

SHARK BAIT

Manual and Parts List

WIRELESS FLUID PUMPING SYSTEM

PARTS LIST

The following is a list of parts required to build the Shark Bait pumping system. Some parts may vary depending on your requirements.

5 x Adafruit Feather with LoRa - http://bit.ly/sharkbait_feather

4 x Adafruit Motor Wing - http://bit.ly/sharkbait_motor

5 x Waterproof Case - http://bit.ly/sharkbait_case

4 x Peristaltic Pumps 170 ~ 460 mL/min - http://bit.ly/sharkbait_pump

4 x Liquid Container - http://bit.ly/sharkbait_liquid

Silicone 1/4" Tubing - http://bit.ly/sharkbait_tubing

The frames were assembled using various pieces of wood and then mounted to surfboards. You will be required to build your own mounts.

Custom Circuit Boards (Pump and Controller) - Design files available(including BOM), see GitHub link below.

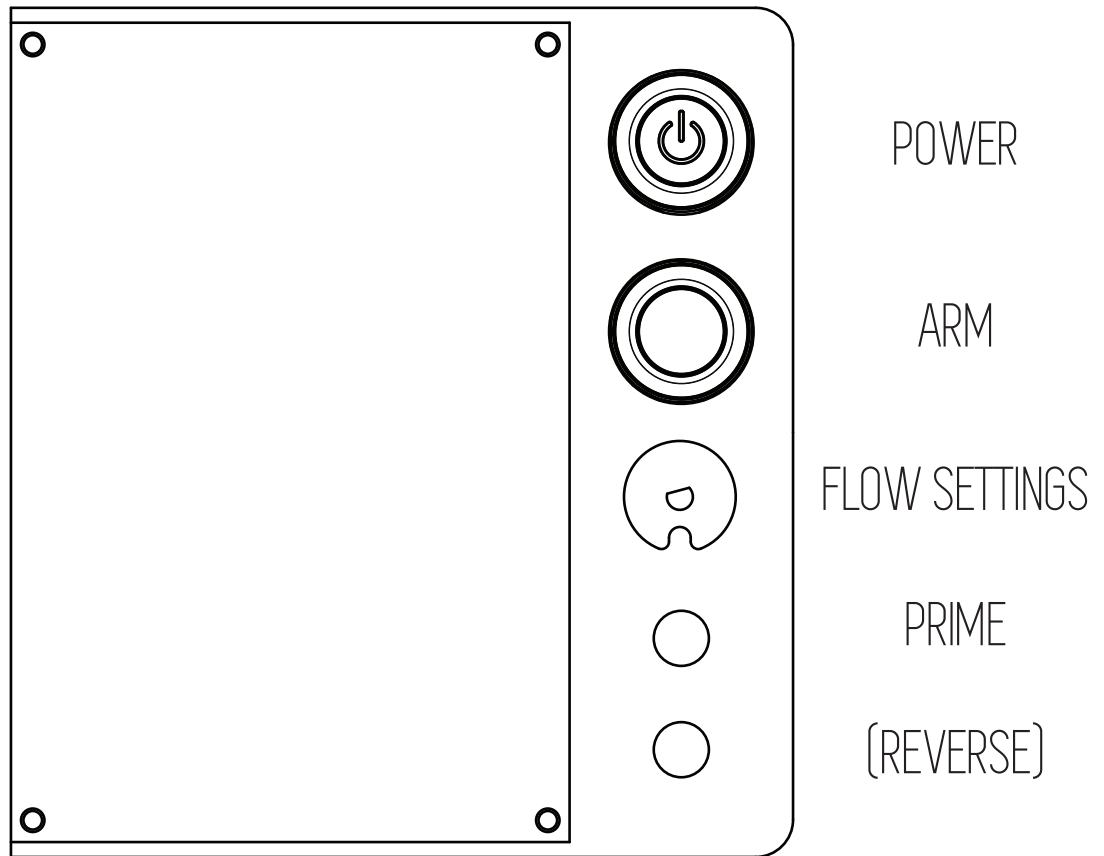
3D Printed Parts - STL Files available in the GitHub link below.

