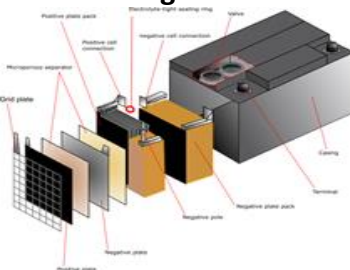
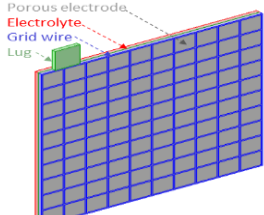
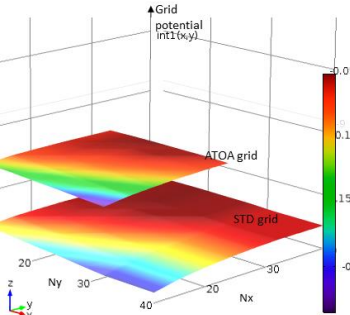
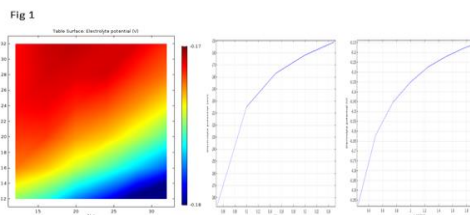
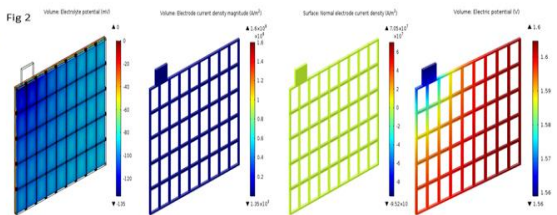


Superior Battery by Multiphysics Engineered Grid

<p>Background</p> 	<p>Lead Acid (LA) Batteries are time tested and have following advantages over other batteries: low cost; high battery voltage; good high-rate performance; good charge retention; maintenance-free designs; high recyclability of components. The disadvantages are: short cycle life; low energy density; irreversible polarization of electrodes. Though Lithium batteries are preferred in consumer products which are mobile because of their high energy density and light weight, LA batteries are still cost effective and used in most of the stationary applications. There are attempts to make it better with energy density and weight of the battery.</p>
<p>Problem Statement</p> 	<p>The critical component in any LA battery is the Grid plate. The challenges that lead acid batteries facing can be addressed by improving the performance of the Grid plate by novel design.</p> <p>Can we increase (i) the battery capacity (ii) specific energy density, (iii) the discharge rate performance, (iv) service life and reduce the weight of the battery?</p>
<p>Our Technology</p> 	<p>Our unique technology using a multiphysics optimized Grid Design maximizes its chemical, electrical, thermal, structural and service life capacity. The suggested Grid Plate design provides capacity, specific energy density, light weight, high rate discharge performance and service life of lead acid battery.</p> <p>Fig 1: Representative Computational Experimental Results, Fig 1 Effect of Grid biscuit size, grid weight, grid wire size on performance, Fig 2 Grid with Active Material Utilization enhancer, current collection enhancer and AC weight reducer's results.</p>  
<p>Market</p>	<p>Global Lead Acid Battery market ~ US \$ 75Billion</p>
<p>Competition</p>	<p>All battery manufacturing companies and research institutes</p>
<p>Competitive Advantage</p>	<p>Using the existing manufacturing facility and infrastructure and battery configuration (other than grid internals) improve battery performance by average ~61%, max ~114%, e.g., (i) capacity (ii) energy density, (iii) service life and reduce weight by ~58%.</p>
<p>Team and Advisors</p>	<p>Dr.Raj CN Thiagarajan, Founder MD of ATOA Scientific Technologies Pvt. Ltd., Ph.D. from Cranfield University, UK and IITB alumnus. 25+ years of Industrial Research experience. Successfully and consistently delivered innovative solutions to MNCs in the last 20+ years. Prolific Inventor (20+ US patents) with successful Engineered products in the Market.</p> <p>Dr. Immanuel Selvaraj, Founder of i-EL Technologies Ph.D from IIT Kanpur – more than 20+ years experience in Technology, Innovation and Leadership in Academia, Reliance Silicones, GE and SABIC. Co-Founder of Johnu-EL Technologies Pvt. Ltd.</p>
<p>Status</p>	<p>Filed patents in Indian Patent office; in progress to file in US and WO Patent offices; Working on making a prototype using the patented technology</p>