

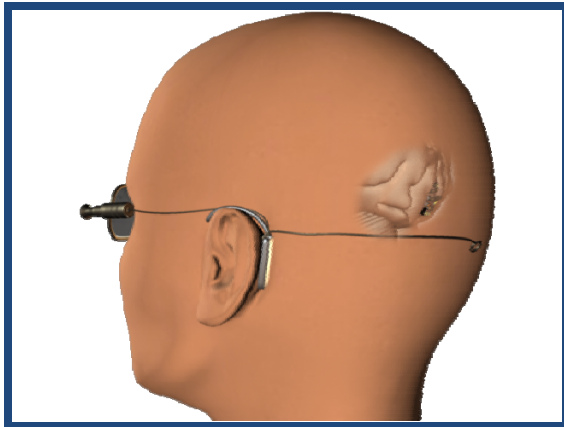
Visual Cortical Implant

With the ageing of the population, more persons loose the sight further to optical nerve's degenerations. While a lot of researches is being made in this area, there is, so far, no effective preventive treatment against it. That explains the interest of the scientific and medical community for visual implants.

Technology

It is a system with three main components:

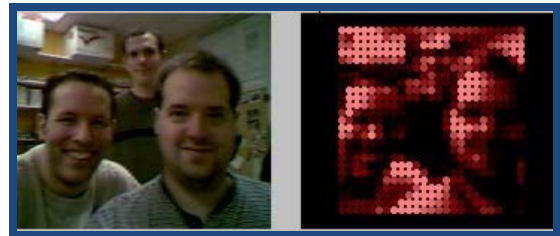
- a micro-camera mounted onto a pair of glasses to capture the image
- a pocket-sized external controller to process the image and send the appropriate commands
- a biocompatible multiunit implant no bigger than 1 cm² to stimulate the cerebral visual cortex.



The commands for stimulation and monitoring as well as electrical energy that powers the implant are transmitted by electromagnetic waves between the external controller and the implant; hence, no wires, or physical connections of any kind pass through the skin or skull.

Development Status

Tests on rats are currently made to validate the assembly and the insertion of electrode matrix, as well as the functioning of a low resolution (4x4 electrodes) intracortical visual prosthesis.



The left picture is captured by the current digital camera prototype. On the right, it is the same image, processed and refined into 256 points of light by the control software that will be generated by the implant.

Advantages

- **Greater number of blind people targeted.** Stimulation disregarding the optic nerve pathway
- **Miniaturization.** 1000 electrodes in a implant.
- **No direct connection.** A bi-directional radio-frequency link.
- **Higher image resolution:** visual acuity of approximately 20/30 is the target.

IP protection

"Body electronic implant and artificial vision system thereof"

- Granted in Europe (EP1333883) DE, FR, UK, IT
- Granted in the US (US 7,027,824)
- Granted in China (CN 214074)
- Granted in Japan (2002-542464)
- Pending in Canada (2,427,867)

Business Opportunity

Univalor is seeking a commercial partner to support development and commercialization.



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