AI Software Automates Battery Pack Design

Voltaplex Energy's Voltx.ai is said to be a first-of-its kind software application for automated battery pack design. According to the company, the AI-based software allows engineers to design a battery pack for their project in seconds instead of hours or days. Furthermore, this tool is said to be 100,000 times faster than a human at designing a battery pack.

The screenshots (Figs. 1 and 2) show battery packs generated for two example designs. In the first screenshot (Fig. 1), the user entered battery requirements for an E-bike application with the nominal battery voltage specified as 36 V, a battery capacity of 13,000 mAh, and max output current capability of 10 A continuous and 20 A peak.

In this example, an 18650 model was selected as the cell along with some other mechanical details such as single-layer construction. As the Fig. 1 screenshot indicates, in 0.008 seconds, Voltx.ai generated 224 pack designs that meet the specifications entered by the user. A mechanical drawing of one of these pack designs is shown in Fig. 1.

Fig. 2 shows another battery pack design example for an E-bike application. Although current ratings for this pack were similar, the pack voltage and capacity were higher (65 V and 24,000 mAh, respectively) and multi-layer construction was allowed. Also, a different 18650 model was selected as the cell.

With these inputs, Voltx.ai generated 3240 pack designs in 0.0929 seconds. One of these pack designs is shown in Fig. 2 along with some details of its electrical and mechanical parameters. Note that the nominal pack voltage and capacity differ slightly from the specified inputs.

Voltx.ai is being used by both professionals and DIY users, including those working at Fortune 500 companies, governmental institutions and universities to design a wide range of products from UAVs to luxury solar yachts to robotics. For more information, watch this video or see the voltaplex.com website.
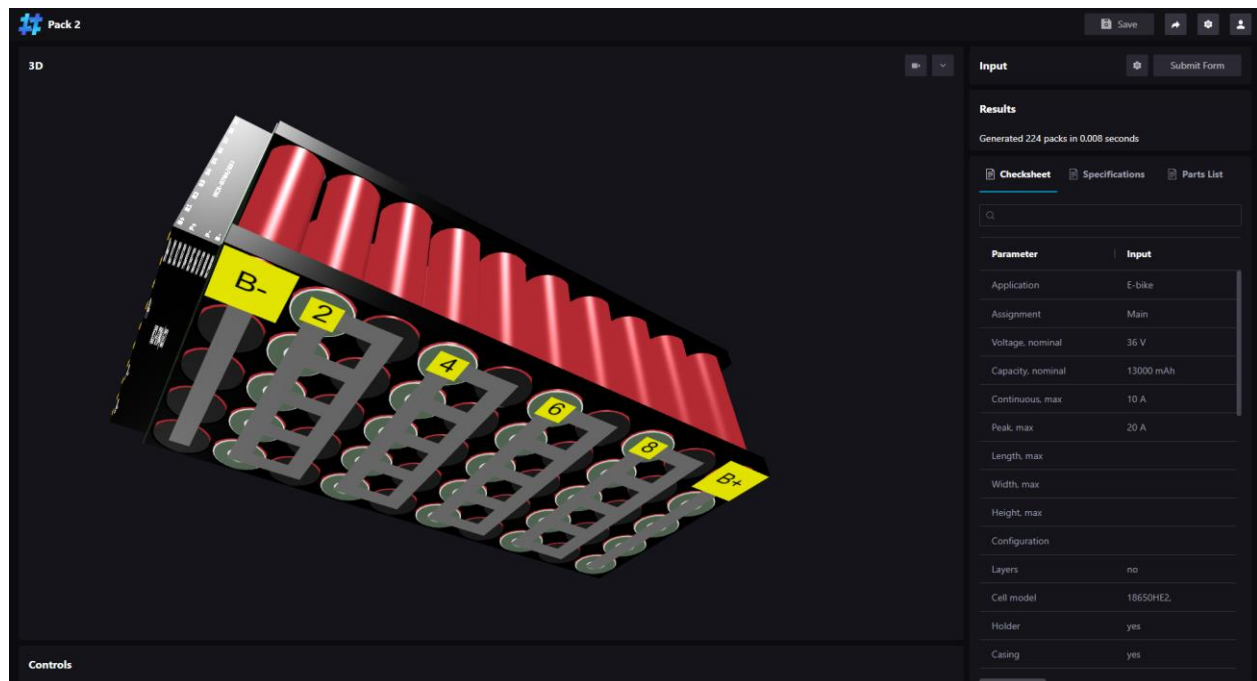

Fig 1. Voltx.ai shows one of 224 pack designs generated in 0.008 seconds for an E-bike application for which the user specified a nominal pack voltage of 36 V, a battery capacity of 13,000 mAh, and a max output current capability of 10 A continuous and 20 A peak, among other specifications.
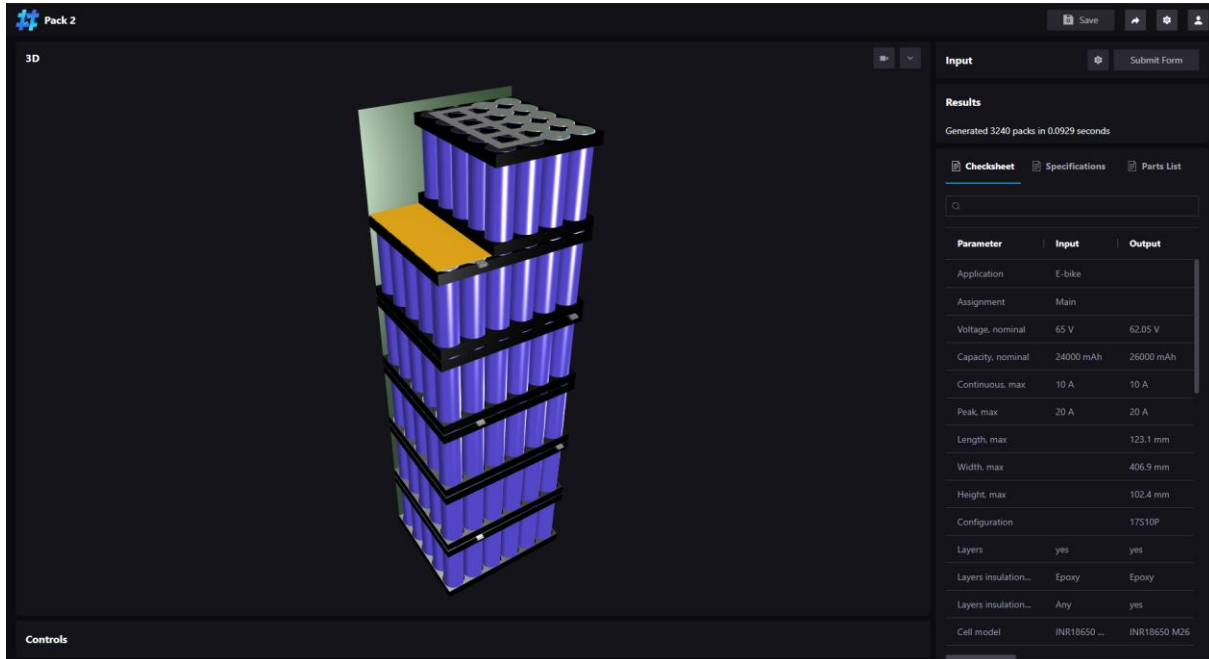
Fig 2. Voltx.ai shows one of 3240 pack designs generated in 0.0929 seconds for an E-bike application for which the user specified a nominal pack voltage of 65 V and a battery capacity of 24,000 mAh among other specifications. Note that the user selected multilayer construction in this case.

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