Second-Life Battery Energy Storage for Sustainable Power Grids

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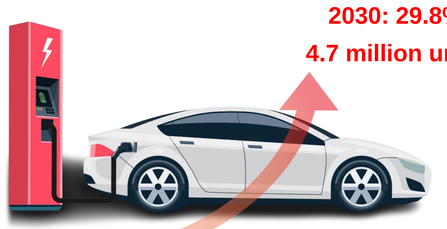
INFORMATION & SMART SYSTEMS LABORATORY

Introduction

Lithium-ion batteries are the main driver of the new era of electrified transportation.



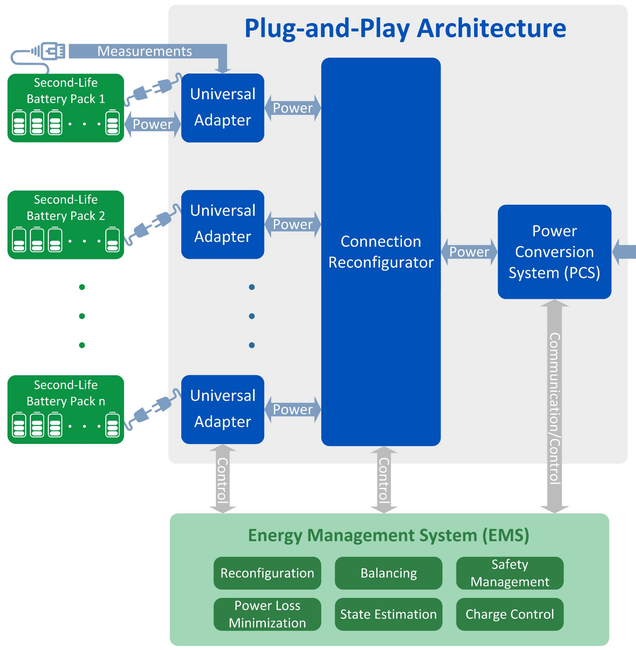
Electric vehicle sales percentage in US market

Why Is It Difficult to Use Second-Life Batteries?

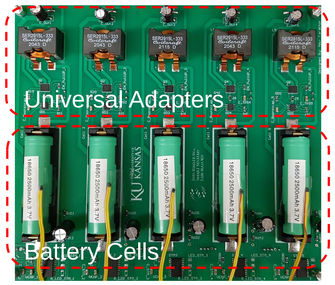
Disassembling and repackaging of EV battery packs are tedious and expensive.

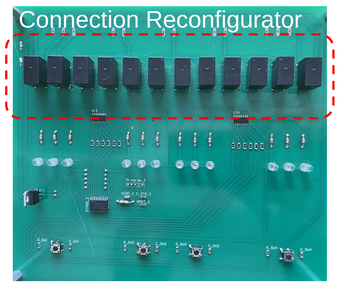
Retired EV batteries are different in size, aging condition, and electrochemistry.

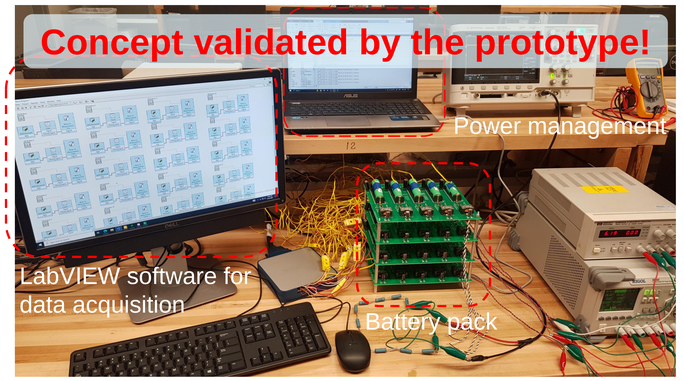
Plug-and-Play Second-Life Battery Systems



Experimentation



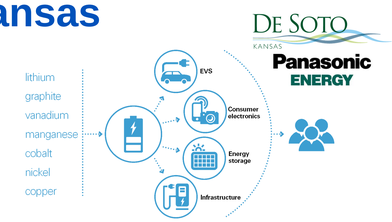




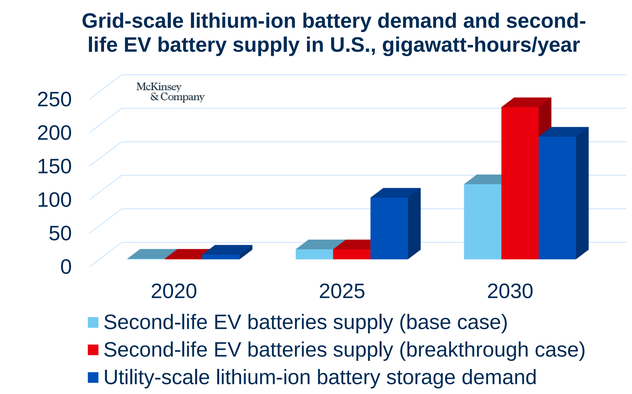
Sustainable Kansas

Environmental benefits

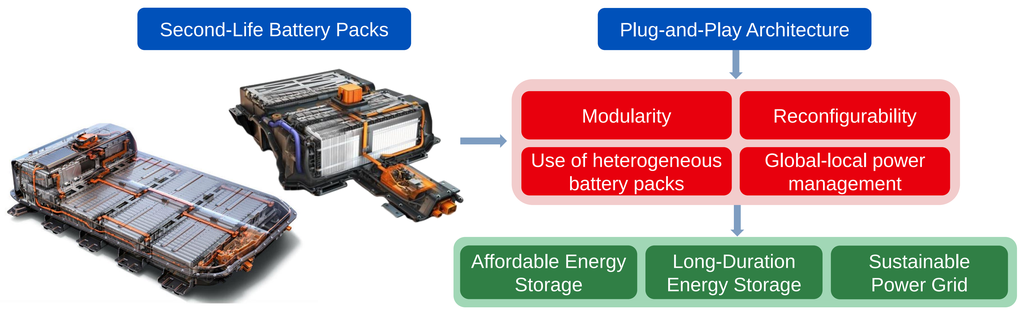
Economic benefits



Battery supply chains



Design Functions



Research Products

Pending Patent: A Modular, Reconfigurable Battery Energy Storage System
A. Farakhor, H. Fang
PCT/US2022/077918, Filed in October 2022

A Novel Modular, Reconfigurable Battery Energy Storage System: Design, Control, and Experimentation
A. Farakhor, D. Wu, Y. Wang and H. Fang
IEEE Tran. on Transportation Electrification, 2023

Sponsors and Collaborators

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