

Robotic arm for transporting battery packs

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 many tools does a robot need to disassemble a battery pack?

In ,authors identified the four mandatory tasks: handling,separation,clamping,and monitoring to pursue the disassembly of the battery pack into modules. The robot needs at least one tool for each listed task. Several works analysed the disassembly,proposing the design of specific disassembly tools.

Why do you need a robot for Battery trays?

Fast,accurate and flexible cells and smart systems,supported by our robots,offer the ideal solution for automating battery pack and battery module assembly applications. Our solutions enable faster,more precise,and more cost-effective productionof battery trays,as well as better quality control and improved safety for workers.

What is a battery pack disassembly?

Robotic disassembly involves several research topics such as Task and Motion Planning (TAMP), robot tool design, and robot sensor-guided motion. Battery pack disassembly is a part of this field of applications as a practical approach to preserving operators' safety and health by coping with the high variability of products [38, 64].

Can robotics help EV battery disassembly?

This paper analyses the use of robotics for EVs' battery pack disassembly to enable the extraction of the battery modules preserving their integrity for further reuse or recycling.

Can a robot be used for battery pre-sorting and testing?

Combining the visual inspection and direct measurement capabilities of the two approaches would enable a robotised solution for battery pre-sorting and testingof the EVB,which is a critical step in ensuring safe disassembly for the EVB. Cutting the module connection tabs and fasteners was proposed in two reviewed publications ,.

industrial arms working in concert. In this project, the humanoid robots will work together with robot arms to manipulate wire harnesses and remove screws and other components before dismantling several commercial battery packs with a heavy-duty industrial arm. State-of-the-art perception models boosted by large-language models to consider ...

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Researchers from the UK presented a robotic platform designed to automate the non-destructive disassembly of plug-in hybrid electric vehicle (EV) battery packs. By employing industrial robots equipped with various end-effectors and sensors, the platform efficiently extracts battery modules while preserving their structure and function.

The University of Colorado Boulder will develop techniques for autonomous disassembly of electric vehicle (EV) lithium-ion batteries. The team's disassembly pipeline consists of humanoid robots, collaborative robotic arms, and heavy-duty industrial arms working in concert.

Su et al. [113] presented a novel approach to disassembling a peg from a hole through the design of a compliant robotic end-of-arm tool. Unlike the remote compliance ...

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This robotic arm picks up and moves individual items from containers into specific totes to send off to employees before they're packaged. Sparrow uses computer vision and AI to identify the correct item and add it to the tote on its delivery journey. 5. Packaging Automation. Once all the items for a customer order are selected, Amazon uses a variety of ...

Adding a thermal camera and gas sensors to detect gas leaks and thermal runaway of the batteries would improve the capability to detect and cancel out unsafe, ...

Industrial Robot Arms Assemble Lithium-Ion EV Battery Pack. Row of White Robotic Arms at Automated Production Line at Bright Modern Factory. Electric Car Manufacturing Inside Automotive Smart Factory . Save. Industry 4.0 Modern Factory: Programmed Robot arm Packing Metal Components into Cardboard Box. Production Line Machine Picks Packs Product into ...

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