You can find the GitHub that includes the design files and Arduino code here:
http://bit.ly/sharkbait_github

For any questions regarding the parts or project, please contact Sean Hodgins.
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SHARK BAIT 

CONTROLS



POWER Button - Direct connection to battery. When in OFF position(UP), no power is provided to the board. POWER button will illuminate when powered.

ARM Button - Will not pump any liquid or respond to remote unless ARM is in ON position(DOWN).

FLOW SETTINGS Knob - 10 settings with an end stop at setting 1(counter clockwise), and 10(clockwise). ARM button illumination will display setting in number of blinks (see next page).

PRIME Button - When held down will cause pump to run forwards(from left port to right port). ARM button will illuminate fully when priming.

REVERSE Button - When held down before holding PRIME will cause the pump to run backwards(from right port to left port). This can be useful for refilling bags(in small amounts).

SETTINGS

When powering system with **ARM Button** in the OFF position(UP) system will blink a number of times according to what setting the **FLOW Knob** is set to (1-10). E.g. Setting 1 will blink once quickly, setting 10 will blink 10 times quickly.

Turn FLOW Knob to desired position corresponding to the flow test amount below. The test amount is in relation to a ONE HOUR test. Each pump of the motor will release approximately 0.8mL of liquid.

FLOW KNOB SETTING	TEST AMOUNT(mL)	PUMP DELAY(S)
1	3.2	900
2	25	115.2
3	50	57.6
4	100	28.8
5	250	11.5
6	500	5.8
7	750	3.8
8	1000	2.9
9	1500	1.9
10	2000	1.4

Once desired flow setting is set, press ARM button to start listening and responding to remote.

ARM button will blink quickly when remote is powered and has received a signal from the remote.

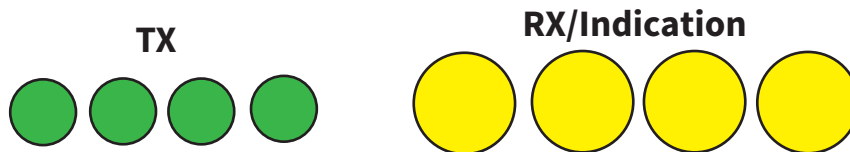
MANUAL OVERRIDE

In the rare case the remote is not responding to the pumps, you can put the pumps in MANUAL OVERRIDE mode. This means the pumps will start pumping ONE HOUR after powering on. Flow rate will be whatever is set at the time the ONE HOUR timer is over. They will not respond to the remote in MANUAL OVERRIDE mode.

- 1) First make sure each pump is powered OFF, and ARM button is in OFF Position(UP).
- 2) Power ON device and select your desired flow setting for each pump.
- 3) Power OFF device, and set ARM Button to ON Position (DOWN).
- 4) Power device back ON with ARM button remaining in ON Position. The ARM Button will now blink every second. The flow rate knob can be changed at any time, but no light indication will be available to determine correct setting.
(Its possible to count from one end stop of the knob to the correct position.)

REMOTE SETTINGS

The remote is capable of indicating when the pumps are responding to the signal, and if they are in a pumping state or not.



The remote contains 8 LEDs, 4 LEDs (YELLOW, 5mm) indicate response from the pumps, and 4 LEDs (GREEN, 3mm) indicate an attempt to contact the each pump.

There are two buttons on the side of the remote, POWER and PUMP. The POWER Button will power on the device, the PUMP button will tell any ARMED pumps to begin pumping, when the PUMP button is ON (DOWN).

When the pumps respond to the TX and they are not pumping, the RX LED will blink for that corresponding pump. If the remote PUMP button is ON(down), and the pumps are pumping the RX led will stay illuminated.

The remote will continue to check connectivity to the pumps, and if signal is lost the RX led will turn off. This does not mean the pump has stopped pumping. They will continue to run their test even if the remote is shut off. To stop the motors, turn the PUMP button on the remote to off, while the remote is powered on.