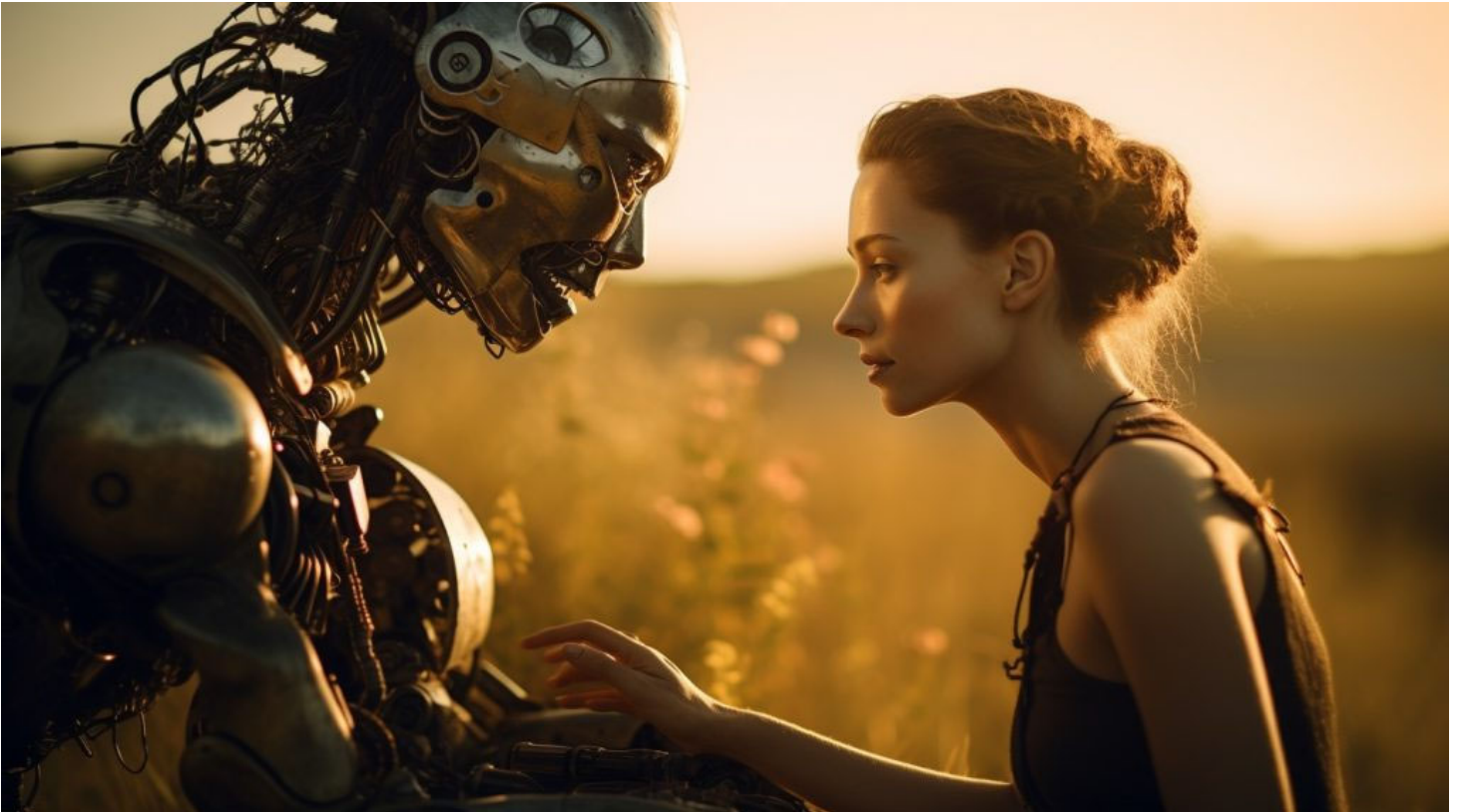


# Revolutionizing Battery Safety and Longevity with Cloud-Based AI

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in [!!!](#), [Artificial intelligence](#), [Artificial intelligence](#), [Electric Vehicle](#), [Mobile](#), [Phone](#)  
on 9 November 2023

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In a world increasingly dependent on clean energy solutions, a joint initiative between Durapower Technology Singapore Pte Ltd and NTU Singapore stands to revolutionize the way we manage the health of lithium-ion batteries. Leveraging the cutting-edge combination of the Internet of Things (IoT) and Artificial Intelligence (AI), the team has developed a cloud-based system that promises a substantial reduction in lithium-ion battery risks, including the serious potential for fires.

This innovation isn't just a scientific leap; it's a smart integration of digital twin technology. By generating online replicas of real batteries, the system can monitor and predict the life-span and potential failures of a battery pack with an impressive 95% accuracy rate. What's perhaps even more remarkable is the ability to forecast the necessity for battery replacements as much as five years in advance, and to signal impending malfunctions up to six months ahead. This predictive prowess could be hugely beneficial in both preventing dangerous incidents and optimizing the replacement cycle of batteries.

The FXMS program developed by the NTU-Durapower collaboration hasn't just stayed in the lab. The Northern Technological University Smart Campus now serves as a real-world testing ground, with a container-sized energy storage system undergoing trials. The system not only enhances the safety and reliability of battery operation; it suggests a substantial 50% increase in lifespan.

Not only does this hold the promise to significantly reduce electronic waste, but it also aligns with the global goals of sustainability by lessening the environmental impact of producing and disposing of batteries. From electric vehicles to personal electronics, to large-scale data centers, the ripple effects of this breakthrough in battery management are poised to touch various corners of the energy sector. The ongoing collaboration will shape a more resilient digital infrastructure that can cater to a myriad of battery system needs and applications, marking an important step towards a more sustainable and efficient energy future.

### **FAQ Section Based on the Article:**

#### **1. What is the purpose of the joint initiative between Durapower Technology Singapore and NTU Singapore?**

The initiative aims to revolutionize lithium-ion battery health management through a cloud-based system that reduces risks and improves lifecycle prediction.

#### **2. How does the new system developed by Durapower and NTU Singapore work?**

The system uses IoT and AI to create digital twins of batteries, allowing it to monitor, predict life-span, and forecast potential failures with 95% accuracy.

#### **3. What are the potential benefits of the new battery management system?**

Benefits include the prevention of dangerous incidents, an optimized replacement cycle, a 50% increase in battery lifespan, reduced electronic waste, and support for global sustainability goals.

#### **4. Where is the FXMS program being tested?**

It's being tested at the Northern Technological University Smart Campus on a container-sized energy storage system.

#### **5. Could the technology affect other industries beyond the smart campus?**

Yes, the technology has the potential to impact electric vehicles, personal electronics, large-scale data centers, and various other sectors within the energy industry.

## Definitions for Key Terms and Jargon:

- **IoT (Internet of Things):** A network of physical objects embedded with sensors and software for the purpose of exchanging data with other devices and systems over the Internet.
- **AI (Artificial Intelligence):** Machine-based intelligence demonstrated through problem-solving, learning, adapting, and mimicking cognitive functions typically associated with human intelligence.
- **Digital Twin Technology:** This entails creating a digital replica of a physical object or system for the purposes of simulation, analysis, and control.
- **Lithium-ion Batteries:** Rechargeable batteries commonly used in portable electronics and electric vehicles, known for their high energy density.