

# Med Device Data Management System

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## CASE STUDY

Healthcare

A photograph showing a person's hands in a white lab coat interacting with a tablet computer. The person is sitting at a desk with a laptop open in front of them. The background is a blurred office or clinical setting. The image is partially obscured by a large blue diagonal graphic element.

## Overview

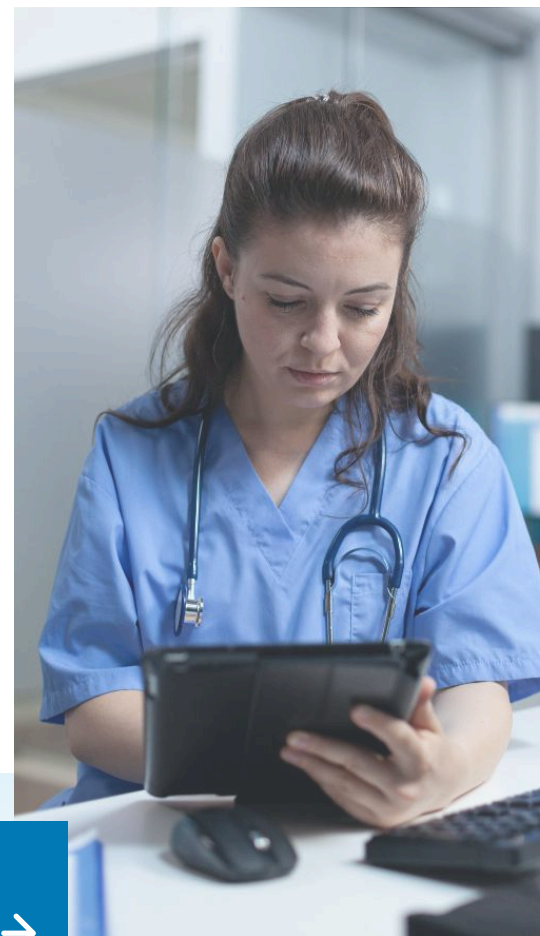
A global leader in manufacturing and sales of medical products and equipment from Japan faced challenges in cardiovascular system which is one of the medical equipment. Though they were using new versions of machine they wanted to enhance the software capabilities for the existing machine which can deliver solutions that help solve various issues in medical, promise to walk alongside healthcare professionals to continue to make great contribution to society, now and into the future.

## The Challenges

The cardiovascular system's tech stack needs to be replaced for extracting the data without the intervention of the existing system.

The cardiovascular system has multiple baud rates and it should align correctly with the connected system port, a mechanism must be in place to promptly notify the administrator in case of misalignment.

Also identify and log any errors that occur during the entire process, since this system's application is during the patient's procedure, therefore precision and accuracy in capturing information are supreme.



# Our Solution

Fortunesoft IT Innovation approached this by analysing data received from the medical device connected via RS232 protocol (serial communication transmission of data). This involves understanding the data format, handling different parameters like PO<sub>2</sub>, PCO<sub>2</sub>, pH etc., and ensuring accurate extraction.

Followed by manipulating the received data for data transformation and normalization to ensure consistency and compatibility with the database schema.

Fortunesoft delivered a Data Management System which retrieves data from the medical device (CDI) via RS232 protocol and store it in the database in queuing process.

## Functional solution

Our approach involves establishing a connection with the device using an RS232 cable, facilitating the extraction of critical data. This data undergoes parsing, transforming it into a structured format. A dedicated data queue was introduced to streamline the information flow.

Subsequently, integrate a database system to store the parsed data.



## Technical solution

The goal was to upgrade the tech stack for data extraction while maintaining the existing medical device software and how to store the extracted data efficiently. We utilized RS232 protocol for communication with the medical device. Developed a parsing mechanism to extract relevant information from the received data. Transform the raw data into a structured format that aligns with the required database schema.

Implemented normalization processes to standardize the extracted data. Developed a mechanism to dynamically adjust and align baud rates to match the connected system port. Designed a queuing process to efficiently store parsed data in the database. Implemented error detection mechanisms during data extraction and parsing, with real time notification system.

## Benefits

Fortunesoft's solution ensured accurate extraction and parsing of critical data, contributing to enhanced precision and accuracy in capturing information during medical procedures.

With the tech stack upgrade focused on data extraction, the existing medical device software remains unchanged, minimizing the need for intervention and ensuring a smooth transition.

Data transformation and normalization processes ensure consistency and compatibility with the database schema, promoting seamless integration and use of the extracted medical data.

The implemented mechanism identifies logs and promptly notifies administrators of any errors, misalignments or issues during the entire data extraction process, enabling quick response and resolution.

The enhanced software capabilities contribute to the company's commitment to walking alongside healthcare professionals, making a significant contribution to society through improved cardiovascular system solutions. These benefits collectively demonstrate the effectiveness of the technical solutions provided by Fortunesoft IT Innovation in addressing the challenges faced by the global leader in the medical products and equipment industry.



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## What The Client Says About Us

"Fortunesoft IT Innovations has been an outstanding business partner for our company. After a terrible experience using offshore developers, we took a chance on Fortunesoft IT Innovations and they have been excellent to work with. The team is relentless in following agile development processes. They took the time to learn our business and it shows in the quality of the work they do. Their team has a broad range of skillsets and were able to help us with every aspect of our start-up company."

**Conner Humphrey**

Co-Founder SalesC2, Texas US

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16+

Years of Service

150+

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510+

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2400+

Successful Sprints

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