Cerence Proactive AI Studio: Bringing New Proactive Use Cases to Automakers

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Voice assistants of the past have typically been known to be reactive: they respond when spoken to, waiting to hear their wake-up word spoken by the user before they can take action on their behalf. However, with the rapid development of artificial intelligence, drivers now expect the voice assistant to do more – and even take proactive action.

A core capability of the increasingly intelligent Cerence Assistant, Proactive AI (PAI) is designed to bring contextual awareness to drivers by utilizing real-time data, built-in intelligence, user preference data, sensor data, and more. It empowers the voice assistant to perform actions before drivers even ask, keeping proper timing in mind and making driving safer. For just one of many examples, perhaps a driver doesn't realize that it's raining while the rear windows are still open; leveraging Proactive AI, the assistant can understand the situation and let the driver know to close their windows.

During a typical user journey, loads of data and information related to driving safety and comfort is generated, creating an opportunity for automakers to better enhance the comfort and safety of their drivers. But defining every scenario that would benefit from Proactive AI at the beginning of development is not a simple task, and adding new features via an OTA update can take time and effort. To make it easier for automakers to leverage new insights and maintain use cases even after SOP, Cerence has built a customer-facing web tool specifically for Proactive AI, PAI Studio.

PAI Studio simplifies project management, maintenance and modification for automakers and offers abundant scenario templates, with more continuously being added. OEM users can also create new scenarios from scratch by simply defining the scenario name/description, the trigger conditions, the notification contents and frequency, etc.

When creating a new scenario, the trigger conditions are currently defined with pre-defined rule data, including sensor-related data, user preference data, vehicle information data, content data, and more. For example, when we try to notify drivers when they are approaching the destination and there is rain alert, we can easily set the condition part as "Estimated DTA(Minute) < 15" and "Weather Warning in Nav Destination =   Rain Orange Alert/Red Alert." The recommendation engine will monitor the vehicle status and weather information, then send a message to drivers in the defined situation. They can also use the vehicle's location or user tagging data as conditions to limit the scenario release range.

For the notification content parts, users can decide whether to push the notifications to the vehicle's head unit, the companion mobile application, or both. They can define the voice prompting as a short sentence or a dialog trigger to initiate the conversation with drivers and insert tags into the prompts to drive emotion-based text-to-speech that can bring more personality to the notification. It is also possible to insert user-preferred content into the proactive prompts, providing enhanced personalization. For instances when it is not appropriate to prompt drivers via voice, PAI Studio also provides the capability to define GUI content with different styles.

In addition, OEM users can define the notification frequency, or configure customized settings on the portal. After the scenario definition, they can test, deploy, and release the scenarios into runtime environments. One deployed, drivers can receive the notifications under the defined situation, without any software updates.

In summary, PAI Studio offers wonderful benefits to OEM, including:

- Abundant pre-built scenario templates covering driving safety, vehicle security, weather, POI recommendations, maintenance reminders, and more.
- Extensive, pre-defined rule data mapped with real data from vehicle and cloud, including sensor-related data, user preference data, vehicle information data, content data, etc.
- Easy-to-use scenario editing and flexible definition of target user groups, vehicle models, regions, VUI/GUI contents, etc.
- Quick deployment and release without software OTA updates.

PAI Studio is provided as part of Cerence's suite of developer tools, which put OEMs and third-party developers in the driver's seat for creating unique experiences.