

Stability study of MIROV: Fabricated remotely operated underwater vehicle

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Abstract

Remotely Operated Underwater Vehicles (ROVs) is dominant to underwater robotics which has very high demand in marine exploration and discovery. This study discussed the up thrust force or buoyancy effects for the fabricated ROV which named as MIMET-ROVTek ROV or known as MIROV. The study is conducted on the stability in terms of centre of mass, centre of gravity, buoyancy and centroid of the MIROV body. In addition, this study also describe the capability of ROV body works at the actual sites in Pulau Tuba, Langkawi up to depth of 15 meters and 2 knots current with a good buoyancy. The material used for ROV ballastis Polyvinyl Chloride (PVC). The centre of gravity, centre of mass, centroid and buoyancy is defined using theoretical mathematical calculation by taking all related physical parameters. Moreover, this MIROV body is modelled from scratch. The final model design were used the commercial computer aided software; SolidWork®. The proven calculated buoyancy were measured to shows the MIROV body achieved the neutral buoyancy once it fully or partially submerged into the water. This ROV also have capability to dive smoothly up to expected depths ~15 meters with associated flotation element and controlled by the vertical thruster assembled to the ROV body. © 2006-2017 Asian Research Publishing Network (ARPN). All rights reserved.

keywords

Buoyancy Centroid and centre of gravity MIROV Remotely operated underwater vehicle
Solidwork