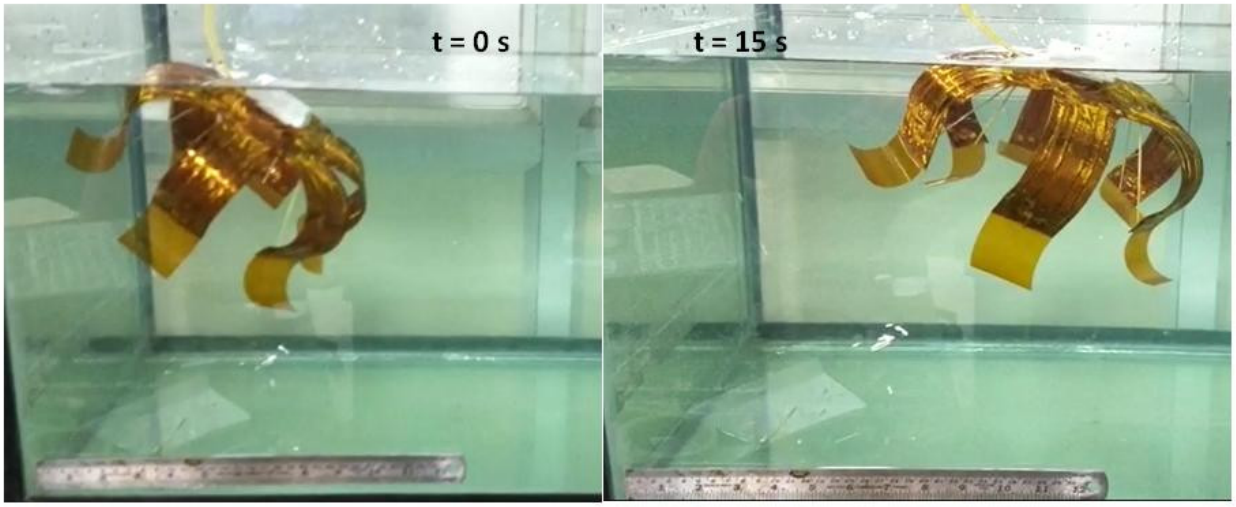


An underwater vehicle plays a major role in monitoring the marine life. The limitation with conventional rigid body vehicles are noisy, self weight and harmful for the underwater creatures. Soft robotics is an emerging field of study in which the robot is fabricated using soft polymers and flexible reinforced sheets which is compliant in nature. Instead of conventional motor based actuator, the soft robots uses smart actuators such as Shape memory alloy, piezoelectric, ionic polymer metal composite for its actuation. This work presents the design, fabrication, modeling and hydrodynamic analysis of SMA wire actuated soft robotic jelly fish. Fabrication of the proposed design uses nitinol SMA wires attached to polyimide sheets as shown Figure. The preliminary studies show that the proposed jelly fish can move in water. A rubber string is attached between the fin ends and centre of the body. At rest the jelly fish remains in bell shape. The SMA wire is actuated through Joule heating which creates flapping motion of the fin. During cooling the jellyfish returns to the bell shaped structure due to the elasticity of rubber string. The continuous heating and cooling of the wire creates pulse and recovery motion of the fins which generate thrust to make the jelly fish to move. Figure shows the motion of jellyfish at different orientations.