

# UP Grading the Look of Smart Retail

Industry: Retail

Product: UP Squared with AI Core X

## Introduction



Smart retail encompasses a wide range of applications from automated checkouts with contactless payment to intelligent inventory systems which can track the most popular items and ensure they are well stocked and placed where customers can easily find them.

However, not all retail is the same, and neither are the needs of both customers and retailers. One area which this can differ across retail spaces is when customers need more information about a product and how they receive it. In grocers and supermarkets, where customers cannot glean information from the packaging, they can use store-based apps to scan barcodes, providing customers with extensive information on their phone.

Additionally, in some retail spaces this may be impractical or even undesirable when trying to create a certain customer experience. Cosmetics retailers are one such space where this app-based approach could spoil the high-end or luxury experience which many retailers attempt to craft. Waiting for staff to assist with finding product information can also create a negative experience.

One leading developer of edge AI systems for smart retail recently devised a system platform solution which provides an interactive method of getting product information while

maintaining the high-end atmosphere of cosmetics retailers. By utilizing an object recognition AI inference, their system can display relevant information as well as targeted marketing to help sell the product even if staff are busy.

To help them create a solution that would fit in with cosmetics retail spaces yet still provide the power and performance needed, the developer turned to AAEON and the UP Squared Board with AI Core X for their application.

## Challenges

The developer was faced with several challenges to create a system which not only could provide the solution they wanted, but also be welcomed within these retail spaces. They needed a compact system which could easily fit into the retail space, which means a compact board still powerful enough for their AI software. The developer needed a partner who could work with them to ensure smooth integration with software and hardware, and with time of the essence, they needed a turn-key solution to create their proof of concept. AAEON's industry leading service and the UP Squared Board with AI Core X helped tackle these challenges.

## Compact AI Solution

The developer needed their system to fit seamlessly into shops without taking up valuable floor or shelf space. To design a compact system, they first needed a compact board. The UP Squared board is compact, measuring only 3.37" x 3.54" (85.6 mm x 90 mm) and equipped with Mini PCIe slot for the AI Core X, a small card featuring the Intel® Movidius® Myraid™ X VPU.

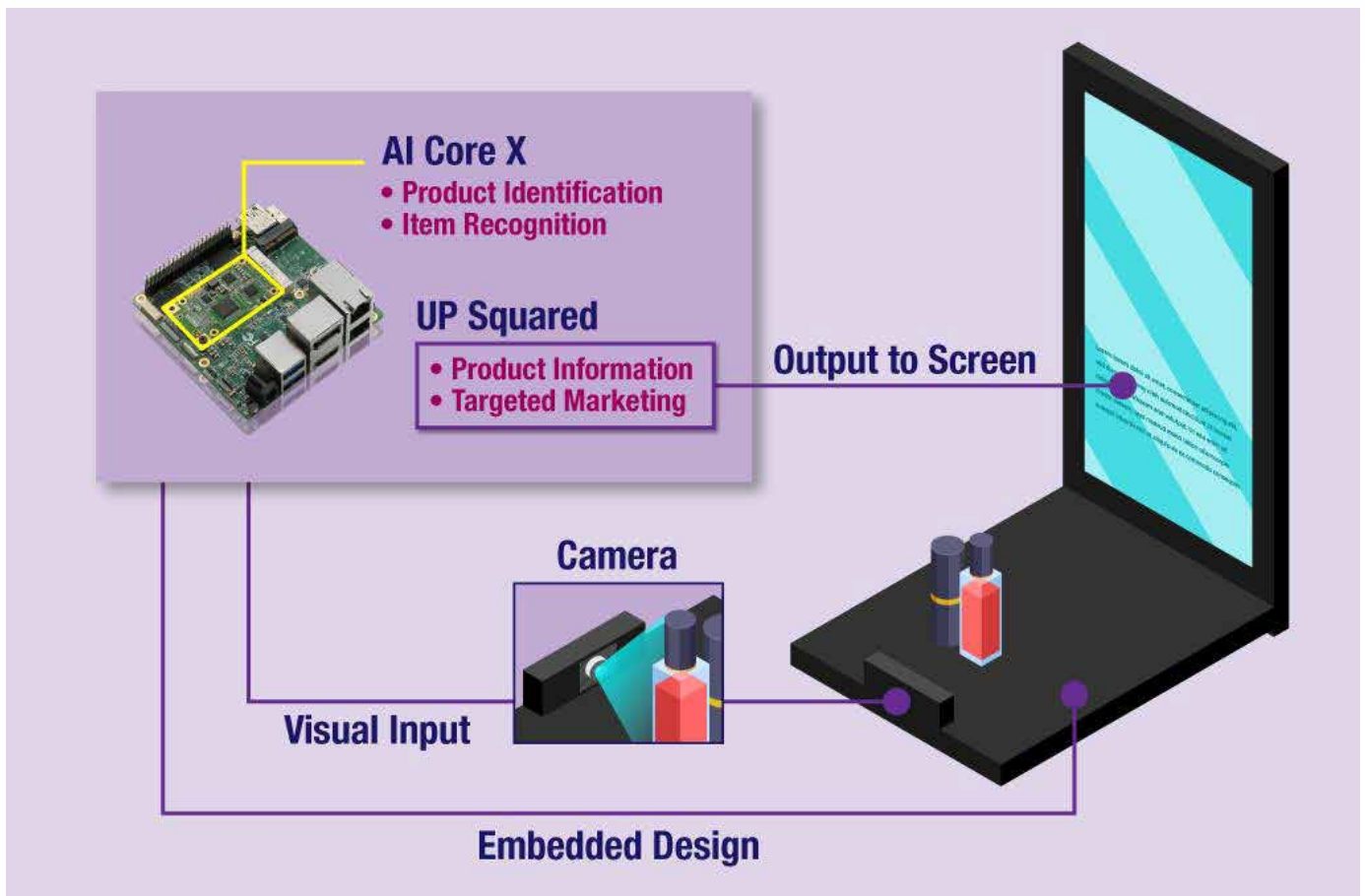
Together tiny enough to fit into tight spaces, powerful enough to drive AI software at the edge.

