VERTICAL PROFILING FLOAT DESIGN

Name: Vertical Profiling Float

Dimension: 135.6mm x 116.4mm x 641.5mm

Weight: 3.2 KG

Power Supply: Powered from 8*1.5V AA batteries connected in series

Design Rationale:

The vertical Profiling Float performs autonomous vertical profiles for a specific duration in water. The system utilizes dual thrusters with a maximum thrust of 19.62N. The electronics are stored in a water-sealed cabin to protect them from water damage. The system uses hall sensors to start the vertical profiling with a magnet and switches. Wireless communication with the control station is achieved through the nRF24L0 2.4 GHz antenna. The Arduino Nano is used for wireless communication, detection of sensors, and control of thrusters for vertical profiling. The system also includes an RTC clock to show the current UTC time.

Safety Features:

- Propellor Guards that meet IP-20 standards
- 5A Fuse
- No sharp edges
- Electronics are appropriately labeled and sealed
- Programming thrusters with speed limitations