



IoT changing the shape of Healthcare Innovation

Leveraging IoT to bringing cutting-edge and lifesaving solutions in the Healthcare industry

Success Stories

Headquartered in Santa Clara, California, the client is a global leader in the detection and management of cardiovascular disease.



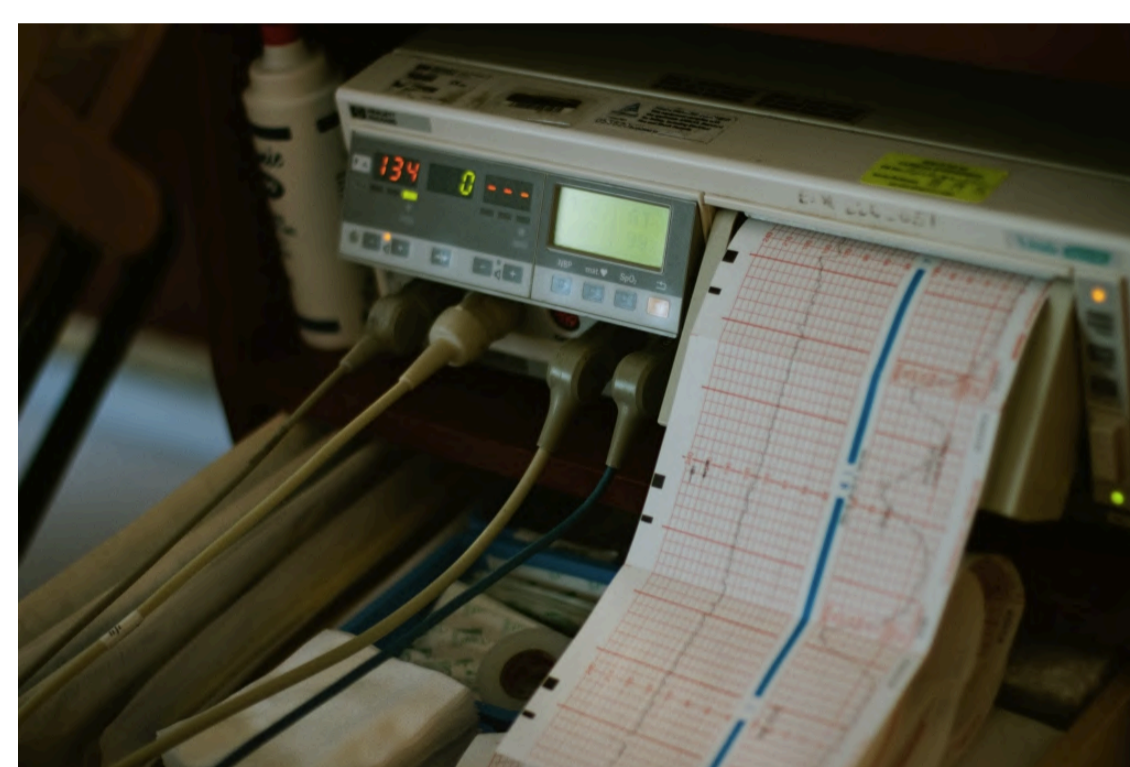
Business Scenario

Based on their research, the client found that proper and most importantly timely cardiac care wasn't available in the remote areas.

The root causes were:

- ECG machines couldn't be transported easily to remote areas
- The portable ECG machines weren't accurate, which impacted the diagnosis
- Getting the ECG data back to the doctor took time, so the diagnosis was delayed, and the contextual data was lost.

The client had an idea for a revolutionary product that would solve these challenges. They wanted to create an IoT enabled stethoscope that not only captured the usual data points but also captured the ECG of the patient. They also wanted to implement their patented Murmur Detection Technology so they could detect severe cardiac cases early on and start the treatment as soon as possible.



Challenges

The client ran into multiple issues while creating the prototype, the primary ones being:

- The architecture of the prototype was unscalable
- The chip used in the prototype to capture the data points was from an older generation; and used Bluetooth for data transmission. As a result, a lot of crucial data points were lost while transmitting the data from the stethoscope to the mobile device.

They needed a partner with IoT expertise who would help them overcome these challenges and create a final product that delivered their vision.

V2Solutions had successfully completed projects in the IoT space and had developed strong capabilities around the technology. Thus, began a new partnership that was driven by one goal – delivering critical and timely cardiac care to all those who didn't have access to it.

