

Repositioning system of the submersible robot by changing the relative center of gravity with the volumetric center

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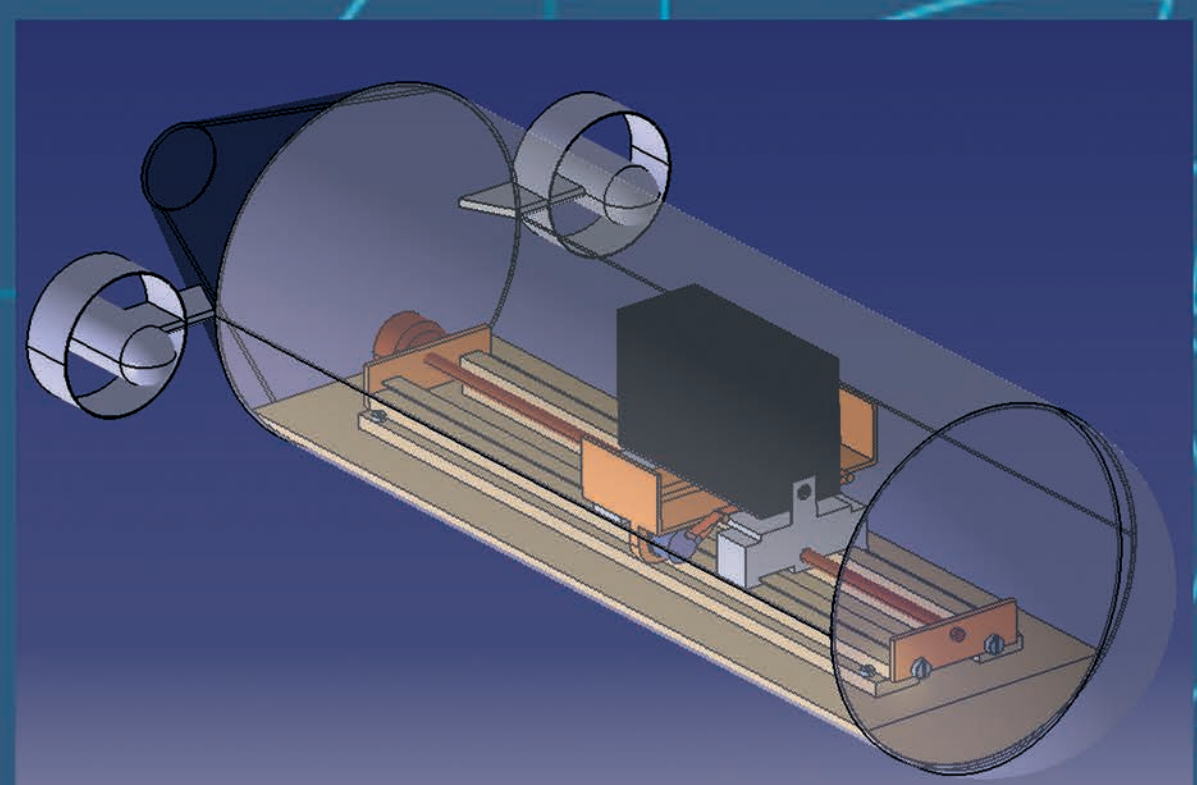
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Description:

