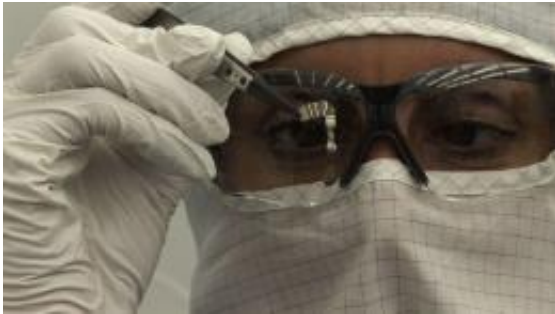


Popular Mechanics award given to artificial retina team

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Technician Terri Delima inspects an array.

The team that helped to develop the Argus II retinal implant, including Lawrence Livermore National Laboratory, has been recognized with a *Popular Mechanics* 2010 Breakthrough Award.

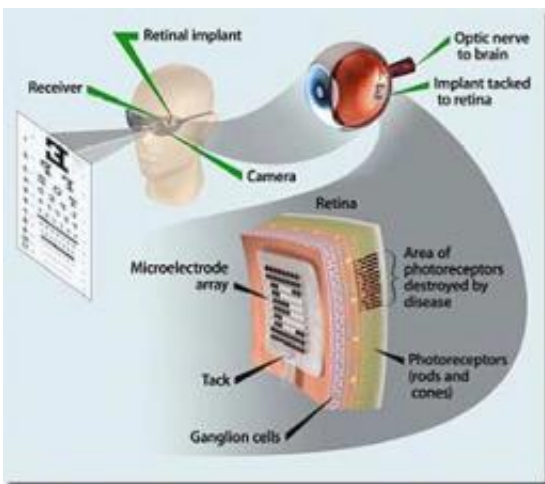
Popular Mechanics' Breakthrough awards, which were announced Tuesday, recognize the innovators and products poised to change the world in the fields of technology, medicine, aviation, environmental engineering and more.

“From soccer balls that generate light to cell phones that diagnose medical conditions, our diverse, inspired winners are making the seemingly impossible a reality,” says James B. Meigs, editor-in-chief of *Popular Mechanics*.

The Argus II [retinal implant](#) is designed to restore vision to people who are blind because of such degenerative retinal diseases as macular degeneration and retinitis pigmentosa. There are 10 million people in the United States with degenerative retinal diseases and millions more worldwide.

The device takes images from an external video camera and sends electric signals to an array implanted in the eye, bypassing damaged photoreceptors to kick-start [retinal cells](#) that are still viable.

Even as clinical trials for the second generation of the device continue, a massive effort involving six national labs, four universities and a commercial partner is developing technologies that will enable third- and fourth-generation models — which could provide enough resolution to read 24-point font and recognize faces.



A schematic overview of the Artificial Retina system.

Members of the U.S. Department of Energy [Artificial Retina](#) Team include: Lawrence Livermore National Laboratory ; Second Sight Medical Products, the industrial partner; the Doheny Eye Institute,

University of Southern California (USC); University of California, Santa Cruz; USC; California Institute of Technology; and Sandia National Laboratories.

The commercial partner, Second Sight, sponsored the clinical trial of the Argus II, and is responsible for manufacturing and commercializing the devices. The company expects to receive a CE mark later this year clearing the way for a commercial launch of the Argus II in Europe.

Livermore scientists and engineers leveraged LLNL expertise in microelectronics and sensor design for national security to further develop artificial retina devices. The LLNL team will contribute three major components to the next generation of artificial retinas: the thin-film electrode array that contains the neural electrodes; the biocompatible electronics package that contains the electronics for stimulating the retina and wireless power and communications; and an ocular surgical tool that will enable the insertion, attachment, and re-insertion of the thin-film electrode array.

In addition, Lawrence Livermore will be responsible for the system integration and developing manufacturing procedures for the next generation implantable artificial retina system.

“It is very gratifying to see this multi-disciplinary, multi-institutional effort, which addresses a major global health problem, recognized with this prestigious award,” said Satinderpall Pannu, leader of the Livermore group.

The winners of the 2010 *Popular Mechanics* Breakthrough Awards will be celebrated at a ceremony at Hearst Tower in New York City on the evening of Oct. 5, and featured in the November edition of the magazine, which will appear on newsstands Oct. 12.

Provided by Lawrence Livermore National Laboratory

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