



An integrated health platform for Implantable  
**Cardiac Device Management**

## Case Study

# | Remote Patient Monitoring and Billing

# An integrated health platform for Implantable Cardiac Device Management

## Client :

A US-based Healthcare Startup

## Challenges :

The most significant obstacle faced by electro physicians (EP) and nurses is remote data monitoring of implantable cardiac devices. It involves the cumbersome task of reviewing and recording patient data from various device manufacturers, consolidating the information on a single platform, and automating workflows to eliminate the need for manual upload of reports/notes on the EHR system. Simplification of these processes is crucial.

Integration of various billing systems and automation of remote monitoring billing is necessary on a unified platform. The platform should enable separate billing for professional and technical services, along with features such as billing tracking, billing reminders, billing data history, and billing reports to aid in monitoring and tracking.



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## Solutions

### Overview

This healthcare project focuses on integrating, visualizing, and automating workflow for implantable cardiac device data. The application is based on a SaaS, HIPAA compliant, and multi-tenant architecture, with integration capabilities for popular EHR and billing systems.

The project receives HL7/IEEE-XML messages from bio-monitoring device manufacturers, which are then processed and automated to streamline the electro physician billing cycle. The application also facilitates episode report review management.

As a SaaS-based application, our solution supports multiple clinics and hospitals. We translate IEEE-XML data, into customised formats that can be used by Clinic/Hospital in their applications as needed.



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Additionally, we serve as a data provider to other platforms that require compiled cardiac device data. This approach reduces the complexity and effort required to integrate with multiple manufacturers and streamlines the data collection process for those who are looking for third party service. For this the platform:

- Fetches IEEE data from multiple manufacturers and process them
- Converts into JSON data and sends to customers through various channels like Amazon S3 Bucket, SFTP etc. so that they can implement their own workflow based on that data.



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## Features

- Web portal with multi-tenant architecture for Clinic on-boarding/management, Billing Schedules, Clinical Group Management, User roles management & dynamic permissions.
- Flexible scheduling of pull patient episode records data from different manufacturers.
- Episode report review management and presentation of patient's records data.
- HL7 (ORU, ADT etc.) message processing and history management.
- Automated integration with Multiple EHR for upload patient report data.
- Automatic Billing Management, review and approval system for electro physician.
- Send billing records to third party Billing vendor.
- Audit log to ensure, that no data is missed.
- Daily/weekly/monthly summary report of received/sent files.



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### Benefits

- It Provides single platform for patient health data monitoring and billing generation.
- Integration with popular EHR and billing systems to simplify the process of managing implantable cardiac device data.
- Automation of workflows and billing cycles to reduce the workload of electro physicians and nurses.
- HL7 (ORU, ADT or other)/IEEE-XML message transmission processing for efficient data collection and automation.
- Customizable data translation to fit the format of each clinic/hospital for seamless integration with their applications.
- Automated tracking of data transmissions to ensure that no data is missed.
- Reporting solutions for clinics/hospitals to track and analyse cardiac device data.
- Multi-tenant architecture for seamless integration with multiple clinics/hospitals.
- HIPAA-compliant application to ensure the security and privacy of patient data.
- Simplification of the integration process with multiple manufacturers to streamline data collection for electro physicians.

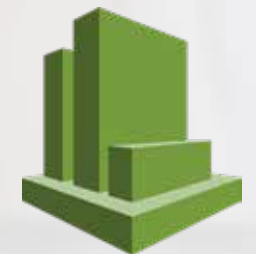
- Improved patient care through better management and analysis of cardiac device data.

### Tech stack

Spring Boot, JPA2, PostgreSQL, HIPPA Compliant Service, Angular, Restful Web Services, AWS services – EC2, RDS, S3, SES, CloudWatch.



**JPA**  
Java Persistence API





A close-up photograph of two hands shaking in a firm grip, symbolizing a business deal or agreement. The hands are wearing white dress shirts and dark suit jackets. The background is blurred, showing what appears to be a meeting or office setting.

# emorphis

## Let's Connect!

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