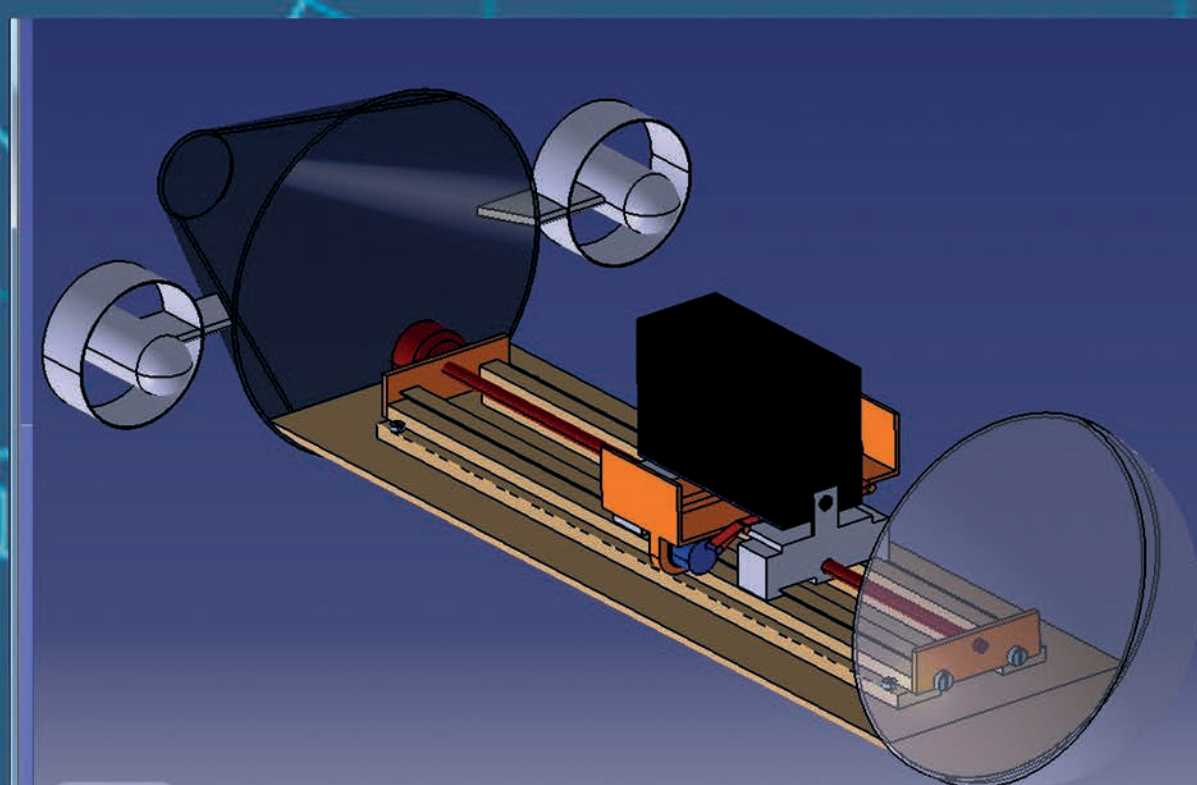
Current deposit is related to underwater vehicles. The weight center is changed due to an internal displacement of the battery pack. This displacement reflects in the reorienting position of the underwater robot axis coordinates. This lead to reduced power consuming and a controllable positioning of underwater robots.

This system is capable to maintain the position of an underwater robot to a specific angle regarding to the initial reference system of coordinates. The combined movements of the displacement of robot and the internal two motors (2) disposed symmetrically to the hull of robot (1) can generate complex trajectories. The system has 2 axis of displacement in horizontal plane trough two guidance (6) and (9) disposed at 90 degrees one related to other. The platform (8) of battery package (13) is moving, the movement on the two axes is generated by the motors (3) and (7) trough screw bars (4) and (5). On the two axes OX and OY the battery package (13) is moving, displacing the center of weight from the initial position. The two centers, the center of weight and the center of volume if a body is suspended in a mass of water will tend to be on the same vertical axis, below the center of volume will be the center of weight. For robot to be neutral buoyancy we use ballast (10). The robot has a video camera (12). The gyroscope and accelerometer (11) monitors the robot position.

