



094-GNC

DESIGN AND DEVELOPMENT OF REMOTELY OPERATED VEHICLE (ROV)

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Remotely Operated Underwater vehicles (ROV) currently have being utilized for scientific and commercials application. Many industries are involved on develop robot in order to reduce human works as well as increase productivity, efficiencies and monitoring. Most of the petroleum industries are facing problem doing inspecting and monitoring on piping or chain underwater. All task need to be done by divers himself. There are constraint issues on underwater environment that dangerous and depth pressurized affect human body. Otherwise there is needed highly cost for each task. In Egypt underwater vehicles are not common. Knowing this and in the light of our past experiences we have decided to build a ROV to raise a common sense in our country by giving seminars, building such vehicle and make use of the vehicle in various areas. We plan to use UMVC competition as a step for further developing the underwater industry in Egypt. This year we have decided to build an easily-controlled ROV. With 6 thrusters 5 Degrees of Freedom (DOF) control is achieved. We also designed a 2 DOF robotic arm so that we will be easily manipulating and carrying objects. The final software is fully coded in LabVIEW, a graphical programming language. This allowed the very quick creation of a functional program and easy implementation on the myRIO. Our ROV is high-performance ROV. The 6-thruster vectored configuration, coupled with strong static stability, provides a vehicle that is smooth and stable, yet highly manoeuvrable.