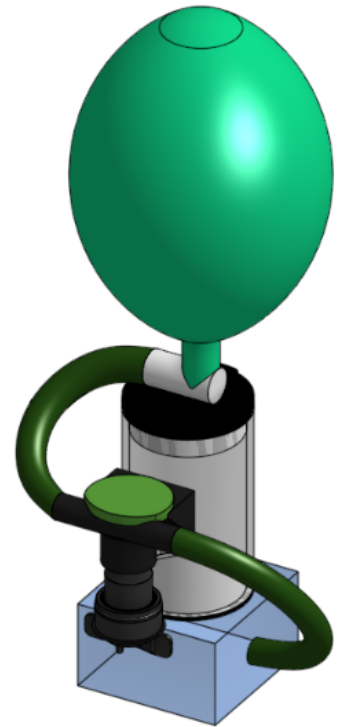


K-Tech has designed a vertical profiling float, named Michael, capable of completing multiple vertical profiles and transmitting data wirelessly to the control station on the surface. The frame of Michael is a 4 inch inner diameter capsule cut down to 7 inches in length. One side is covered with a 5 port end cap, the other is sealed using Flex Seal. Michael is propelled by a buoyancy engine consisting of bi-directional water transfer pump, a large green balloon, two disconnects, tubing, and a water reservoir. The bi-directional water pump sends water from the balloon to the reservoir, making the engine negatively buoyant to descend. When Michael has reached its required depth, the buoyancy is then changed by moving water from the reservoir to the balloon and floating Michael to the surface. A Raspberry Pi Pico stores the code and communicates between all other electronics. A bluetooth module allows for a wireless transmission of Michael's travel times, which is tracked using a real-time clock. Michael is powered by two 9 Volt alkaline batteries in parallel, with a DC-DC Buck Converter lowering the voltage for the raspberry pi pico.



Fuse Calculations:

Total Amp Usage - 0.880 A
 Overcurrent Value - 1.320 A
 Fuse Used - 3A

Quantity	Device	Amps per unit	Total Amps
1	Raspberry Pi Pico	50.55 mA	50.55 mA
1	Johnson Bilge Pump	0.404 A	0.404 A
1	Relay Board	0.404 A	0.404 A
1	Bluetooth Module	22.22 mA	22.22 mA