

Digital price labelling for the automotive retail market

Founded in 1998, Germany based VISI/ONE became the market leader for price labelling in the stationary automotive retail market. To date, the company's core product has been an innovative adhesive wrap, which stands as a freely designable medium at the point of sale for communicating the brand and the brand message. The company's decision to offer cloud-based solutions for digital price labelling, has finally marked a shift from analogue to digitally networked products in this field.

The beginnings

VISI/ONE initially started developing a digital pricing system for car dealerships based on Salesforce in 2014. The CARSales Intelligence (CSI) system is designed to help car dealers save valuable time for their employees and reduce car immobilization times. It is a cloud-based platform that allows the prices for vehicles to be changed conveniently from a computer or app. The associated displays function with the help of the central software and a connected IoT hardware system architecture. Centrally installed routers feed a network of connected digital price tags based on ePaper via Wifi and radio.



Figure 1: Price tag with digital ePaper component

Problems of the previous solution

The biggest challenge in introducing digital price labelling was connecting different locations and thus scaling sales of the product. Before a location could be put into operation, complex signal strength tests had to be carried out to determine the optimal placement of the routers, which had only a short transmission range. Once the perfect spots had been found, the cabling began. For this, complex digging of trenches and subsequent laying of cables was necessary. A horror scenario for a product that is meant to be rolled out internationally.

Challenges of the new product generation

Due to the close connection to the car dealer industry, VISI/ONE knows the needs of the customers exactly and can use the experience gained so far to develop a tailor-made IoT product. The new IoT product generation has to communicate via cellular communication independently from routers, so that customers only have to take the price tag out of the box for activation and the previously time-consuming installation effort is eliminated.

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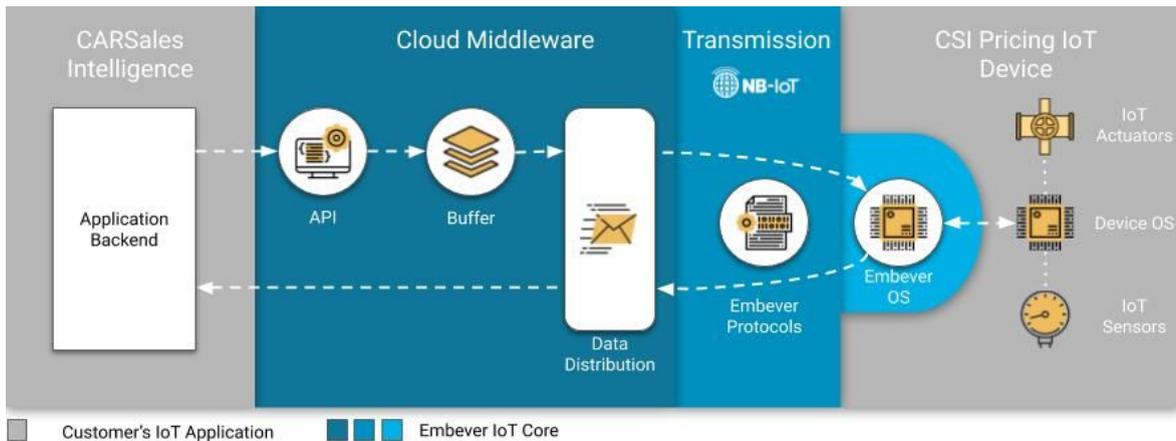


Figure 2: Embever IoT Core

With Embever as the platform operator for the development and operation of cellular IoT products, VISI/ONE has found the ideal partner to bring an IoT product to market according to its own vision. A proof of concept of the new product generation could be developed and tested within a very short time.

Embever has expanded the hardware with its own board to enable mobile operation and connection to the Embever IoT Core. The IoT Device (an ePaper display) now contains the Embever Operating System, which controls the mobile communication and increases the battery life of the devices to a maximum. Embever's Cloud Middleware fits between the CSI Cloud and the NB-IoT enabled ePaper displays of VISI/ONE. Embever's Cloud middleware is endpoint agnostic and can send and receive data from any application to and from IoT devices.

The IoT devices are in Deep Sleep Mode most of the time during operation. The advantage of the ePaper displays used is that the displayed images do not disappear while the devices are in sleep mode and still do not use any power. After defined duty cycles the devices wake up from deep sleep and connect to the cloud server to ask for new data. If new data is available, it is sent

from the cloud to the devices, which return to deep sleep mode after successful transmission and picture update. With its proprietary protocols and ingenious transmission mechanism, Embever guarantees the most energy-efficient data transmission possible and thus a battery life of several years.

The result

The success of VISI/ONE's IoT development was critical in transforming the company from a traditional manufacturer to a networked technology provider. The brand's core product has become an intelligent device thanks to a digital component: Price updates can now be performed from the desktop and the devices can be located via GPS. No cables, no servers, no access points to install. Thanks to the connection via Embever IoT Core, the new business model has become scalable. Each display can now be addressed independently via the cloud without installation effort. VISI/ONE has succeeded in further strengthening its innovation leadership through the joint development with Embever and setting new standards as the global market leader for digital pricing in the automotive retail market.

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