasonic sensor (may not need)

Transceiver (optional)

Sealing material

**Subsystems**

Navigation

* Able to move and turn in the water using its propulsion

Attitude Dynamics and Control

* Stabilizing of the UUV using gyroscope inputs

Obstacle Detection and Avoidance

* Use of SONAR or camera input to go around obstacle

Garbage Detection and Collection

* Detection of garbage, navigation and collection
* Use camera input to detect using OpenCV, navigate using motors, collect using trash grabber

Communication (optional)

**Design**

