

University of New Hampshire

Remotely Operated Vehicle

UNH ROV



The University of New Hampshire Remotely Operate Vehicle (ROV) is an interdisciplinary team devoted to designing, building, testing and competing with an underwater ROV. Our team members are from various academic backgrounds: Mechanical Engineering, Electrical Engineering, and Computer Engineering. We have 9 undergraduate seniors (Jarrett Linowes, Nathaniel Cordova, Shaun Hespelein, Sayward Allen, Alex Dzengeleski, Gerald Rosati, Jianqing Ye, Zhuo Xu and Sathya Muthukkumar), 2 advisors (Professor May-Win Thein and Professor M. Robinson Swift), 1 graduate student advisor (Firat Eren) and several lower classmen in our team. The team hierarchy is made of four parts: CEO (Jarrett Linowes), Operations Manager (Nathaniel Cordova), Chassis team (Shaun Hespelein, Sayward Allen, Alex Dzengeleski) and Controls team (Gerald Rosati, Jianqing Ye, Zhuo Xu and Sathya Muthukkumar). In addition, Sayward Allen is also responsible for the financial part of the team.

The UNH ROV team has participated in the MATE ROV international competition during various years since 2008. The company and team members working on the project and participating in the competition are new from previous teams and the design and robotic system is newly conceptualized as well. We will be traveling to the competition in St. Johns, Newfoundland from Durham, New Hampshire, approximately 1,500 km by plane.

The ROV designed and built (in the figure below) features an open frame, 5 degrees of freedom (DOF) of movement, and a single electronics housing tube. The Blue Robotics T100 thrusters are contained within the frame and the propellers are protected by a hard plastic casing. The control board is in a single water tight housing that draws power through a tethered connection to the surface. The tube features a camera peering out of a domed front. The system is controlled from the surface using an Xbox controller featuring intuitive directional movement for each DOF. The mechanical manipulator arm is mounted on the front of the ROV and is controlled using a Leap Motion controller, further incorporating digital feedback for a more intuitive human interaction. The ROV build cost is approximately \$5,250.

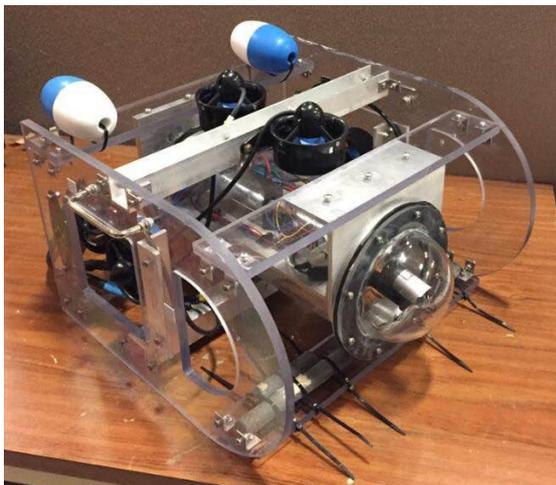
By using cutting-edge methods in team dynamics, analytic tools, and engineering design, UNH ROV is able to maintain continued success in developing underwater robotic systems used for multiple different platforms for research and competition. The UNH ROV team is excited to share and compete with these



From left to right: Sathya (controls), Alex (chassis), Jarrett (CEO), Gerald (controls), Sayward (chassis/treasurer), Shaun (chassis), Nathaniel (Operations Manager), Jianqing (controls), Zhuo (controls)

Visit us at our website:

unhrov.wix.com/unhrov



Picture of ROV-003



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