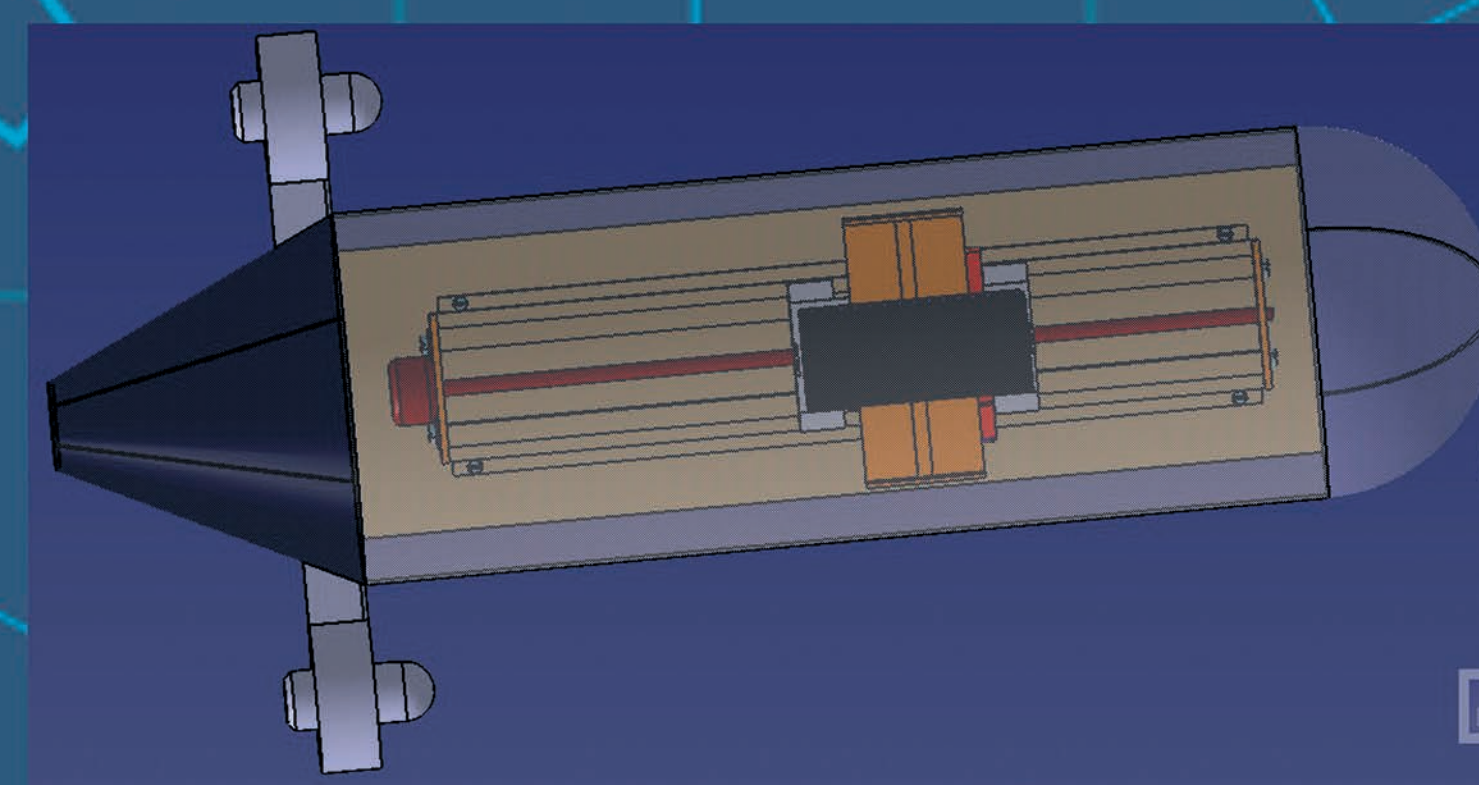
No. Patent or patent application: A201200369



