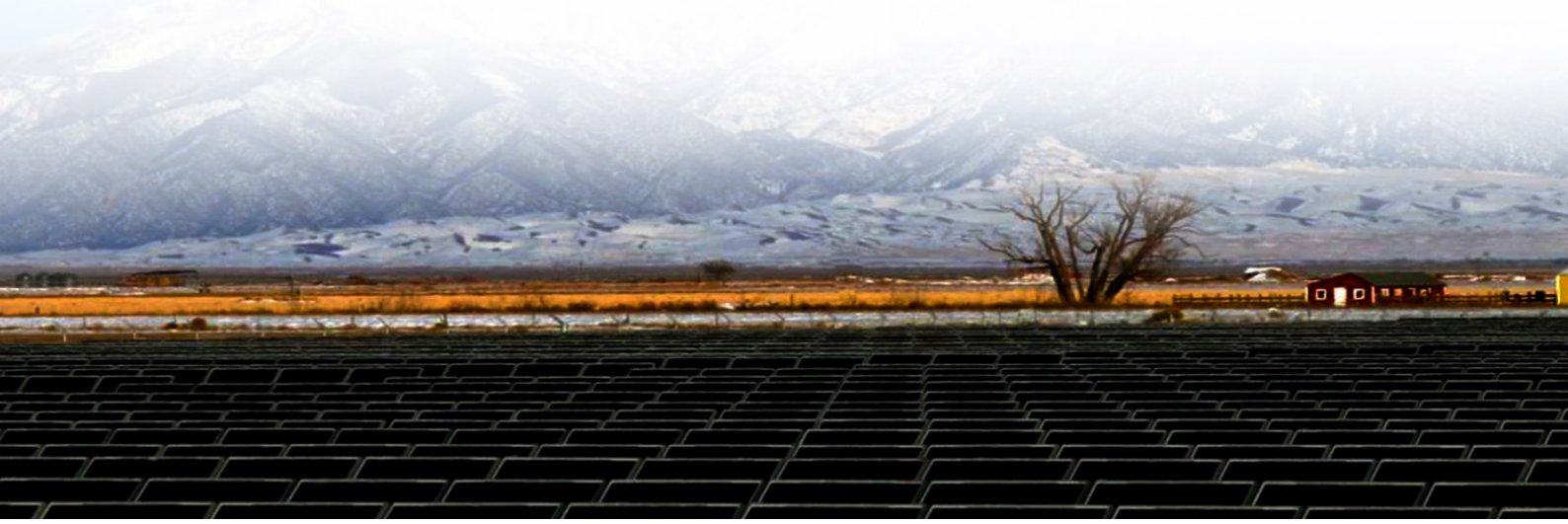
Automatic separation of cylindrical lithium batteries



Overview

The variance of different battery pack designs in terms of (non-) solvable fitting technology and superstructures complicate this. In order to realize an automated disassembly, a computer vision pipeline is proposed.

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In an effort to increase the thermomechanical stability of lithium-ion battery separators, thermoset membranes (TMs) are a viable alternative to commercial polyolefin separators. We present an efficient and scalable method to produce thin TMs via photopolymerization-induced phase separation (PIPS).

The variance of different battery pack designs in terms of (non-) solvable fitting technology and superstructures complicate this. In order to realize an automated disassembly, a computer vision pipeline is proposed. The approach of instance segmentation and point cloud registration is applied and.

Separator, a vital component in LIBs, impacts the electrochemical properties and safety of the battery without association with electrochemical reactions. The development of innovative separators to overcome these countered bottlenecks of LIBs is necessitated to rationally design more sustainable.

Recycling plays a crucial role in achieving a sustainable production chain for lithium-ion batteries (LIBs), as it reduces the demand for primary mineral resources and mitigates environmental pollution caused by improper disposal. Disassembly of the LIBs is typically the preliminary step preceding.

Automatic separation of cylindrical lithium batteries

A Systematic Review on Lithium-Ion Battery ...

The results emphasize disassembly as a crucial process for achieving a high material separation rate and ensuring a high degree of ...

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We present an efficient and scalable method to produce thin TMs via photopolymerization-induced phase separation (PIPS) in ambient ...

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The results emphasize disassembly as a crucial process for achieving a high material separation rate and ensuring a high degree of purity of the recycled active material. ...

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Advanced separators for lithium-ion batteries

Separators play an essential part that physically prevents direct contact between positive and negative electrodes while acting as an electrolyte reservoir to transport lithium ions. The ...

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(PDF) Advanced separators for lithium-ion ...

Although the separator is an inactive part of the battery, its structure and properties have a significant impact on the safety, ...

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Tuneable and efficient manufacturing of Li-ion battery separators ...

We present an efficient and scalable method to produce thin TMs via photopolymerization-induced phase separation (PIPS) in ambient conditions. The pore size is ...

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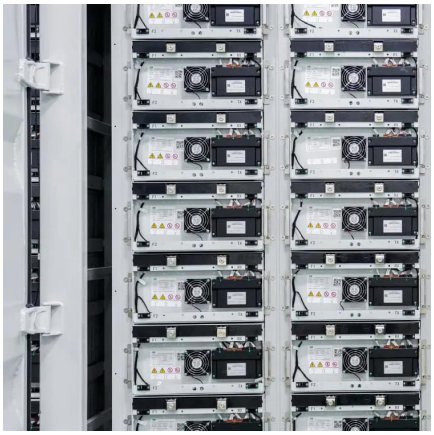

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In order to realize an automated disassembly, a computer vision pipeline is proposed. The approach of instance segmentation and point cloud registration is applied and validated within ...

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A Review on Lithium-Ion Battery

Separators towards Enhanced Safety

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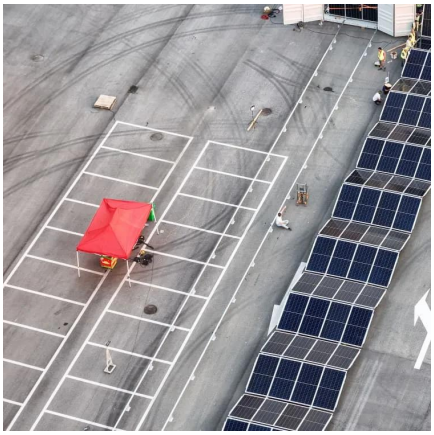

(PDF) Advanced separators for lithium-ion batteries

Although the separator is an inactive part of the battery, its structure and properties have a significant impact on the safety, electrochemical performance, and reusability of the ...

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Separators ...

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Recent progress of advanced separators for Li-ion batteries

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