beacon EmbeddedWorks

CASE STUDY

# Building communication where it counts.

## Summary

This repeat networking solutions customer needed to quickly develop a local network for mobile phone service in remote or disaster stricken areas. They enlisted the help of Beacon EmbeddedWorks to be their development and manufacturing partner for our expertise in quickly delivering communications solutions.

## Challenge

It is imperative that the defense industry be able to quickly establish a source of reliable and secure communication, especially in remote or disaster stricken locations. This networking solutions customer works with governments around the world to help launch communication outlets in these difficult to reach areas. The customer first worked with our team to build a cellular communication device that provides a secure connection to a single host. After the success of this device, the customer wanted to create a similar product that could communicate with multiple hosts while maintaining the reliability and security of the first product. Having proven that our team could be trusted to help bring their products to market quickly, the customer chose to continue working with us for complete engineering, development, and manufacturing of this new device.

## Customer Profile

The customer is global network solutions company working with customers in the military and aerospace market to improve remote communications.

### More Information

**Why choose a Beacon EmbeddedWorks SOM?**
See what differentiates our SOMs from the rest.
***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.



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## Solution

Our team contributed the central board for the new device. The board would supply the network connection to make communication possible. Utilizing the first project as a baseline, we collaborated with the client to quickly determine product requirements and begin development.

Board development began with the selection of the key components. Chosen for its compact form factor and proven software, electrical engineers recommended incorporating the Torpedo + Wireless System on Module (SOM) in conjunction with a cellular modem. The SOM would control the primary functions and serve as the processing core for the device to initiate the communication sequence needed to make connections with hosts. The SOM would also be notified by the modem when a call was being received to establish a connection. After completing design and schematic entry, the design team created a physical board layout. High density design rules were utilized to maintain the small form factor and complex functionality.

The customer also inquired as to how the device could improve the user experience. In response, the team added two additional sensors to the board. The first, an ambient light sensor, continuously adjusts the touch screen for optimal visibility. The second sensor determines the proximity of the device to the user during to shut off the touch screen functionality accordingly.

With functionality confirmed, we began rapid prototyping and testing of the boards. Our software engineers wrote design verification test software to ensure that the cellular modem would function properly. Next, the manufacturing team produced the boards and, after full functional testing, shipped them to the customer to complete internal development of the product.

## Results

The project met the tight customer timeline and delivered over 30 boards in less than six months. Once complete, the devices were quickly deployed to the field and are being used today, not only for military use, but also within disaster aid organizations. Upon the device's success the customer returned to our team for the manufacturing of additional boards to expand their offerings.

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