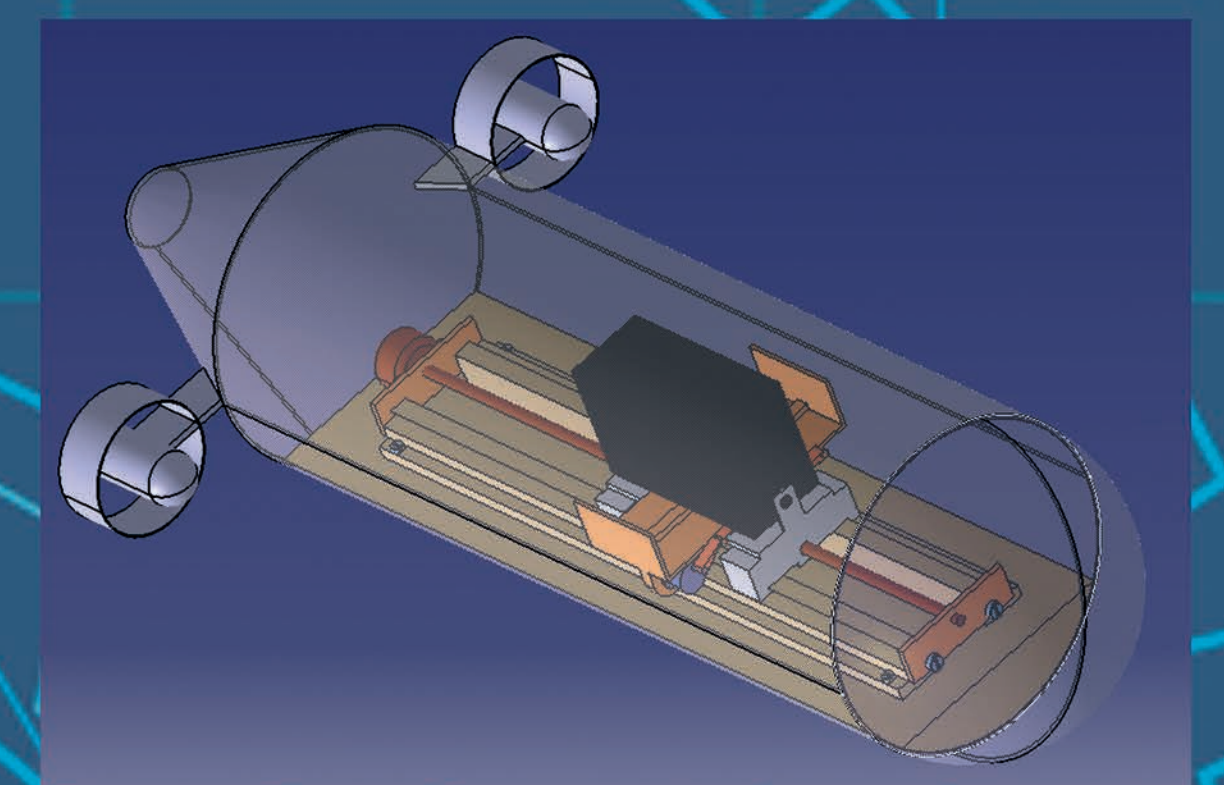
CAD representation of the repositioning system general view



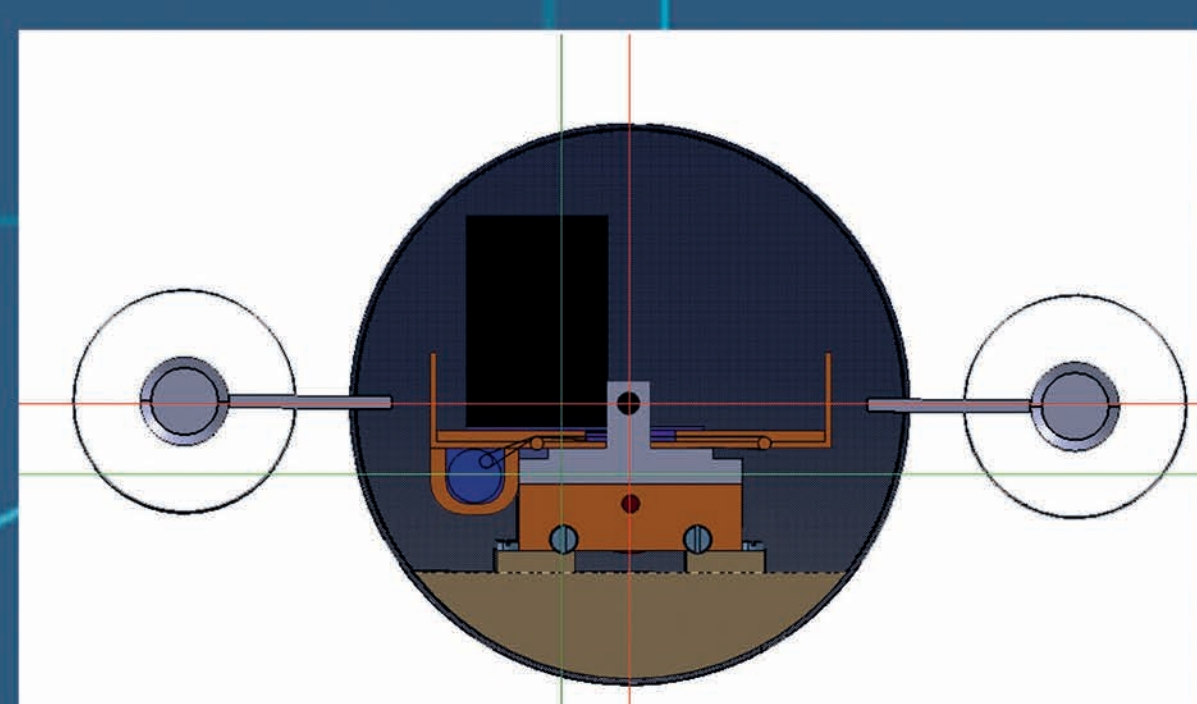
CAD representation of the repositioning system general view



