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PROJECT TYPE
IoT

TECHNOLOGIES
Kotlin, Swift

DURATION
6 months

METHODOLOGY
Scrum

TEAM
1 IOS dev
1 Android dev
1 BA
1 QA
1 PM

Industries: Health
Region: USA

The Integration of the Internet of Things into the Mobile Application

The integration of a smart lightbulb into the Heart Rate Variability tracking application.

Project Special Features

✓ **Light activity control** – we introduced an option for users to enable or disable light activity during their session. When light bulb activity setting in the app is off, the light bulb don't change the color during the session.

✓ **Brightness settings** – a brightness adjustment slider was added to the application, giving users the power to regulate the lightbulb's brightness to their comfort.

✓ **Multiple lightbulb management** – the application was enhanced to support the pairing and management of multiple lightbulbs, offering users a more personalized experience.

✓ **Coherence source switch** – we enabled an option to switch between tracking individual or group coherence scores, providing flexibility to users during group sessions.

✓ **Broad spectrum of color coding** – assign up to 17 distinct colors to represent each possible level of the coherence score.

✓ **5 seconds update interval** – the light color updates once in 5 seconds.

✓ **Instantaneous transition between score levels** – in situations where the coherence score changes rapidly (e.g., from 1 to 7), the lightbulb color changes appropriately skipping the intermediate color transitions.

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Business challenge

The Institute is a prominent research organization based in the USA, dedicated to studying and improving cognitive performance and well-being through the analysis of coherent Heart Rate Variability (HRV) patterns. They have developed a sophisticated HRV measurement device and a corresponding application that allows users to track their HRV patterns and coherence scores. Their application provides valuable insights and guidance to users on their journey towards achieving optimal coherence states. They referred to SumatoSoft because of our great expertise in the Internet of Things development to enhance the application.

Main Challenge

When the Institute approached us, they brought a broad scope of proposed enhancements to the table. We needed to thoroughly assess and understand their wide-ranging requests and, second, identify the most promising features that would bring substantial improvements to their application.

Our solution

Having assessed the Client's broad range of requests, our team identified the most promising feature for enhancement – the integration of smart lightbulbs, readily available on Amazon. The idea behind this feature was to introduce a visual and immersive dimension to the application, enhancing the user experience.

The lightbulbs were designed to change their color in real-time, reflecting the proximity of the user's coherence score to the ideal state. This way, users could instantly gauge their progress and achieve an improved understanding of their coherence status through a simple, yet intuitive visual representation.
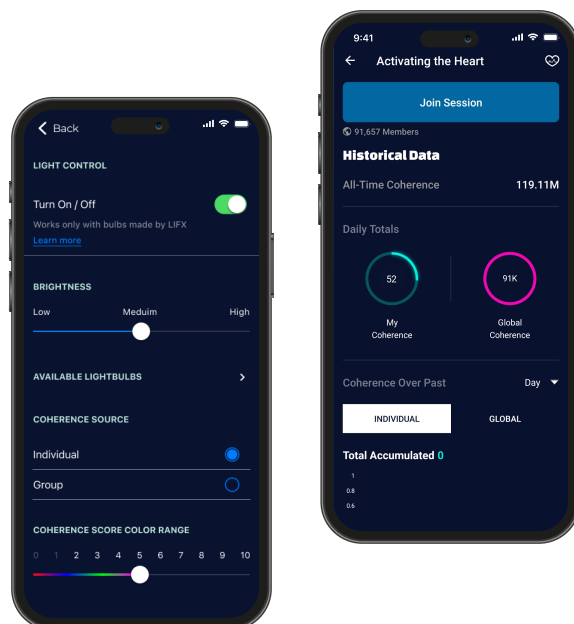
To actualize this vision, our team was tasked with developing the backend of the app and integrating the smart lightbulbs via an API. The Client provided the design layouts for the new functionality, allowing us to focus our efforts on technical implementation.

Our solution consisted of the following key features:

- ✓ **Light activity control** – we introduced an option for users to enable or disable light activity during their session. When light bulb activity setting in the app is off, the light bulb don't change the color during the session.

- ✓ **Brightness settings** – a brightness adjustment slider was added to the application, giving users the power to regulate the lightbulb's brightness to their comfort.

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Device Test in Real Environment

The Client sent us the HRV measurement device, and we ordered the smart lightbulb from Amazon. Our team conducted several sessions, observing the color changes in the lightbulb as the coherence score varied, thus validating the integration functions properly.

Customer's benefits

SumatoSoft successfully modified the application and deployed the integration with smart lightbulb to both the Google Play Store and App Store.