

Augmented Reality in a Contact Lens

Jahdiel Franco

University of Rhode Island, Department of Electrical and Biomedical Engineering

The human eye is a complex part of the human body that enables us to see everything around us. It allows us to see color, light, and helps keep us out of danger. It's hard to imagine having a way to see that is better than what we already have but that is precisely what is happening at the University of Washington in Seattle.

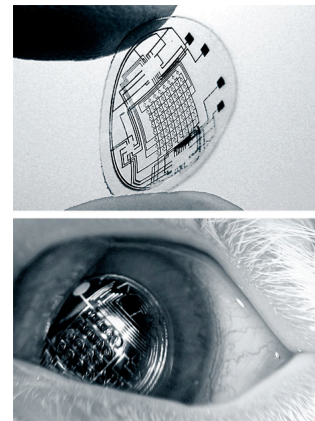
Babak A. Parviz is a professor at the University of Washington and, with the help of some of his students, has been working on a contact lens with integrated control circuits, communication circuits, and miniature antennas in them. Included in these circuits are LEDs which when turned on, can be seen superimposed on the human visual field.

To get an idea on how this would be useful the article contains a reference to the movie *Terminator*. As seen in this movie, Arnold Schwarzenegger's character has extra things in his vision field that no human possesses. These things include temperature, distance from specific objects, or anything you can imagine would be useful to know that as of now, cannot be measured simply by looking in that direction.

Although the lens technology at the University of Washington is not yet that advanced, it has opened the door to this idea of superimposed vision. They have as of right now built a lens with one LED, which they've powered wirelessly with RF. Although they would eventually like to have the lens contain hundreds of LEDs, this device does not have to be complex to be useful. With just one LED, a user with bad hearing could be assisted by the blinking of this light. If you add color and resolution to that, it could take up even more uses. Imagine a diabetic person being

able to monitor their blood-sugar levels without having to look at a device.

The possible uses of this device are endless and the fact is that it is a contact lens so it is not at all invasive. Studies are being performed currently to study the effects of the lenses in a rabbit eye for extended periods of time in order to judge the safety of the device and currently, a rabbit has been able to wear the device for 20 minutes at a time with no adverse effects. This is definitely a technology to look out for in the future.



Works Cited:

Parviz, Babak A. "Augmented Reality in a Contact Lens." *IEEE Spectrum* Sept. 2009. Web.

<<http://spectrum.ieee.org/biomedical/bionics/augmented-reality-in-a-contact-lens/0>>.