KDU IRC INTERNATIONAL RESEARCH CONFERENCE 2022

ID 184

Design and Development of an Autonomous Underwater Vehicle (AUV): For Rip Current Data Collection and Shallow Water Explorations

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Autonomous Underwater Vehicle is an emerging trend in the modern maritime scenario. Though there are various developed designs, researchers are keen on developing more manoeuvrable, stable and enduring structures with improved capabilities. Based on utilization, AUVs can be divided into two major categories; Deep-water operated and shallow-water operated. The purpose of the AUV designed and developed in our study is two-fold; this can be utilized for rip current data collection and shallow water exploration operations. However, the project is planned under two phases and this paper only describes the design and constructional aspects of the vessel with improved stability, manoeuvrability and lighting capability. On achievement of the full design, it will enable precise rip current data collection and conduct shallow-water exploration operations in both sea and freshwater streams with an online video streaming facility. In the present context, such operations are undertaken in the presence of a diver and our new design eliminates the need of a diver.

Keywords: *Autonomous Underwater Vehicles (AUV), manoeuvrability, stability*