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Business Domain

Healthcare

Project Type

Mobile Application

Mobile App Advances Cardiac Healthcare, Supporting Clinicians and Improving Patient Care

Client

A company specializing in the manufacturing and distribution of ultrasound systems, providing a groundbreaking critical care solution that empowers clinicians to facilitate in-depth exploration of cardiac function through continuous, real-time visualization of the heart.

Project

An innovative mobile application monitors patients' heart activity by reading sensor data, calculating vital parameters, and displaying real-time heart activity information.

Objective

The objective was to provide clinicians with a compact, lightweight solution for ultrasound-based cardiac diagnostics, enabling visualization, segmentation, and parameter calculation while offering enhanced mobility, speed, and convenience without the reliance on bulky desktop PCs.

Team Reinforcement

The Client is a specialized company dedicated to developing cutting-edge Ultrasound hardware solutions; however, it does not possess the requisite expertise for this project. It implemented its part and required a trusted partner to help with the final solution. Extensive collaboration with the Client's clinicians and our Remote In-Sourcing team guided the development process, ensuring the application aligned with medical professionals' specific needs and workflows.

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Challenge

The Client's Ultrasound Method uses many of the same gold-standard practices performed in surgery. However, it is far less complicated, the equipment far less expensive, and it requires limited training. It's also designed specifically for the most at-risk patients in critical care.

The Client aimed to provide clinicians with a more mobile, convenient, and efficient solution for visualizing and calculating cardiac parameters within a clinical environment.

The Client had limited expertise in developing mobile applications specifically for medical diagnostics and experienced a lack of technological resources and knowledge to optimize the application's processing capabilities.

Quick Facts

- The application underwent rigorous testing and was included in the package submitted to the FDA
- After completing the scope, the client requested multiple additional features and prolongated the cooperation

Technologies

Android / DCMTK / TensorFlow / MVVM / Glide/Fresco / JUnit / Espresso / Hilt/Dagger2

Solution

★ 01

Integrating the tablet application into the hardware-software complex enhanced cardiac diagnosis and brought numerous advantages to clinicians.

★ 02

The compact nature of the tablet eliminated the need for voluminous desktop PCs, providing enhanced mobility within the clinical environment.

★ 03

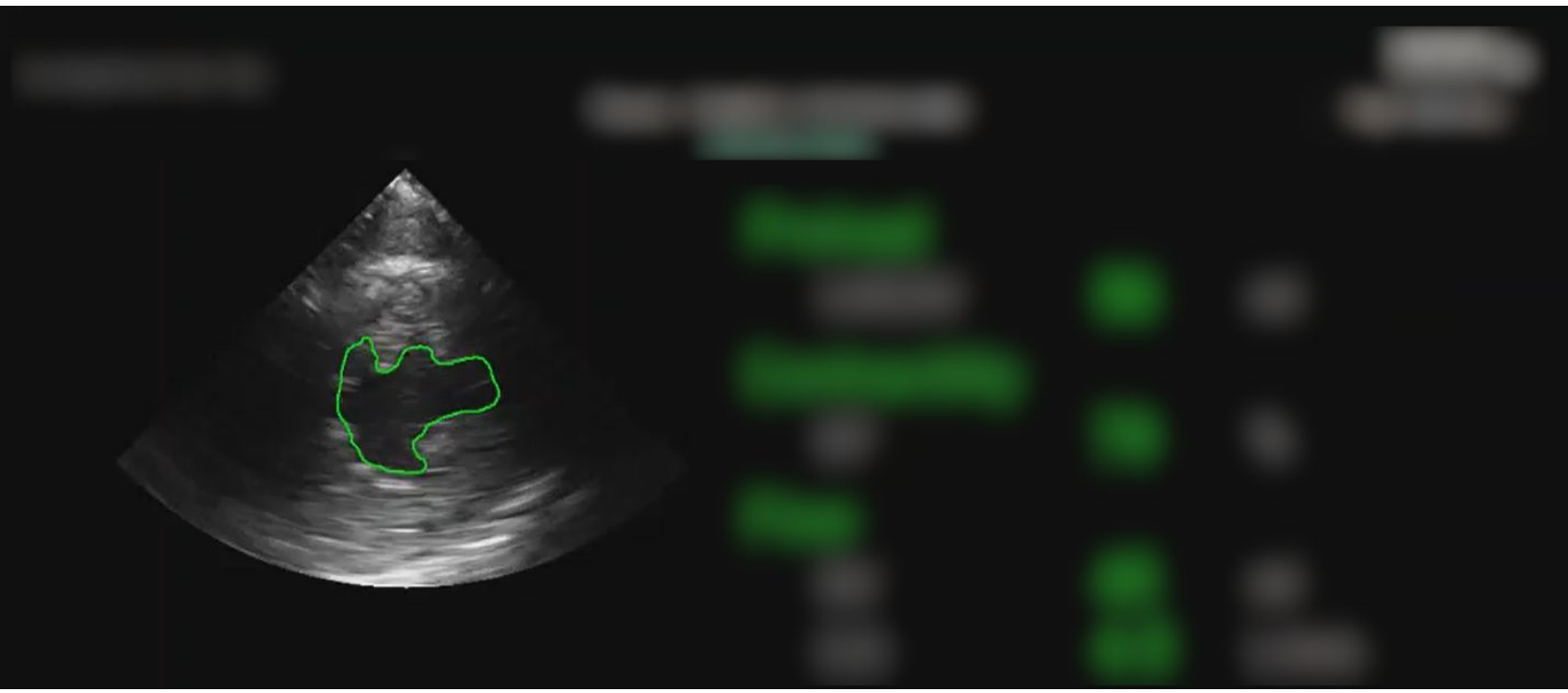
The mobile application interacts with the ultrasound probe. It allows the monitoring of heart activities and multiple related parameters, such as systemic vascular resistance, cardiac power output, left ventricular end-diastolic volume, and cardiac output.

★ 04

The application's streamlined interface and optimized processing capabilities significantly improved speed and efficiency, enhancing the overall diagnostic process.

★ 05

The integrated solution provided a transformative approach to cardiac diagnosis within a clinical setting.



Benefits and Results

- The Client's advanced ultrasound technologies enable real-time observation of heart interventions, leading to direct therapeutic benefits in 66% of patients.
- With the help of the complex, including the developed application, it was possible to improve hemodynamics in 80% of cases, enhancing patient outcomes.
- Shifted from bulky desktop PCs to a compact mobile application, enhancing mobility and efficiency in clinical settings.
- Contributed to enhanced operational efficiency and better patient care.

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Techstack:

Android, DCMTK, TensorFlow, MVVM, Glide/Fresco, Junit, Espresso, Hilt/Dagger2

Team: 8

Business Analyst,
2 ML Engineers,
2 Java/Kotlin Developers,
QA, UX/UI Designer,
Project Manager