Flexible battery disassembly technology

Can a robotic cell disassemble a battery pack?
The analysis highlights that a complete automatic disassembly remains difficult, while human-robot collaborative disassembly guarantees high flexibility and productivity. The paper introduces guidelines for designing a robotic cell to disassemble a battery pack with the support of an operator.

How to design a battery disassembly system?
The design of the disassembly system must consider the analysis of potentially explosive atmospheres (ATEX) 1 of the area around the battery pack and, if necessary, adopt tools enabled to work in the corresponding ATEX zone.

What is Comau's flexible battery dismantling project?
o The Comau-designed cell will facilitate the manipulation of low-charge batteries while minimizing risks to operators and equipment Comau has renewed its commitment to the EU's Flexible Battery Dismantling (Flex-BD) project for the second year, to help deliver a fundamental pillar on the path towards a truly circular economy.

How ATEX 3 battery pack was disassembled?
Following the recommendations given after the safety analysis,as a specific potentially explosive atmosphere (ATEX) 3 zone,the battery pack was manuallydisassembled. The manual disassembly brought to a disassembly procedure which was decomposed and analysed to identify how to automate the same operations with a robot.

How difficult is it to automate battery disassembly?
However, the current lack of standardisation in design remains a significant barrier to automating battery disassembly . Additionally, the uncertain conditions of end-of-life or damaged EVBs add to the complexity of executing the disassembly process effectively.

Can a battery pack be disassembled?
Current battery packs are not designed to be disassembled,spaces between modules are narrow,and joint technologies are mostly irreversible (e.g.,glued parts,welded plates,one-way screws),bringing to a difficult non-destructive disassembly.

Design for Assembly and Disassembly of Battery Packs Master"s Thesis in Product Development ... CHALMERS UNIVERSITY OF TECHNOLOGY Gothenburg, Sweden 2019 . MASTER"S ...

Li-ion batteries are the key enabling technology in portable electronics applications, and such batteries are also getting a foothold in mobile platforms and stationary ...

the flexible disassembly requirements of power batteries with various varieties and retirement conditions. Secondly, it proposes a KT-based AR-HRC disassembly sequence planning ...

Hence, this contribution presents the challenges of disassembly automation in the special context of lithium ion battery technology in general. Furthermore, a flexible gripper ...

Blueprint for flexible disassembly system The state of the art exposes subsystems with various manifestations which fulfil the requirements for flexible disassembly ...

The flexible battery market is expected to expand rapidly in the coming years. One study forecasts that the global flexible battery market will grow by $240.47 million from 2022-2027, accelerating at a compound annual ...

As part of this project, Liebherr is developing strategies and processes for the automated disassembly of high-voltage battery systems and assessing the automation capability of used ...

Comau is developing a robotized electric battery dismantling cell as part of its on-going commitment to advancing sustainable electric mobility solutions. Fl...

End-of-life electric vehicle battery disassembly enabled by intelligent and human-robot collaboration technologies: A review ... This survey aims to provide a systematic ...

The only hitch is to find a way to safely and cost-effectively disassemble EV battery packs. Today, the process is almost entirely manual. "Because it"s so labor-intensive, ...

A flexible battery is a new battery technology capable of bending and folding without affecting its performance. These batteries are typically made from lightweight, thin materials, offering high ...

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