Project

Next-gen thermostat development for a global partner

A market-leading electric floor heater manufacturer turned to Proekspert to develop a next-generation version of their successful floor heating thermostat.

Introducing a generational leap while minimizing hardware cost

A next-gen solution to beat the competition

A global electric floor heating thermostat manufacturer wanted to stay ahead of the competition by introducing a next-generation version of an already successful product line.

The company's market-leading thermostat already had a touch screen and the device was configurable with a smartphone app. But with ambitions to be the preferred choice for both installers and end-users, it was only natural they would introduce a next-gen version of an already successful product line.

The company's goal was to introduce a generational leap with the exact same cost of materials as its previous stand-alone version.

As a Nordic company, they sought a simple and intuitive product with a discrete and timeless design. The app would make it possible to remotely monitor and control floor heating from anywhere over the internet, working in every room of homes, apartments, and holiday residences. At the same time, the thermostat needed to precisely measure room temperature.

They sought a partner who could help them across the entire product development cycle, from ideation and design to helping to prepare a production-ready product.

Machine learning on neural networks used to estimate precise room temperature

Proekspert was trusted with hardware and electronics development, physical product design, and developing product software.

The project's objective was to improve the current generation thermostat so that it would have cloud connectivity, be upgradeable, and would control multiple thermostats across multiple physical locations. The new product had to be designed so that it could be manufactured with the exact cost of materials as the previous standalone version, but it would have an intuitive, modern, and minimalistic look and feel.

For integrated cooperation, Proekspert joined the customer product development team and began providing full support with the physical product design, user interface design, electronics design, and development of embedded software components. To help the customer save time and money, Proekspert acted as a one-stop shop by bringing together partners such as electronics engineers, embedded software developers and physical product designers.

In addition to developing the device and embedded software, Proekspert researched different products, electronics and design aspects to understand market expectations in order that we could create a thermostat that would be more comfortable to use and would be as affordable as our customer's current thermostats. For example, the expensive LCD screen was replaced with a more efficient LED and management of complex functionalities was brought over to the mobile phone app.

Proekspert is proud of having exceeded our customer's expectations and having built the industry's most accurate thermostat. To measure and estimate accurate room temperature is surprisingly complicated. There are contradicting factors that impact temperature sensor measurements, like floor type, draft, direct sunlight, room setup, as well as a thermostat's heat-emitting electronic components. To solve that problem Proekspert used a cutting-edge and time-saving approach: machine learning on neural networks. This allowed the creation of a thermostat that could maintain a set room temperature precisely despite room size and location.

A next-gen product with the cost of the previous version means the customer remains the market leader

The customer is a leading manufacturer of electric floor heating solutions. Their electric consumer floor heating thermostats are used in millions of buildings. For over 50 years, the customer has been committed to being the preferred choice for both installers and end-users, so innovating an already successful product line using modern technologies was a natural next step.

Continuous innovation of the product line allows the customer to grow their customer base by attracting installers and new customers.

This flagship product helps the customer to stay ahead of the competition by bringing solutions that adapt to the most demanding users.

Impact on the customer business

The customer achieved their goal to release a modern product that stands out from others available on the market and drives the brand's innovation perception that supports the sales of their entire product line.

- The most precise room temperature measurements among the world of consumer floor heating thermostats.
- Intuitive and minimalistic physical product design on the walls of end-users.
- Cloud and offline connectivity through a user-friendly mobile application with lots of useful innovative functions.

Competencies

High-level detailed design specification
Project management
Solution architecture
System design
Assembler programming
Machine learning
UI development
Testing and QA

Jobs done

Self-contained modular device
Device network connectivity
Sensor data analysis
Expandability
24/7 in cloud
Operational insight
Remote device upgradeability
Market awareness