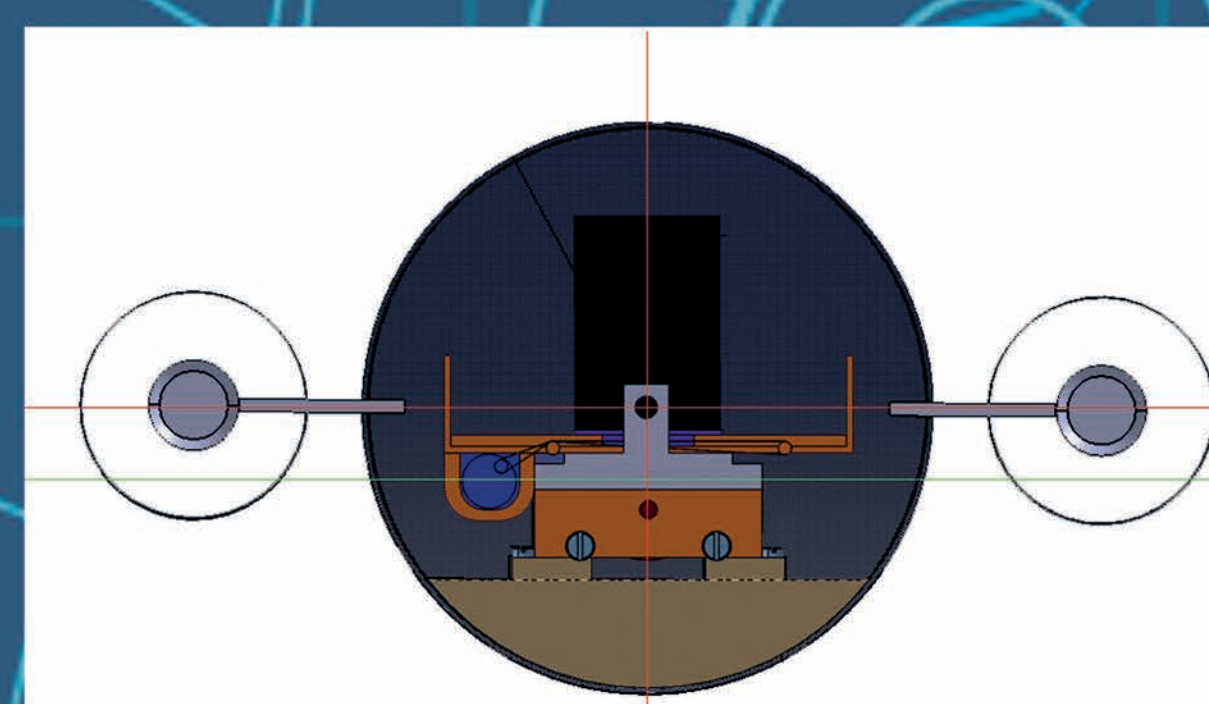
Cad representation of the repositioning system top view



