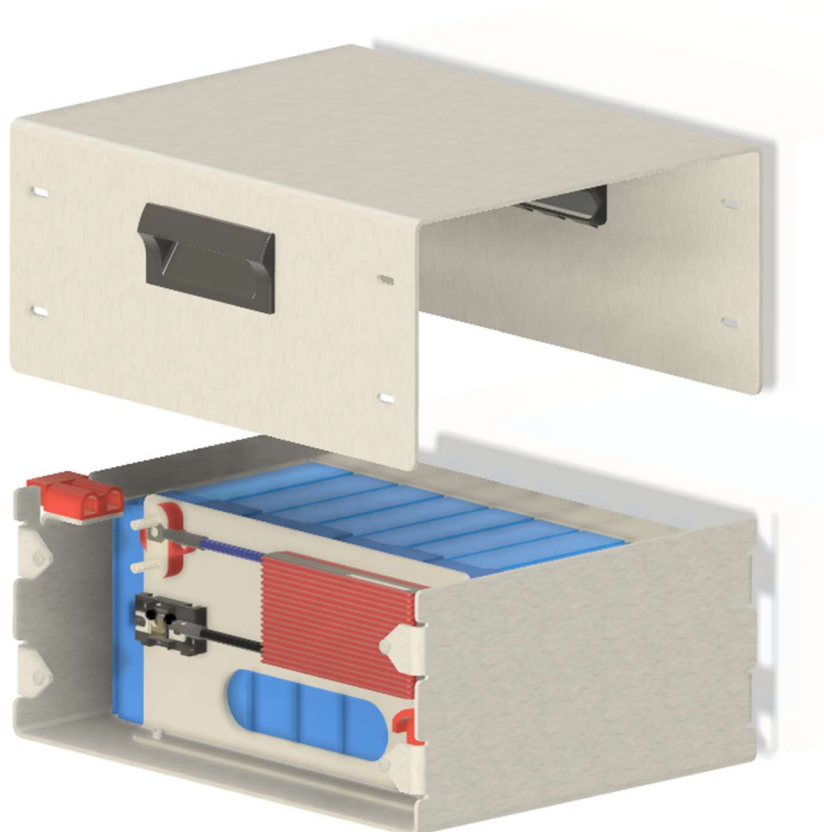


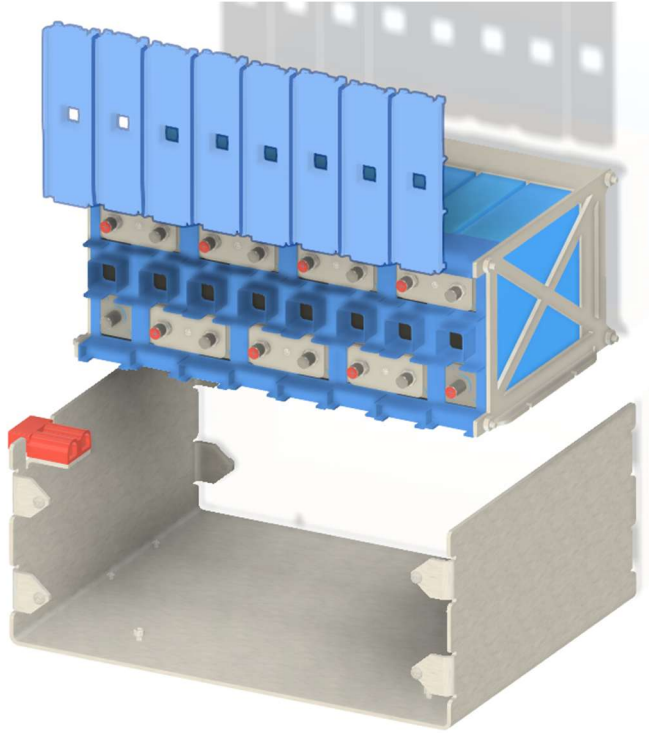
## Success Story: Custom Battery Pack Design and Manufacturing

### Customer Challenge

A regional company faced a critical issue when the original battery used in their product design failed. The specific model was no longer available on the market, and they struggled to find an off-the-shelf replacement that could meet the tight space constraints and the required voltage and amp-hour capacity. Without a replacement, their product could not function, jeopardizing performance and reliability.

This is a common issue in product development, companies must keep their designs viable even when original components are discontinued, and most do not have the in-house capabilities or the time required to locate and qualify a new solution.





## CMS Solution

The company turned to the JSU Center for Manufacturing Support (CMS) to design and manufacture a fully custom battery pack. Our engineers managed the project from initial design through final assembly, leveraging CMS's in-house capabilities:

- **Cell Selection:** LiFePo4 prismatic 75Ah cells meeting performance requirements.
- **Smart Power Management:** Integrated a 150A Bluetooth-enabled Battery Management System (BMS) for real-time monitoring.
- **Safety Features:** Added a high-amperage connector and protective fuse to ensure safe operation.
- **Custom Housing:** Modeled an aluminum enclosure, then fabricated it using our waterjet cutter and CNC press brake.
- **Assembly & Testing:** Fully assembled the unit and verified performance under operating conditions.
- **Documentation:** Delivered complete manufacturing documentation so the customer could continue sourcing components independently in the future.

## Results & Impact

- **System Restored:** The failed system was brought back into operation with a reliable, custom solution.
  - **End-to-End Execution:** CMS handled everything in-house, from design to final product, saving the customer time and effort.
  - **Future-Proofing:** Provided the customer with documentation and sourcing information to ensure sustainability of the solution.
  - **Proven Capability:** Showcased CMS's ability to take the lead on complex projects, producing complete solutions that combine design, fabrication, and validation.
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## Student Engagement

Students from JSU's Department of Applied Engineering were directly involved in:

- Modeling the custom aluminum housing
- Assisting with waterjet cutting, press brake operations, and assembly
- Supporting testing and validation of the final battery pack

This project gave students hands-on experience with energy storage systems and advanced fabrication techniques, while providing the company with a fully engineered, production-ready solution.

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## Ready to Solve Your Manufacturing Challenge?

If your company is facing similar issues with obsolete components, system failures, or unique design needs, the **JSU Center for Manufacturing Support** can help.

Scan the QR code below to learn more or to start a project with us



visit: [www.jsu.edu/cms](http://www.jsu.edu/cms)