

VALUE ENGINEERED CARDIAC-IMPLANT MONITORING SYSTEM

Revitalizing innovation for a Leading Medical
Technology Company



INDUSTRY LANDSCAPE

One of the most important goals of managing chronic diseases is to detect new developments early so that medical and lifestyle changes can be made before patients' health worsens. Medical devices have been developed which can detect these minor fluctuations in the patient and communicate this information directly to healthcare providers who can take appropriate action. Creating this seamless link between patients, their implants, and devices which relay patient data and physicians is essential. Evolving technology in the telemetry space is making it possible to make smart, timely healthcare decisions.

The evolution of cardiac devices has opened up new vistas in the health care industry. Global cardiac monitoring and diagnostic devices market forecasts to reach at US \$12.3 billion by 2015 at a Compound Annual Growth Rate (CAGR) of 11% during the period 2009-2015. Reports published predict that remote patient monitoring will continue to play a significant role in transforming healthcare and the market for remote monitoring technology, especially for home healthcare and disease management, will soar to US \$ 294.9 million by 2015. The number of home monitoring systems with integrated communication capabilities will jump to 4.9 million connections worldwide by 2016.

THE OPPORTUNITY

Our client was facing challenges due to technological changes within short - range device- to - device communication (telemetry) , which was leading to frequent design & hardware changes as well as greater time to market. With competition entering the market with next generation cardiac monitors by combining new design initiatives, the client wanted to re-engineer their existing system to counter the new entrants. Wipro was engaged in architecture to prototype development & demonstrated an innovative design to cut back on overheads. Monitoring of patient data, notifications and alerts, and remote follow-ups with physicians on an integrated platform were also sought after. The overall engagement involved end-to-end design and manufacturing of the devices, applications and platform.

Redesigned implant monitor to reduce form factor and support multiple communication interfaces including USB, Bluetooth. Created platform agnostic implant gateway accessible from diverse mobile devices

CLIENT BACKGROUND

The client is one of the largest medical technology companies & is a Fortune 500 company. The client has many business units which include cardiovascular, neuromodulation, and diabetes to name a few.

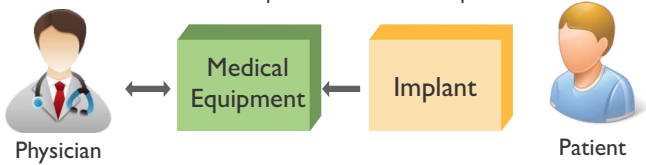
SOLUTION

Today, comprehensive devices in the cardiovascular market are capable of real-time arrhythmia diagnosis and treatment. The growing demands for implantable device follow-up are pushing clinics to their maximum capacity. Remote follow-up offers an alternative for overcrowded and overwhelmed clinics, and provide considerable convenience for patients.

In client's earlier system, the physician's recommended implantable devices could be programmed using radio telemetry, by the external medical equipment

Before

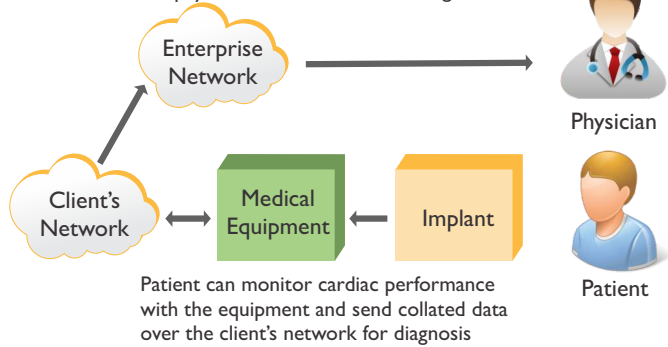
The medical equipment at the clinic can be operated by the physician to monitor performance of the implant



The equipment at the patient's end was collecting all implant related data and was transferring reports to client's proprietary network. These reports could be retrieved by the physicians in order to be able to take necessary actions. However, the platform on which these applications were developed was averse to technological advancement & new software and hardware changes.

After

The data collected on the server through the enterprise network can be collated by the physician for evaluation and diagnosis



Patient can monitor cardiac performance with the equipment and send collated data over the client's network for diagnosis

The client partnered with Wipro to design and develop a freeware system which was technology independent. This reduced the tremendous overheads like frequent design, hardware changes, and cost of maintenance.

- Wipro worked with the client's team from ideation to prototype development. We also did product and software design & development along with hardware design & enclosures of the device, overall we helped in building a framework around the process for future changes.
- The solution has wireless capabilities which can be interfaced over generations of implants, can be displayed on handheld devices like smartphones & tablets, and is extensible to newer technologies. Embedded web server support was provided which enables browser-based access from the physician's side.
- We were involved in supply chain and manufacturing activities leveraging our partner eco-system of third-party manufacturers
- We also enabled the client to adhere to regulatory requirements by assisting in pre-compliance activities like EMI (Electromagnetic Interference), EMC (Electromagnetic Compatibility), thermal shock, vibration, and humidity testing through Tarang lab, Wipro's world-class NABL (ISO/IEC 17025) accredited product qualification and compliance laboratory offering consultancy, pre-compliance testing, and product certification enabling services across geographies.

BUSINESS IMPACT

- Cut back on overhead costs as low-cost platforms are employed and is technology independent for extensibility – also achieving the form factor target of 4" x 2" x 1.5"
- Cost reduction of over 5 times for equipment at physician's end and 50% for equipment at patient's end
- Superior diagnosis at lower price-point for patients and payers
- Helped client get funding for the product development

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