COUGAR ROBOTICS

SUNFISH

Rugged · Efficient · Dependable · Effective

18 Cm

40 Cm

Fuse

Arduino

Fuse

Fuse

Clear
Eletronics
Capslule

12 Volt
battery

Depth
sensor

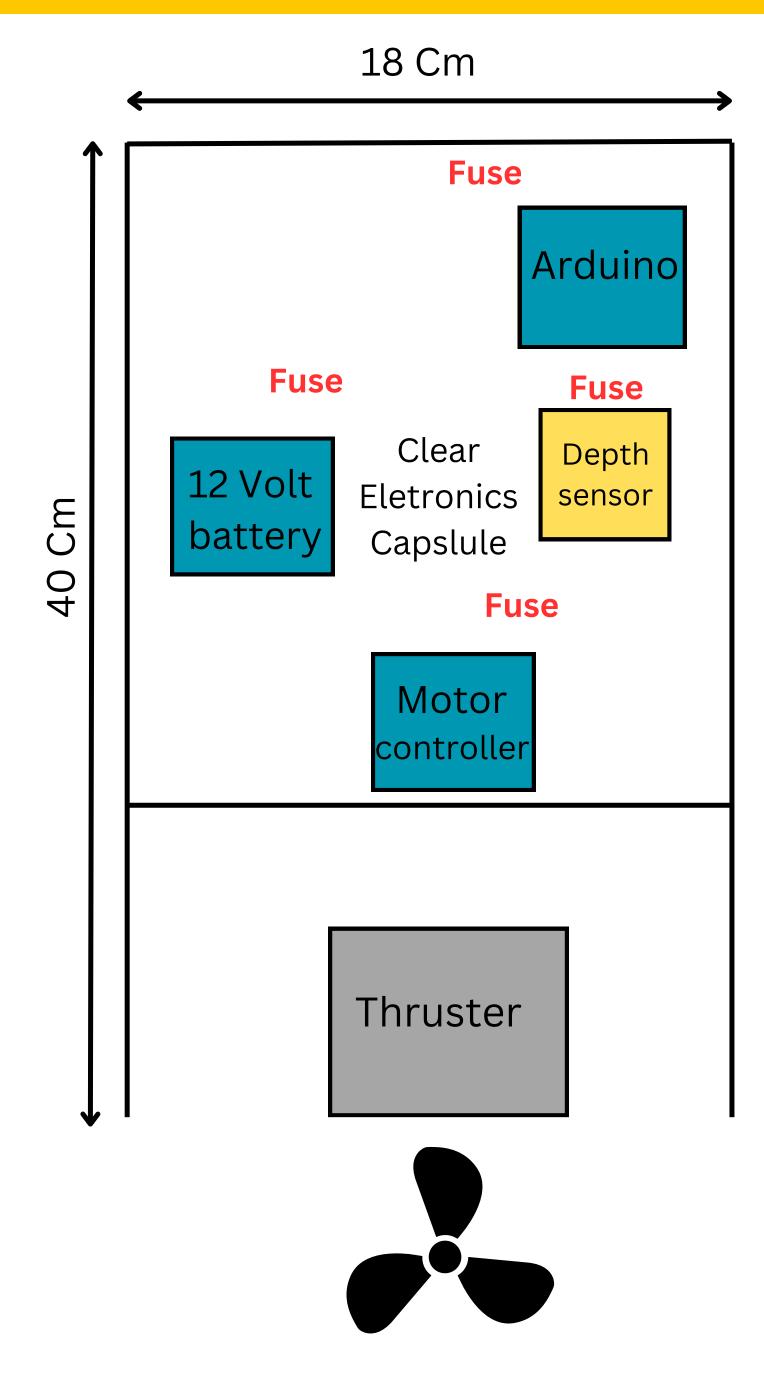Fuse

Motor
controller

Thruster

Figure 1. System Design (Mark Spurrell)

The Sunfish is a custom-designed autonomous vertical profiler, engineered to collect and wirelessly transmit depth data to a surface receiver. Powered by an Arduino UNO microcontroller and a 12V bilge pump thruster, the Sunfish performs smooth and controlled ascents and descents

The Sunfish is constructed from PVC pipe and sealed with ABS end caps. It houses the Audrino UNO, motor controller, batteries, Xbee transceiver and Xbee shield.

Upon activation, the Sunfish transmits an initial data packet to the surface station, confirming system readiness. After a 120-second initialization period, the Sunfish begins its first vertical profile by descending to a programmed depth of 2.5 meters. Once the dive is complete, it transmits the recorded depth data to the surface receiver. Following a successful data transfer, the Sunfish initiates a second vertical profiling cycle, during which it records depth measurements every five seconds throughout the dive. Upon completion, it surfaces and transmits the collected data for real-time analysis.