



## KARMA REVERO GT AND REVERO GTS: BUILDING A UNIQUE USER EXPERIENCE WITH A SMALL TEAM OF HMI EXPERTS

## CASE STUDY

### BACKGROUND

Southern California-based Karma Automotive is more than just a car company. Although the brand is best known as a creator of soul-stirring luxury electric vehicles, Karma has emerged as a high-tech incubator offering innovators a perfect platform to prove their emerging technologies. Founded in 2014, Karma is reinventing the traditional retail-based automotive business model by opening its engineering, design, customization and manufacturing resources to other companies looking to speed product development, access new technology, or make their products more luxurious. The 2020 Revero GT and the performance-oriented 2020 Revero GTS are luxury electric vehicles powered by dual electric motors that embodies Karma's goals of offering leading automotive design, technology, customization and an outstanding customer experience. Every Revero is created with great individual care and world-class craftsmanship at the Karma Innovation and Customization Center in Moreno Valley, Calif.

### CHALLENGE

When Karma designers set out to develop a vehicle, they make every square inch count. From the progressive exterior styling to the high-tech ADAS technologies, every detail is crafted to ensure the vehicle is "more than aesthetically arresting, it is capable, dynamic, and technologically advanced."

Shen Zhang, vice president of electrical engineering at Karma Automotive, said Karma likes each of its vehicle models to be different, from the look-and-feel of the vehicle to the user experience, which is a tall order for an automaker that uses small design and engineering teams and works to tight deadlines.

When Karma's design team wanted to create an industry-leading digital architecture for the 2020 Revero GT and Revero GTS, it created a partnership with Rightware to help create the human-machine interface (HMI).

Rightware's Kanzi toolchain is an efficient and agile one-stop solution for vehicle manufacturers to create UIs. Today, more than 50 car brands use Kanzi to drive HMI innovation and faster time-to-market than possible with other software options. With designer-oriented tooling and a workflow allowing designers and engineers to work in parallel, Kanzi enables rapid prototyping and continuous innovation, helping automakers and Tier 1 suppliers achieve the best possible UX with small teams.

## HISTORY

How Karma and Rightware came together

Rightware welcomed the chance to work with Karma, a company it knew very well.

Shortly after Karma was founded in 2014, the brand moved quickly to develop its first vehicle. The company planned to make a new luxury electric hybrid sedan with more modern HMI screens that enable the driver and passengers to interact with the car.

At that time only a few luxury automotive brands used high-end digital displays, typically in center consoles. Karma Automotive wanted more: a digital dashboard like that of the 2014 Audi TT Virtual Cockpit, which drew rave reviews from owners and experts for its stylish and functional graphics.

"When our commercial relationship with Karma automotive began in 2015, the success of the Audi TT was a key differentiator for Kanzi," said Rightware CEO Ville Ilves. "The Virtual Cockpit was getting a lot of attention from consumers and the media. Karma is as much a technology company as it is an automotive manufacturer, and they wanted the best and latest technology."

Rightware had already established itself as an independent software vendor (ISV) with a solid track record of working with high-end luxury automakers. Furthermore, Rightware was the only company supplying proven, automotive-grade graphics tools for user interface (UI) development supporting not only 2D graphics but also real-time 3D graphics based on the OpenGL ES standard typically used in games.

With the desire for a much shorter development period than is typical for a new vehicle – months rather than years – and a small but enthusiastic design and engineering team, Karma worked with Rightware for the tools and support it required for the 2016 Revero HMI. Rightware's services team provided initial UI concepts, after which the Karma team took on the entire design project, with some implementation support from the Kanzi Services team.





Over the following years, Kanzi UI underwent several updates. When the Karma team embarked on a project to deliver a new user experience for the 2020 Revero GT and Revero GTS, they were ready to roll up their sleeves and get to work with Kanzi again.

## THE RESULTS

Beauty and technology  
in half the time

“Our vision at Karma Automotive is to inspire. We strive for timeless designs and use the latest and best technology in order to create a distinct experience that forms an emotional connection between the driver and the brand. The digital cluster and infotainment system play a major role in creating this connection,” said David Witt, Karma’s UX and HMI design manager.

Qiang Qian, vice president of Kanzi Services at Rightware, who worked with Karma to develop the Revero HMI, was again called to work with the team at the company’s Global Headquarters in Irvine, Calif.

“Mr. Zhang has built a very top-notch, professional, talented team,” Qian said. “We worked very well together to make things happen.”

To create the user experience for each of the vehicles, Zhang said, two designers from Karma’s design studio developed the UX concept and three engineers managed implementation, bringing the UX from concept to reality. The Rightware partnership helped the Karma team speed product development. The UX design process was completed within 18 months, a process that often takes automakers three years or longer to complete.

Zhang said the design team was able to “start with some foundation from the (Revero) and upgrade it from the baseline software with a very small team.”

As it did for the Revero, the Karma UI development team made changes to the HMI as the GT and GTS projects progressed. Karma credits Kanzi for saving a great deal of time and expense they would have incurred had they used an outside vendor rather than an in-house team to develop the HMI. The Karma team also credits the ease-of-use of Kanzi, and the ability it provided for the team to see and interact quickly with the design in real-time during development and to edit the results quickly, allowing them to finish the project in a tight timeframe.

With the scalable and extendable Kanzi platform, Karma Automotive created two high-quality HMIs in a matter of months and was able to meet development targets. “The latest design trend is moving fast toward big screens, more screens, intelligent HMI, plus state-of-the-art 3-D capability,” Qian said. “You can find them





all in the Revero GT. Rightware provides rendering solutions to Karma to achieve every detail in design without compromising."

The HMI is central to what Karma calls the vehicles' "intelligent interior," which features industry-leading digital architecture, active noise cancellation, infotainment, and 3D haptic touch technology support an engaging, connected driving environment, "allowing you to enjoy the journey as much as the destination."

"Kanzi enabled us to rapidly create a stunning and distinctive digital user experience that reflects our unique brand identity and take the Karma driving experience to another level," Witt said.

Going forward, Zhang said Karma is focused on the "total in-cabin experience," not just the look and feel of the HMI. "Your user experience is going to be more than just a radio and navigation, but rather how you feel, how the in-cabin temperature and volume is pleasant to you. It's everything together," Zhang said.

If Karma's designers can dream it, Rightware's Kanzi can help them achieve it.

With Kanzi, "the software is very easy to use, very easy to customize, and that's why we want to continue to use it for our team," Zhang said.

## ABOUT



Although best known as a creator of soul-stirring luxury electric vehicles, Southern California-based Karma Automotive has emerged as a high-tech incubator opening its engineering, design, customization and manufacturing resources to other companies looking to speed product development, access new technology, or make their products more luxurious. The 2020 Revero GT, Green Car Journal's 2020 Luxury Green Car of the Year™, is a luxury electric vehicle powered by dual electric motors that embodies Karma's goals of offering leading automotive design, technology, customization and an outstanding customer experience. Karma creates its products with great individualized care and world-class craftsmanship at the Karma Innovation and Customization Center in Moreno Valley, Calif. For more information, visit [www.karmaautomotive.com](http://www.karmaautomotive.com), or [www.karmanewsroom.com](http://www.karmanewsroom.com).



Rightware provides tools and services for design and development of advanced digital user interfaces to over 50 car brands. The Kanzi philosophy is based on designer empowerment, prioritizing ease of use, rapid prototyping, workflow efficiency, high performance, and cross-platform support. Our passion is to unleash creativity and enable fantastic user experiences. A ThunderSoft company, Rightware is headquartered in Finland with a presence in USA, Germany, Italy, China, South Korea, and Japan.