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Client: NDA
Industries: Health & Fitness
Region: USA

PROJECT TYPE
Mobile application, Smartwatches app

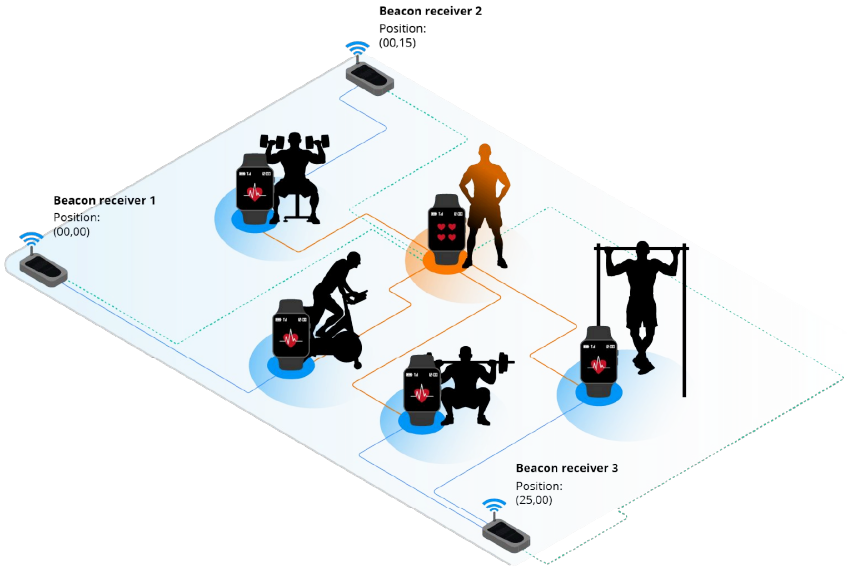
TECHNOLOGIES
PostgreSQL, Ruby on Rails, React, JSON:API

DURATION
3 months

TEAM
1 Business Analyst
1 Designer
1 Project Manager
1 Mobile Developer

Fitness tracking system development

An IoT system that gives fitness trainers instant, automatic recognition of every class member – name, injury status, age, and history delivered to the wrist, eliminating manual lookup and pre-session memorization.



Project background

A smartwatch app for fitness trainers that detects nearby Clients and shows detailed information about them and their activity.

Business challenge

A Client has a fitness club where they hold 1-hour classes. In their work, they try to create a “family-like” approach where knowing each Client’s name and background is of high importance. But for obvious reasons, trainers can’t remember all the Clients’ names and their information.

So they came up with an idea of building an app for smartwatches that would be worn by trainers to detect Clients standing nearby via wristbands and display detailed information about them – name, injury type, age and photo.

The app should connect to the CRM and select fields in the CRM that should be displayed in the app.

Our solution

Three iBeacon receivers were placed in a gym with predefined positions (coordinates) around the perimeter of the gym at a height above all physical obstacles.

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The thing I remember most clearly is watching one of our trainers in the middle of a class. She used to go from person to person asking names, trying to remember who had the bad shoulder or the knee issue. Now she just glances at her watch and already knows – our clients started commenting on it, saying it felt like she actually knew them. That’s exactly what we were going for.

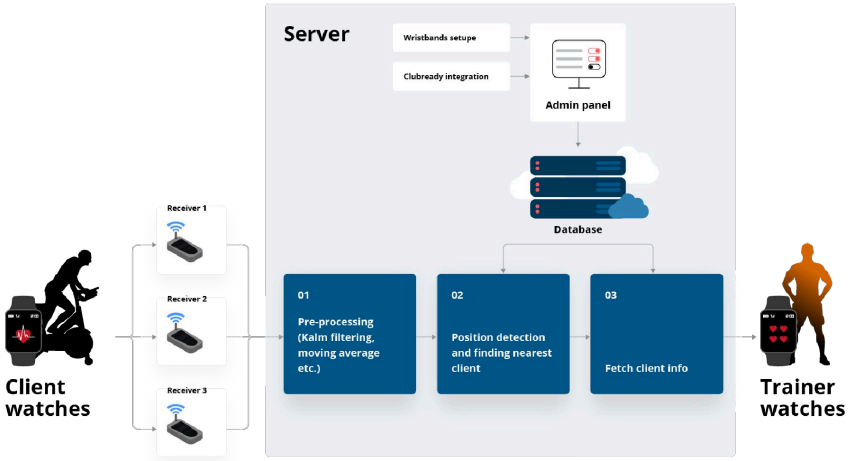
Nash Calloway
CEO

Each Client with their wristband acts as an emitter of a BLE (Bluetooth Low Energy) signal. Beacon receivers obtain this information from each reachable wristband and transmit it to a server (over HTTP, MQTT, or web sockets).

The server receives the package (which primarily consists of device ID and RSSI - signal strength value) and starts the preprocessing phase (smooths the noise with Kalman or average filtering). Then it prepares data for positioning calculation; this procedure is performed with the trilateration technique (that’s why we use at least 3 beacon receivers).

All intermediate and final data are stored in the database. In this way, we have a map with the coordinates of all beacons.

How it works



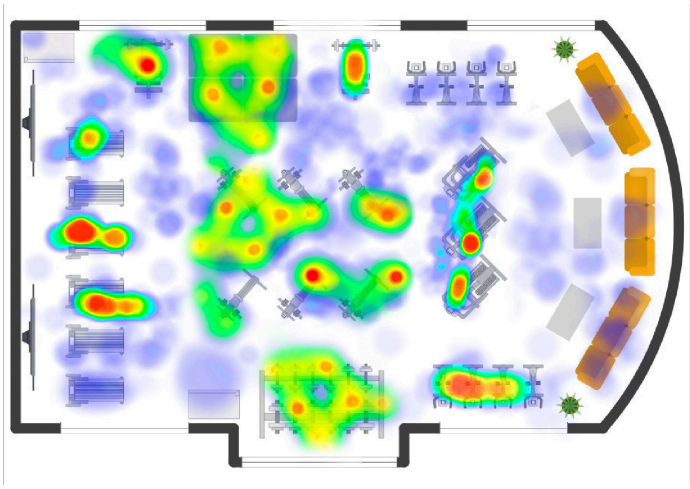
Customer's benefits

Trainers now recognize every class member automatically the moment they step nearby - 100% of class interactions start with full personalized context, no phone or manual recall required. Pre-session client preparation time dropped by 40%, and heatmap analytics give management data on equipment usage and client movement patterns across the gym floor.

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Heatmap of a gym



In general, such a heatmap of a gym can give us information about:

- Spots where Clients queue most often – it may become a signal that you lack certain training equipment (for example, a treadmill) and need to install more treadmills to satisfy the needs of your Clients;
- Spots which are rarely visited by Clients – perhaps that equipment is not very popular and can be removed from the gym;
- Typical routes of Clients inside the gym, which helps arrange the equipment in a way that makes navigation around the gym handy and convenient;
- Usage of particular training equipment during the day (morning, afternoon, evening), etc.

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info@sumatosoft.com

One Boston Place, Suite
2602 Boston, MA 02108,
United States