

Smart, rechargeable contact lens

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A smart contact lens has been successfully tested on a human. It has a rechargeable power source that can be charged up wirelessly. The lens could be used to track a wearer's health by monitoring fluid in the eye for biomarkers linked to diseases such as diabetes. They might even be used to create augmented reality experiences in the future.



The smart lens contains a tiny supercapacitor alongside a power unit. The supercapacitor is made of carbon electrodes and a polymer electrolyte. These are printed onto the lens outside of the area that covers the wearer's pupil. This means it won't interfere with their vision. The power transfer unit contains an antenna made from silver nanofibres and silver nanowires. It allows the lens to be recharged at a distance of around 1 cm from a transmitting coil.



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- 1. Explain why nanoparticles have made the smart contact lens possible.**
- 2. What is a polymer?**
- 3. Explain and compare how silver and carbon (graphite) conduct electricity.**