## Turn-Key Proof of Concept

With their goal of creating a proof of concept, the developer needed a solution that was easy to assemble and get running quickly. The UP Squared Board offers makers and developers a platform that's flexible and easy to use. Together with the AI Core X, developers can enjoy compatibility with Intel® distribution of OpenVINO™ toolkit, a powerful set of software tools which help optimize AI inferences and reduce development time.

## Hardware-Software Integration

A key component for the developer was ensuring smooth operation of the system once deployed. To operate properly in setting, the system needs to provide reliable and consistent operation. AAEON worked closely with the developer, assisting with validating software and debugging to not only reduce development time, but also ensure seamless operation between the UP Squared board and the developer's own proprietary software.



## AAEON Advantage

Working with AAEON, the developer was able to capitalize on several key advantages with the UP Squared board, AAEON's industry leading service, as well as AAEON's OEM/ODM manufacturer service to help produce the final product.

### Flexible Platform Solution

With the UP Squared and AI Core X, the developer was able to test different configurations when building their proof of concept to determine the best system design that would most benefit their customers' needs. Thanks to the flexibility of the solution, the company could quickly reconfigure the UP Squared board and AI Core X, reducing development time.

## Impact

Thanks to the help of AAEON, the developer was not only able to produce a viable proof of concept, but also to improve on the design thanks to AAEON's OEM/ODM services, creating an integrated system to power their smart retail solution for cosmetics retailers. AAEON helped to reduce development time, helping the developer bring their platform to market quickly.

