

Using Sensory Stimulation to Improve Quality of Life for the Vision Impaired

Summary

Beacon EmbeddedWorks was approached by a medical device company to deliver a high-speed, small form-factor electronic solution to drive their wearable electronic vision-aid technology. Our team recommended the versatile Torpedo™ System on Module (SOM), a solution that would exceed specifications and jumpstart development of a groundbreaking solution for the vision impaired.

Challenge

People who live with vision impairment face a variety of barriers to living a comfortable, independent life. Vision correcting surgery is costly and inhibits patient's ability to take advantage of future advances in vision science. This medical device innovator came to Beacon to develop a revolutionary nonsurgical vision solution.

The oral electronic vision aid was our customer's second generation, improving on the first generation with more advanced technology and an ergonomic design. In order to be comfortable when worn like a headband, the device needed to be compact and lightweight without compromising computing power and reliability. The medical device company came to Beacon EmbeddedWorks for our expertise in powerful SOMs with small form-factor.



CASE STUDY

Customer Profile

This medical device innovator specializes in providing state-of-the-art solutions for people with sensory impairment through sensory substitution. Their cutting-edge oral electrical vision aid technology offers new way to see the world – through impulses delivered to the tongue.

More Information

Why choose a Beacon EmbeddedWorks SOM?

See what differentiates our SOMs. beaconembedded.com/system-on-modules/

About Beacon EmbeddedWorks

Beacon EmbeddedWorks is a full-service provider of innovative System on Modules (SOMs). Backed by a suite of customization, security, and support services, our dependable, pre-certified, and feature-dense embedded solutions serve the most strenuous applications.



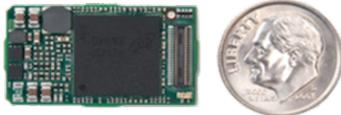
Challenge Continued

The device is designed to be worn around the user's head to transmit digital information from a camera to a stimulator placed on the user's tongue. The high sensitivity of the human tongue and innovative technology allows the users to interpret objects around them, their size, shape, and location. In essence, blind users are given the ability to see with their tongue.

Solution

To meet the requirements for the innovative oral electronic vision-aid our team recommended our compact Torpedo™ SOM (DM3730). The cutting-edge system matched the technical needs of small form-factor wearable devices.

The Torpedo™ SOM is less than one square inch in size and offers highspeed processing with long battery life so the device can be used all day between charges. The pretested, fully customized solution allowed for rapid development to minimize time to market. Our SOM was the ideal solution for wearable device development. The customer trusted our SOM to support their device for an extended lifecycle, providing security and the assurance of knowing their revolutionary vision aid will be powered by Torpedo™ SOMs until their next generation product.



Result

The groundbreaking device is now available globally. The intuitive user interface requires only a brief training in interpreting the signals from the stimulator on the tongue. The tongue stimulation works similarly to braille or pixels on a visual screen and has been effective for patients around the world.

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Result Continued

The device has succeeded in offering blind users a revolutionary oral electronic vision aid at roughly 10% of the cost of vision corrective surgery. Furthermore, the device can be easily used in conjunction with other assistive methods. People who live with vision impairment now have a valuable, cost-effective alternative to surgery.

Our SOM was seamlessly implemented into the device, providing reliable processing power. The compact technology allowed our customer to achieve their goal of creating a small form-factor and comfortable wearable device. Satisfied with the success of the project, the customer will continue to work with Beacon EmbeddedWorks to develop their next generation vision aid and other innovative devices.



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