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BHV_OpRegionBounce:
an OpRegion that can bounce you back

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Abstract

Within the Cooperative Anti-Submarine Warfare programme at the NATO Undersea Research Centre, MOOS-IvP is used as the autonomy middleware for NURC's two Ocean Explorer autonomous underwater vehicles (AUVs). During NURC's March engineering trial, we encountered a situation where one AUV came so near the defined operational region (OpRegion) that fears were raised of the vehicle hitting the perimeter. In such a case the currently used BHV_OpRegion would have created a behaviour error and set all DESIRED_* values to zero. For surface vehicles, setting the DESIRED_* values to zero makes sense, but for underwater vehicles, this can be dangerous without adequate surface safety measures.

This talk discusses BHV_OpRegionBounce developed in response to the above described scenario. The behaviour is an adaptation of BHV_OpRegion with a bounce buffer for perimeter, maximum depth and minimum altitude. It has been tested in simulation for all potential combinations of all three possible safety breaches. Performance has been verified during NURC's June Engineering Trial, and results will be presented.