Solutions

V2Solutions created the software layer that transmitted data points captured by the stethoscope, including the **data points for ECG**, to a mobile device. Once the data was transferred and ECG was plotted, all the information was stored locally and then sent to a doctor, in **real-time**. The diagnosis was immediate thereby enabling early detection of critical issues.

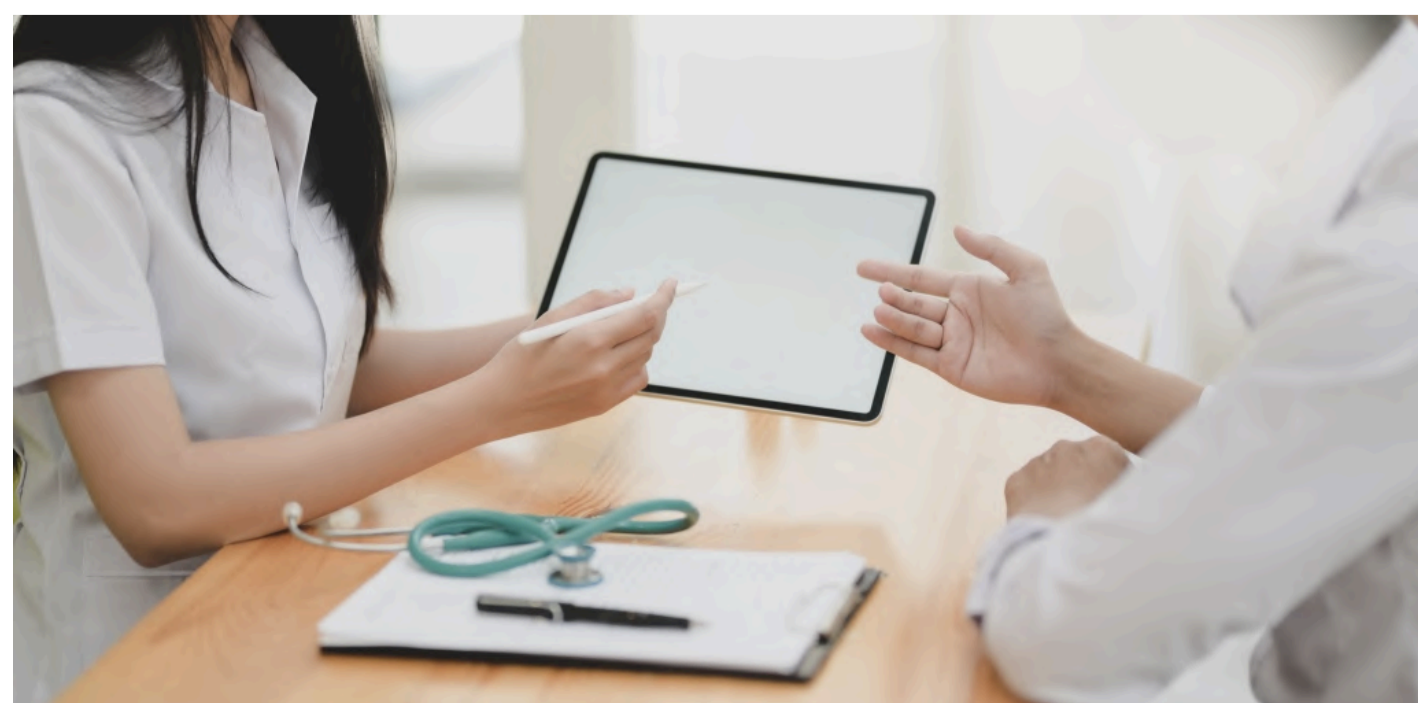
The V2 team explored different data structures and identified the right one that would best meet the client's needs.

In order to prevent data loss from the stethoscope to the mobile device, V2 switched from Bluetooth to Bluetooth Low Energy (BLE) to provide higher data transfer speed. As a result, all the critical data points that were captured by the stethoscope were transferred successfully via BLE to the mobile device ensuring that proper diagnosis could be done.

An additional advantage of switching to BLE was that due to BLE's energy-saving capabilities, operating the IoT enabled stethoscope was more efficient, especially in the remote areas where electricity isn't always available to charge the stethoscope.

The native Android application that V2 created is compatible with multiple devices and resolutions and has cloud integrations. The product also is integrated with a Patient Management Systems (PMS) for a major healthcare group.

The client is currently conducting field trials of the product in 2 separate areas – for humans and for animals.



Value Delivered

- IoT expertise that enabled us to identify a solution that addressed the client's pain points
- Improved data transfer rates by 10x by switching to BLE