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Scientists Are Using Tears As A Power Source

Story by Charlene Badasia • 7h



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A team of scientists in Singapore have developed a micrometer-thin battery capable of harnessing the power of human tears to power smart contact lenses. This groundbreaking innovation paves the way for a future where wearable technology is seamlessly integrated into our daily lives, a prospect that has long captured the imagination of tech enthusiasts.

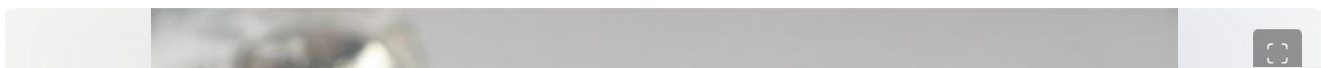
Receiving turn-based directions, viewing notifications, or accessing easily presentable data without the need for bulky external devices like smart glasses is a vision of convenience and practicality. However, the crux of the issue with smart contact lenses lies in the display technology's miniaturization, a feat that batteries have struggled to keep up with.

“By combining the battery and biofuel cell into a single component, the battery can charge itself without the need for additional space for wired or wireless components.”

Li Zongkang

Smart contact lenses often require impractical wiring, leading to an external power source. Enter the innovative research team led by Lee Seok Woo, an associate professor at the Nanyang Technological University (NTU) in Singapore, who posed a seemingly simple question. Can we recharge contact lens batteries with tears?

The answer, as it turns out, is a resounding yes. The researchers have engineered a cutting-edge battery that relies on a blend of glucose and water to generate electricity that can be seamlessly integrated into smart contact lenses. These two elements are not only safe for humans but are also environmentally friendly when disposed of, in stark contrast to conventional batteries.





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Thinner than a millimeter, the micrometer smart contact lenses battery boasts biocompatible materials and a glucose-based coating. This coating reacts with sodium and chloride ions commonly found in tears, effectively transforming tears into a renewable energy source for the battery. A simulated eye experiment produced a current of 45 microamperes, with a maximum output of 201 microwatts.

This development offers an elegant solution to the problem of powering smart contact lenses. Li Zongkang, a Ph.D. student at NTU and co-author of the study highlighted the significance of this innovation via [Futurism](#). "By combining the battery and biofuel cell into a single component, the battery can charge itself without the need for additional space for wired or wireless components."

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As with many groundbreaking technologies, the road to mainstream adoption is lengthy. The newly developed smart contact lenses battery can only be charged and discharged 200 times. However, the research team is already collaborating with contact lens companies to bring this transformative [technology](#) to the market.

The implications of this development pave the way for more accessible and convenient wearable technology. It also showcases the remarkable potential of harnessing the body's natural resources for sustainable and innovative solutions. As smart contact lenses powered by tears inch closer to becoming a reality, the future of human-machine interaction seems brighter than ever before.

The Benefits Of Smart Contact Lenses

Smart contact lenses have a wide range of potential applications in various fields. They can be used to monitor health metrics such as blood sugar levels, intraocular pressure, and other vital signs. This can be particularly useful for people with chronic health conditions like diabetes and glaucoma, who need to monitor their health regularly.

Smart contact lenses can act as medical devices for treating eye conditions such as allergies and burns. They could also enhance vision by correcting vision problems that cannot be fixed with traditional contacts or glasses. Additionally, the lenses could display augmented reality images directly in front of the wearer's eyes, allowing for various applications such as gaming and education.

The post [Scientists Develop Smart Contact Lenses Powered By Tears](#) appeared first on [GIANT FREAKIN ROBOT](#).

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