



BORN TO ENGINEER

**ENGINEERING SERVICES**

## Simulation and Optimization for labeling process

<b>Product</b>	Inline labeling machine for bottle
<b>Objective</b>	<ul style="list-style-type: none"><li>• Develop the methodology to understand the labeling process</li><li>• Carryout sensitivity study to understand the effect of different process variables on the labeling process.</li></ul>
<b>Customer Inputs</b>	<ul style="list-style-type: none"><li>• 3D CAD geometry of the bottle, thickness assignment files.</li><li>• Velocities, loads and boundary conditions and material properties</li><li>• Sensitivity study parameters and ranges</li></ul>
<b>Challenges</b>	<ul style="list-style-type: none"><li>• Develop the simulation methodology from scratch as no methodology was developed earlier by QuEST and also by customer</li><li>• Selecting the critical parameters affecting the labeling process to carryout sensitivity study.</li></ul>
<b>OurApproach</b>	<ul style="list-style-type: none"><li>• Initial simulation setup with simple geometry and assumed data.</li><li>• Simulation of label application on the bottle</li><li>• Simulation of labeling process with actual bottle geometry</li><li>• Simplifying the simulation methodology</li><li>• Identify the parameters for sensitivity study and fix the range of the parameters.</li><li>• Carry out sensitivity runs</li></ul>
<b>Output</b>	<ul style="list-style-type: none"><li>• Process settings for effective labeling, contact pressure in labeling region, sensitivity study</li></ul>
<b>Benefits</b>	<ul style="list-style-type: none"><li>• Development of methodology for label application &amp; virtual visualization on the bottle.</li><li>• Effect of various process variables on the labeling process.</li></ul>