Cape Peninsula University of Technology

Title of project: Open-source based AUV

Problem Statement	The ocean is linked to weather, climate patterns, and all life on land. Thus, studying it helps researchers to predict trends and track the impact humans have made on the planet as well as monitor carbon emission levels. CTDs, moorings, gliders, and AUVs play a key role in data collection. However, these often require millions of rands to buy, thus excluding underfunded researchers from having access to ocean surveying and data collection instruments. Open-sourced designs allow for individuals to collaborate on projects, often resulting in higher quality, lower costs, and creates a positive space for growth and development within the project fields. Thus, there is a need for improvement and contributions towards open-source based AUV and glider projects.
Objectives	• Integrate various open-sourced components and software to develop a low cost AUV navigation system. • Integrate a source of regenerative energy and battery monitoring system. • Collect and log data from various sensors • Improve on electrical system to reduce power demand
Key Results	• Navigate via waypoint following • Long term deployment • Remote monitoring • Autonomous surfacing for recharging • Dive profile control
Impact/ Industry related significance	• Underfunded researchers have the means to conduct their own research at a fraction of the cost. • Open-source projects allows for goal specific modifications. • A positive contribution to the open-source community. • Accelerated innovation and development of more reliable, flexible and adaptable implementations