Laser disassembly of new energy batteries

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.

Is robotised electric vehicle battery disassembly possible?
Analysis of emerging concepts focusing on robotised Electric Vehicle Battery (EVB) disassembly. Gaps and challenges of robotised disassembly are reviewed, and future perspectives are presented. Human-robot collaboration in EVB processing is highlighted. The potential of artificial intelligence in improving disassembly automation is discussed.

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 AI and ML improve battery disassembly?
The comprehensive review demonstrated how battery disassembly could benefit from AI and MLin all the disassembly steps: sorting,testing,safety monitoring,decision-making,disassembly target detection (i.e.,machine vision to identify disassembly targets),parts separation and handling.

Can artificial intelligence be used in battery disassembly?
Utilisation and limitations of artificial intelligence As reported in the review AI has great potentialin all the battery disassembly phases,such as sorting,testing,safety monitoring,decision-making,disassembly target detection (i.e.,machine vision to identify disassembly targets),parts separation and handling.

Is the void of battery design regulation a challenge to automatic disassembly?
It is well known that the current void of battery design regulation created a heterogeneous ensemble of design solutions that represent a challenge to automatic disassembly . New EU battery regulation defines requirements on sustainability, safety, labelling and information on the batteries marketed and put on service in the EU.

Silicon (Si) anode is widely viewed as a game changer for lithium-ion batteries (LIBs) due to its much higher capacity than the prevalent graphite and availability in sufficient ...

The ramp-up of new production infrastructure to manufacture lithium-ion batteries for battery electric vehicles is moving ahead at a rapid pace. These enormous quantities of vehicle ...

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DOI: 10.1016/j.wpi.2024.102322 Corpus ID: 273964743; Laser-based disassembly of end-of-life automotive traction batteries: A systematic patent analysis ...

DOI: 10.1016/j.procir.2024.02.007 Corpus ID: 269704307; Laser-based battery pack disassembly: a compact benchmark analysis for separation technologies ...

Considering the main hazards related to battery disassembly (electrical risk, chemical hazards, ... This is due to the fact that the laser energy can be tuned to concentrate in ...

Laser-based disassembly of end-of-life automotive traction batteries: A systematic patent analysis. ... A approach to identify the commercialization potential of new, technology, ?. 329 ... A review ...

Increasing numbers of lithium-ion batteries for new energy vehicles that have been retired pose a threat to the ecological environment, making their disassembly and ...

Until today, disassembling cylindrical 18650 cells commonly involved using a pipe cutter and pliers, with a risk of short-circuiting and mechanical damage to the electrode materials. This ...

New energy battery disassembly, the disassembly time of each battery is about 50 seconds! Cut off the nickel sheet without injuring the battery....

DOI: 10.1016/j.cie.2024.110727 Corpus ID: 274095378; Robotic disassembly of electric vehicle batteries: Technologies and opportunities @article{Zang2024RoboticDO, title={Robotic ...

In general, it can be stated that their design has not considered the disassembly of batteries in the best possible way, thinking about secondary use or efficient recycling. This paper has collected ...

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