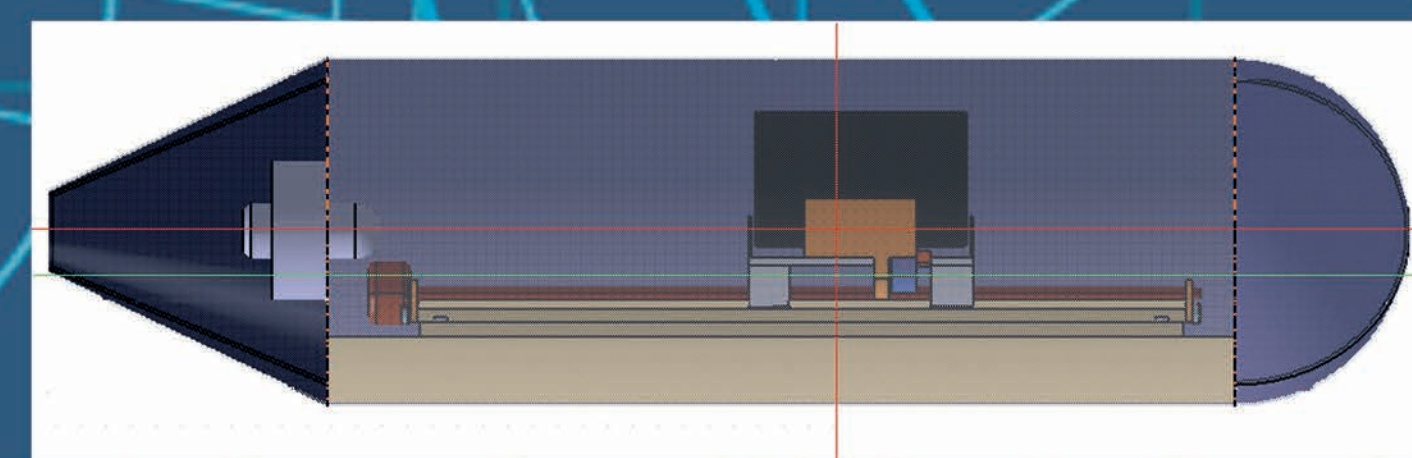
CAD representation of the repositioning system general view



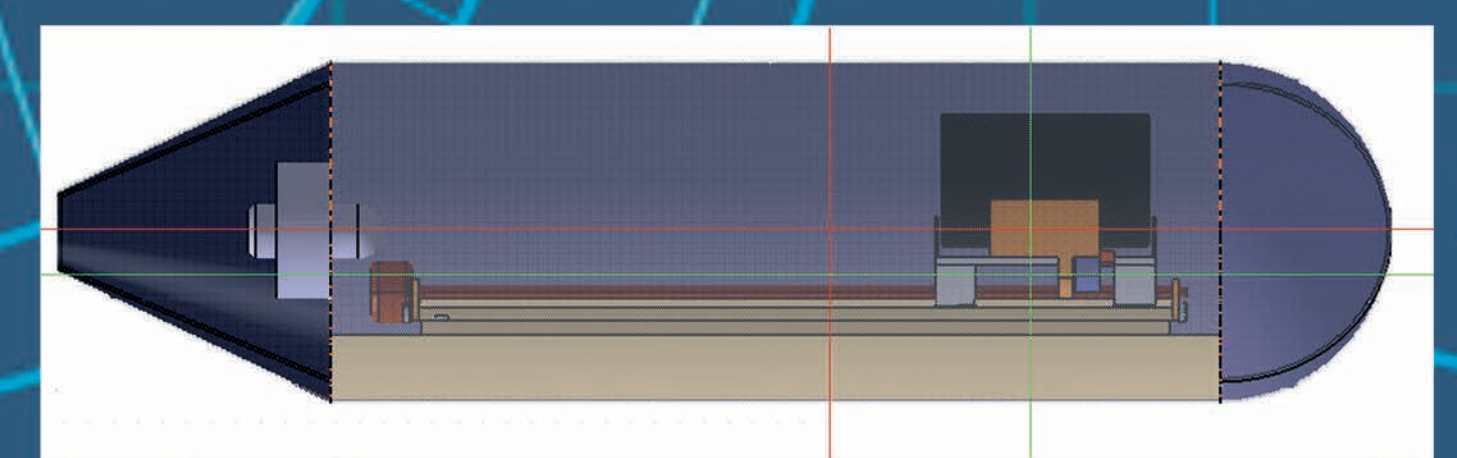
AUV Front view Left Displacement of center of weight position (green mark) relative to center of volume (red mark)



AUV Front view no displacement of center of weight position (green mark) relative to center of volume (red mark)



AUV Side view no displacement of center of weight position (green mark) relative to center of volume (red mark)



AUV Side view no displacement of center of weight position (green mark) relative to center of volume (red mark)

Applicability:

Robotics, Underwater vehicles positioning control using center of mass movement reported to the center of volume