

Business Domain

Biotechnology, Life Sciences

Project Type

IoT Platform, Mobile Application

Remote Bioreactor Management System Increased Yields Up to 14%

Clients

Biotech enterprises and research laboratories focused on creating efficient and scalable processes for manufacturing biological products in bioreactors or improving existing fermentation technologies.

Project

The BioRemote platform provides real-time data visualization, remote parameter adjustment, and automated alerts for bioreactor data and process control. The solution included a mobile application and a web-based dashboard, allowing users to oversee their processes through their smartphones.

Objective

The clients' objective was to empower their customers with a remote solution for bioreactor control, minimizing manual intervention and errors. These goals implies throughout understanding the course of bio processes and its control, which is challenging for small teams using standalone equipment. Intetics affordable digital solution addresses this problem, assisting in finding insights and elevating control without adding to the burden on personnel.

Team reinforcement

Even though having an in-house engineering team, the Clients, lacked the specific expertise in IoT, cloud infrastructure, and mobile development needed for the project. Intetics addressed this by providing a specialized team through our Remote In-Sourcing® model. This team acted as a direct extension of the client's own, allowing them to gain the necessary digital capabilities without the overhead of building a new department from scratch.

Challenge

The core challenge was to build a secure, scalable, and intuitive platform that could provide real-time remote control over complex bioreactor processes. The solution had to seamlessly integrate with existing on-site systems, handle massive streams of sensor data, and ensure millisecond-level data synchronization for remote adjustments, all while meeting stringent industry regulations for data integrity and security.

Quick Facts

- ✓ The before-and-after scenario showed a marked improvement in operational efficiency.
- ✓ With the ability to monitor and control experiments from anywhere, researchers no longer had to be physically present, leading to a significant increase in productivity.

Technologies

React/React Native/Node.js /AWS IoT Core/TSDB Apache IoTDB / InfluxDB/Amazon Timestream/QuestDB



Benefits and Results

- ★ Customers using the platform have reported an average **14% increase in bioreactor batch yields** due to optimized cultivation conditions and proactive intervention.
- ★ By automating data logging and providing predictive alerts, the system has led to a **90% reduction in manual errors** related to process oversight.
- ★ Automated data collection and reporting has reduced the time spent on regulatory documentation by **50%**.
- ★ Remote monitoring and control has allowed operators to manage **3x more bioreactors simultaneously**, freeing up valuable time and resources.