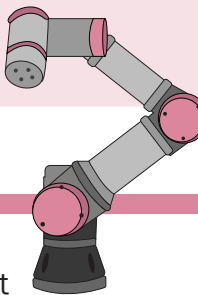


REAL WORLD CONNECTIONS

Kawasaki Motors Manufacturing Corp. in Lincoln, Nebraska uses cobots to assemble the final drive gear of its powersports vehicles. The cobots are programmed to work collaboratively with human operators, assisting with tasks such as tightening bolts and inspecting parts. By using cobots, Kawasaki has been able to increase productivity and improve worker safety, as the cobots can handle repetitive or dangerous tasks while human operators focus on more complex tasks.



CONCEPT Smart mechanical devices (SMD) are tools equipped with advanced sensors, processors and communication technology designed to be user-friendly while allowing workers to focus on more complex tasks that require human expertise.

Examples of smart mechanical devices include collaborative robots (cobots), automated guided vehicles (AGVs) and drones. These devices can be programmed to perform a wide range of tasks, including material handling, assembly, inspection and maintenance. SMDs can collect and analyze data in real time, providing valuable insights into manufacturing processes. This data can be used to optimize production, reduce waste and improve quality.

BACKGROUND

The history of smart mechanical devices can be traced back to the early 20th century when the first industrial robots were introduced in the automotive industry. However, it was not until the 1980s that the term “smart mechanical devices” was coined to describe a new generation of robotic systems that were more advanced and capable of performing a wider range of tasks. Over the years, advances in sensors, processors and communication protocols have enabled the development of increasingly sophisticated smart mechanical devices that can work collaboratively with humans. Today, smart mechanical devices play a critical role in modern manufacturing, improving efficiency, reducing costs and increasing product quality.