STYLE

Where value comes from

Employing intellectual curiosity to create

products that support intellectual creativity

Consistently Creating Unprecedented, Truly Needed Products

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Since joining Casio in 2000, Okada has worked on the development of PDAs, business terminals, cell phones, and network services. When the wrist device development concept emerged at the end of 2011, a team was assembled, and Okada was tasked with planning and specification design.

Hiroshi Katsuda
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Katsuta joined Casio in 2010. After working on the development of digital cameras, he moved into devices for sports applications. In the spring of 2012, he joined the wrist device development project, and is primarily responsible for packaging development.

Itsuki Yamashita
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After joining Casio in 2013, Yamashita was assigned to the Emerging Business Department, and immediately joined the wrist device development project. In 2014, he became the firmware developer.

The Smart Outdoor Watch WSD-F10 represents a new product category. By linking with a smartphone, it can provide timely information that will enhance enjoyment of the outdoors. The road that led to its creation reveals Casio's unique product development approach.

01 Generating Breakthroughs by Going Back to Square One

Around the end of 2011, a new concept began to emerge among Casio developers. They started considering how to create a new Internet-connected product worn on the wrist, a prime location for an information device. The following spring, Casio launched a project to develop a wrist device.

By the end of 2012, the first prototype was ready. With an emphasis on versatility, it resembled a smaller version of a smartphone, both in function and shape. Then the project members realized that, while it was great to have a device that could do anything, smartphones were already more or less serving that purpose. What would be the advantage of using the device on the wrist? Facing these challenges, the project was postponed.

Next, the team worked on a wrist device for use by runners. Although it had lots of features such as GPS, it also showed drawbacks—it was heavier and had a shorter battery life than electronic runner's watches on the market. Smartphone apps that could compete with the new wrist device were also already available. Senior management decided that the proposed product would not be a market winner.

Development team member Okada recalls that they were still struggling to make a breakthrough at that point. Their goal was to create entirely new value that no one had seen before, something that consumers would find truly necessary. But it just hadn't materialized. That was when Yamashita joined the project. He remembers opening the door to the team's workspace for the first time. Instead of a gloomy mood, he found the team full of optimism, ready to make a brand new product.

The development team members decided to go back to square one. They started to re-identify the advantages of putting a smart device on the wrist. As their thinking became more and more focused, a tighter concept emerged: a product that could provide handy information, in situations where using a smartphone would be too troublesome.

Finally, they hit upon the precise idea of a "smart outdoor watch" that could demonstrate truly unique value in outdoor leisure activities. Take mountain trekking, for example. With a smartphone tucked away in a backpack, the user could give a verbal command to the smart watch at the first sign of dark clouds, and the watch could instantly display the locations where it was raining nearby. Or when cycling, a user could easily check the smart watch to see the remaining distance to the destination. The watch could even advise the wearer when to take a rest. A complete vision for the new product had crystallized in the minds of the development team members. They formalized the concept, and finally got the go-ahead to create the product.

Smart Outdoor Watch
WSD-F10

Packed with functions for trekking, cycling, and fishing, this wrist device is designed for outdoor use. It boasts a high level of water resistance, and is tough enough to meet the US military (MIL) standards of Environmental Engineering Considerations and Laboratory Tests. The original Casio app for the watch measures changes in the natural environment and the wearer's exertion level. Other apps can also be added to further enhance the capabilities of the device, which runs on the Android Wear™ platform.

02 Conveying the Ineffable Concept with a Prototype

The team began full-scale development. They made it a goal to ensure toughness, and they wanted the product to meet US MIL standards by passing the necessary drop and vibration, and other testing.

One of the team's absolute requirements was the development of a waterproof mic. Understanding that users engaged in outdoor activities would often not have their hands free, a mic would be essential for voice operation of the device. They also realized that outdoor activities—fishing and many others—often involve water and the possibility of bad weather. Rather than just creating a device that would be resistant to water spray, the team was determined to build the world's first smart watch that is water resistant to 50 meters. Team member Katsuda explains the challenge: "We thoroughly examined potential materials for a vibrating membrane that would be both highly water resistant and could effectively transmit sound. Through a process of trial and error, we also came up with a construction that worked acoustically while still being able to resist deformation under strong physical pressure. With the unique product value delivered by 50-meter waterproof performance and resilience in difficult outdoor environments, we knew that we would be able to ensure very clear differentiation from competing products."

Around the time product development began, Google announced the Android Wear™ operating system for wearable devices. The team talked with Google about permission to use the OS. They described the product, including the highly original Casio display with monochrome and color LCDs layered one on top of the other. However, Google did not think its OS was right for such specifications, and the discussions faltered.

This, however, was no excuse to drop the project. With the dual-layer liquid crystal display, easy to view even in bright sunlight, and time shown using only the monochrome LCD to greatly extend battery life, the team members were confident that consumers would love the product. So they set about making a prototype that would demonstrate the appeal of their concept in a way that words could not match.

At the next consultation with Google, they showed a prototype with a dual-layer LCD. The Google team described the dual-layer design as astounding and was very impressed. Next, Yamashita and his team refined the software for full practical use, and entered final-stage consultations with the Google team. Yamashita remembers, "They agreed to test our dual-layer LCD that could be conveniently used with Android Wear™, and finally we obtained the consent of the decision maker at Google. If we had not been able to do so, we would have lost some of the best functionality of the display."

03 Developing an Original App That People Will Use Again and Again

What kind of functionality does an outdoor enthusiast really need? How do we create value that people will continue to use over the years? In order to find the answers to these questions, team member Okada interviewed mountain climbers and actually went fishing with professional bass anglers. The knowledge he gained was used to create functions in the product's original app and to provide information tailored to each type of user's activities. These helpful functions perform tasks such as informing a climber that it is 30 minutes to sunrise, or providing advice to a cyclist on the timing of calorie intake, or notifying an angler of suitable time periods for fishing, based on the moon phase and hour angle. Okada describes the direction of future development, "Originally, when pursuing the special value that a wrist device could provide, we came up with the concept of 'momentary value.' This is the kind of value that provides helpful information the user may not know is available, the moment the user needs it. We want to continue expanding on this concept for people who enjoy the outdoors."

In March 2016, Casio released the wrist device developed by this team: the Smart Outdoor Watch WSD-F10. The development team had realized their quest to find new value that people would continue to use. By refusing to give up whenever they hit a wall, and by continuing to generate breakthroughs based on novel ideas, they rose to the challenge time and again. Leveraging this spirit of development as a driving force, Casio will continue to create unprecedented products that people truly need.

Water-resistant to 50 meters

Compliant with US MIL standards

Dual-layer display