Bionic Contact Lens

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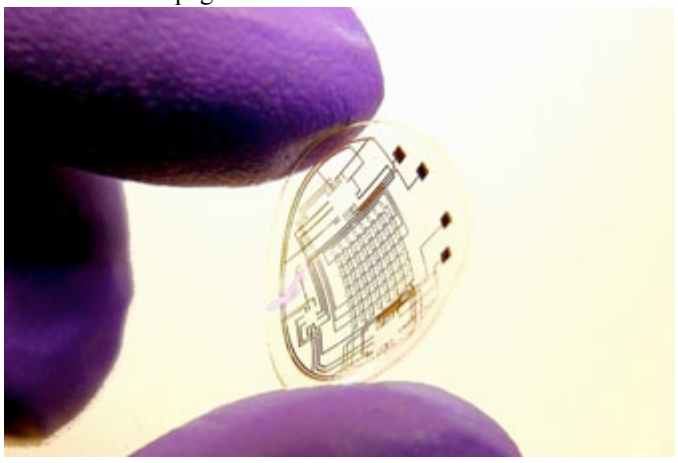
***Abstract*—The bionic contact lens is a polymer based lens with similar shape and characteristics as an everyday contact lens, Although this micro electric lens has components that allow for a led or digital display. This paper will look farther into the possibilities associated with this unique Nano technology.**

I. Introduction

Bionic Contact lenses, or bionic eyes were first brought to people's attention through a common cinematic film, The Terminator. This movie showed people what views through a bionic eye could be like when the audience sees life through the eyes of a terminator. Now people have started making these contact lenses with integrated antennas, micro batteries, and small digital displays seen using a single LED. The more advanced technology becomes, the more possibilities we can imagine with this Lens. Think about a contact lens that can link to your cell phone and show you everything that could be on the internet through a display simply in your eye. Imagine being able to see a translation of a language as someone speaks a different language to you. All of this becomes possible with the work of Babak Parvis out of The University of Washington.

II. Methods

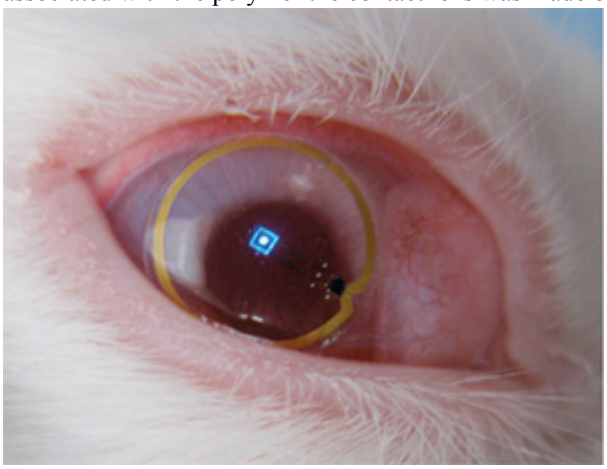
The Bionic contact lens first starts off as a polymer base that is similar in size, shape, and compound, as an everyday contact lens. Then they sprinkle a grayish powder of metal and electrical components into the flexible plastic, and then due to capillary forces, the shape of the tiny component dictates which piece it can attach to. This form of micro fabrication is called self-assembly. Finally an led and antenna is placed using scorching temperatures, and toxic chemicals, and we finally have a finished lens. The two pictures below and on the next page show the final result:



This process still needs to be perfected and the display needs to become a higher resolution and a more practical display. So far this Lens can only project text and is not yet linked to other wireless devices available on the market.

III. Results

The Bionic lens was tested in a rabbit's eye and showed no signs of agitation or pain associated with the lens. This trial on a Rabbit occurred in 2011 and shows researchers that this may be a possible project to someday be clinically tested on humans. Unfortunately during this animal trial the led was not turned on when the lens was in the eye of the rabbit, so we do not know how the animal will react with a display. The point of the trial was to see if there was agitation or main associated with the polymer the contact lens was made of.



IV. Discussion

The work that has been completed at the University of Washington by Professor Babak Parvis has a lot of technological progress to be made. The opportunities for this bionic lens could be amazing because there are many possible uses for virtual displays, whether it be in drivers or pilots to show vehicle speed or altitude projected into the windshield, or for people wanting to surf the internet and have a display that appears to be floating in everyday life without looking at your smart phone display or TV screen, or even to incorporate video games that enhance virtual worlds without restricting their range of motion. Any application that you may want on a smart phone or computer could someday be integrated into a small bio contact lens. This lens could someday be connect to our brain through nerve impulses, and a computer ship implanted into our eye so when we think of something we want to search or display, the bionic contact lens will just automatically display it. The possibilities are endless, and that is what makes this invention revolutionary

References

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