



CALIFORNIA STATE SCIENCE FAIR  
2015 PROJECT SUMMARY

<b>Name(s)</b> Isaac John Anchanattu	<b>Project Number</b>  35025
<b>Project Title</b> Stabilizing Rubber Ball Octopus Projectile	
<p style="text-align: center;"><b>Abstract</b></p> <p><b>Objectives/Goals</b> Stabilize a rubber ball octopus projectile so that it gets attached to a white board surface as its target</p> <p><b>Methods/Materials</b> white board Needle and string Graph papers Party hat Water bottle Venire caliper Rubber ball octopus</p> <p><b>Results</b> From the tests conducted with a party hat 20 times, it is found that the octopus get attached to the target 19 times. The success rate was 95%.</p> <p>Since the design had a flexible joint where party hat and rubber ball octopus connect, it helps to keep the projectile's axis of symmetry and direction of flight aligned.</p> <p><b>Conclusions/Discussion</b> In order to achieve a successful target attachment, the projectile with the rubber ball octopus has to be designed for stability. There are three major things to be considered in the design.</p> <ol style="list-style-type: none"><li>1) Proper placement of the Center of Gravity (CG) and Center of pressure (CP) so that the CG should be closer to the suction stem of the rubber ball octopus than the center of pressure.</li><li>2) There should be enough distance between CG and CP to provide stability.</li><li>3) The axis of symmetry and the direction of flight have to be aligned. To achieve this, the joinery between the attachment and the rubber ball octopus should be kept flexible.</li></ol>	
<b>Summary Statement</b> Stabilize a payload (rubber ball octopus), in a specific direction so that when it reaches the target object, it can get attached (using the suction) successfully.	
<b>Help Received</b> Photography and editing/formatting of word document from my mentor	