

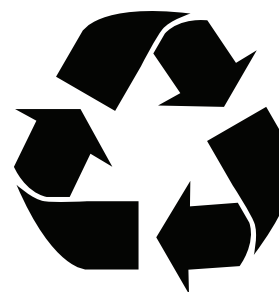
CONCEPT Upcycling refers to the process of taking old or discarded components and transforming them into something of greater value or usefulness. In robotics, upcycling could involve salvaging parts from old robots or electronics and using them to create new and innovative robotic designs.

Recycling involves breaking down materials and components and using their raw materials to create new products. In robotics, this could involve recycling components such as motors, sensors, and batteries to create new robots or other electronic devices.

Repurposing involves taking a component and finding a new use for it that is different from its original intended purpose. In robotics, this could involve taking a sensor that was originally designed for one type of robot and repurposing it for use in another type of robot or electronic device.

BACKGROUND

The practice of upcycling, recycling, and repurposing components in robotics has its roots in the wider sustainable development movement. The growing concern for environmental sustainability has led to the promotion of these practices in various industries. In recent years, robotics researchers and hobbyists have increasingly focused on incorporating conscientious component sourcing into their work to reduce waste and promote sustainable development. Today, these practices are becoming more common in the robotics industry, and many innovative designs are being created using salvaged or recycled components.



DATA

QUANTITY OF RECYCLED COMPONENTS:

Number of components salvaged or recycled and repurposed for use in new robotics designs.

SAVINGS ON RAW MATERIALS: Tack the savings in raw materials that result from upcycling, recycling, and repurposing components in robotics.

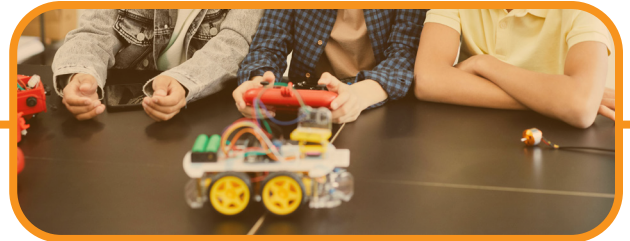
ENVIRONMENTAL IMPACT: Reduction in waste and the environmental impact of recycling and upcycling components in robotics. It can also include data on the carbon footprint and other environmental impacts associated with the production and disposal of electronic components.

COSTS: The cost of purchasing new components versus the cost of upcycling, recycling, and repurposing components in robotics.

Make sure it measures up

REAL WORLD CONNECTIONS

The “Robots4Good” program at the University of Nebraska-Lincoln involves collecting and refurbishing used and donated laptops and repurposing them as remote-controlled robots that can be used in educational and outreach programs. The program has collaborated with local schools and libraries to offer workshops and events that introduce robotics and programming to students and community members. By upcycling and repurposing donated laptops, the program is able to reduce waste and provide valuable educational resources to underserved communities in Nebraska.



EXAMPLES

SALVAGE AND DISASSEMBLY TOOLS: To upcycle, recycle, or repurpose components in robotics, you will need tools to dismantle and remove parts from old or discarded robots or electronics. Tools such as screwdrivers, pliers, wire cutters, and soldering irons are often essential.

COMPONENT TESTING EQUIPMENT: To determine the viability of salvaged components, you may need equipment to test sensors, motors, batteries, and other electronic components. This equipment could include multimeters, oscilloscopes, and other testing tools.

CREATIVE THINKING AND PROBLEM-SOLVING SKILLS: Upcycling, recycling, and repurposing components in robotics require creative thinking and problem-solving skills to identify new and innovative ways to use salvaged parts and components.



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