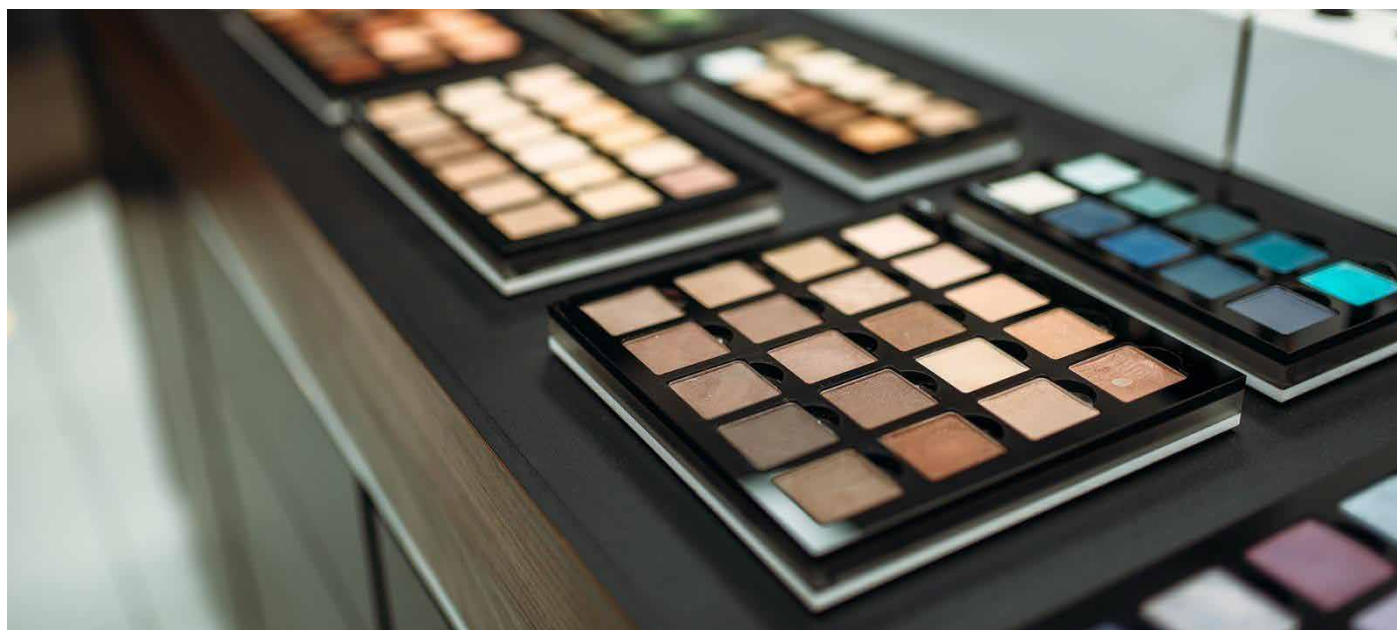
With the developer's system in place, cosmetics retailers can provide their customers with the benefits of smart retail in a manner that is intelligent and compliments the customer shopping experience they desire. Cosmetics customers no longer need to wait on staff to provide information on individual products and can get tailored advice based on which products they're interested in.

## Industry Leading Support

AAEON offers industry leading support for developers and systems integrators, from helping validate software to troubleshooting errors. AAEON worked closely with the developer to help accelerate development and reduce time-to-market.

### AAEON Manufacturer Services

Thanks to the help of AAEON, the developer was able to build a successful proof-of-concept and determine the best configuration for mass production. AAEON OEM/ODM services provided them with, with a customized board layout including integrated eDP display port, a custom AI module, and system mechanical design to ensure that board, module and screen fit together seamlessly within the complete system.



## Product

The UP Squared Board from AAEON is one of the fastest maker boards available today. The UP Squared Board a range of Intel processors including the Atom E3950, Celeron N3350, and Pentium N4200 (formerly Apollo Lake), combined with up to 8 GB of LPDDR4 RAM and built-in eMMC memory up to 128 GB. The UP Squared Board offers expandability through its 60-pin EXHAT and 40-pin GP Bus connectors, as well as SATA3, m.2 2230 and even an mPCIe slot, perfect for the Intel Movidius Myriad X powered AI Core X for use with AI applications. The UP Squared Board is built with a standard compliment of I/O features including three USB 3.0 ports, one HDMI and one DP port, and two Gigabit Ethernet ports.



The AI Core X mPCIe module features the Intel Movidius Myriad X, a low-power high-performance VPU designed for AI acceleration with Edge Computing. The Intel Movidius Myriad X offers speeds up to 105 fps (80 typical) and over 1 trillion floating point operations as a dedicated neural network accelerator. The AI Core X is compatible with the Intel distribution of OpenVINO Toolkit, and supports TensorFlow and Caffe frameworks.

Thanks to AAEON's Manufacturer Services, our clients can also enjoy full OEM/ODM support, from customizing existing boards, to providing full end-to-end service from design to testing to mass production. AAEON works closely with partners to help accelerate development and shorten time-to-market.

## About UP

UP Bridge the Gap is a brand founded by AAEON Technology Europe in 2015. The UP team aims to bring innovation in technology, business models, and integrated solutions. The UP team collaborates with market leaders in different vertical markets to develop integrated solutions and build a large online community to work closely with developers.

## About AAEON

Established in 1992, AAEON is one of the leading designers and manufacturers of industrial IoT and AI Edge solutions. With continual innovation as a core value, AAEON provides reliable, high-quality computing platforms including industrial motherboards and systems, rugged tablets, embedded AI Edge systems, uCPE network appliances, and LoRaWAN/WWAN solutions.

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