

# Turning a Passerby into a Customer with AI-Assisted Integrated Advertising

Industry: Smart Retail

Product: UP Squared Pro 710H Edge

## Introduction



Every business, store, and product has a target audience. However, the task of identifying and reaching this audience is a dilemma as old as time. With the advent of malls, department stores, and commercial shopping districts, it became increasingly difficult for businesses to determine how to efficiently allocate their marketing resources. This was crucial not only to stay ahead of competitors but to also make a lasting impression on individuals who could potentially transition from passersby to customers. One company took on the task of assisting department stores in achieving this goal by providing personalized and impactful

advertising to the appropriate audiences through the use of AI.

With their proprietary AI model, AAEON's client aimed to analyze customer behaviors in department stores to understand the preferences of visitors. Using this data, they would then be able to craft marketing strategies that resonated with similar visitors, converting passersby into customers. This company chose AAEON's [UP Squared Pro 710H Edge](#) as the embedded system responsible for implementing their AI algorithm, collecting behavioral data, running its inference model, and optimizing in-store digital advertising to appeal to visitors in real-time.

## Accelerating Insight-Driven Advertising with AI



Given the [UP Squared Pro 710H Edge](#) is both compact, measuring just 5.28" x 4.13" x 2.36", and lightweight, at 1.8 lb., it was easily installed via wall mount at the entrance of a number of department stores. Equipped with two USB Type-A and two 2.5GbE ports, AAEON's customer had a variety of interfaces through which cameras could be installed on the device. They opted for high-

resolution USB cameras, with the device's Ethernet ports retained for wired connection to the stores' intranet. Once installed, the USB cameras were used to capture visual data from within the store and relay it to the [UP Squared Pro 710H Edge](#).

Once visual data from within the store had been received, it was up to the pretrained AI algorithm provided by AAEON's client to analyze it. To do this, their AI model needed to be translated and optimized. This is where the second benefit of the [UP Squared Pro 710H Edge](#) became apparent. Armed with one integrated [Hailo-8™ edge AI processor](#), along with a second [Hailo-8™](#) edge AI acceleration module installed via its M.2 2280 M-Key slot, the client's model was optimized and translated to the Hailo-8 format using the [Hailo-8™](#) Dataflow Compiler, a software toolset provided as part of Hailo's AI software suite. With two [Hailo-8™](#) AI acceleration modules, the device had a total of 52 TOPS of inferencing power at its disposal, allowing the client's algorithm to analyze customer behaviors and identify demographic trends and preferences from the visual data collected.

## The Architecture of AI-Assisted Advertising



By gathering customer insights, such as their reactions to time-sensitive decision purchases (e.g., special offers) or identifying the purchasing preferences of different age groups, the model could dynamically tailor the advertising shown to similar customers within the store. To achieve this, the UP Squared Pro 710H Edge's HDMI 2.0b or DP 1.2

ports could be used to feed the store's digital advertising displays with relevant, vibrant, high-resolution content to capture customer attention. Leveraging the high-speed data processing capacity of the device's embedded Intel® Core™ i3-N305 processor and high-bandwidth LPDDR5 system memory, ads could be automatically adjusted based on the demographic present, optimizing engagement with the goal of boosting sales.

## The Result? A Smart, Integrated Marketing Strategy

The deployment of the [UP Squared Pro 710H Edge](#) allowed the department store to implement a sophisticated, integrated marketing strategy. By leveraging AI-driven insights and real-time data processing, the client's solution was able to deliver targeted advertisements, enhancing customer engagement within its client's stores.

An added benefit to the client was power efficiency of the [UP Squared Pro 710H Edge](#). Even with continuous use over extended periods of time, the UP Squared Pro 710H Edge's average power consumption of 55W ensured the cost of running it was not detrimental to the end user. Its compact and lightweight design, along with a wide 12V-36V power input range, also facilitated easy deployment in various store environments.

This allowed for compatibility with different voltage supplies and discreet mounting within diverse store interiors. This versatility made it an ideal choice for AAЕON's customer, whose target end clients were retail spaces like department stores, retail parks, and supermarkets.

# Application Story

These spaces were seeking greater customer insights and an automated advertising strategy without the need for extensive infrastructure changes or renovations.

## Impact

AI is transforming the way retailers approach digital advertising, and AAEON is at the forefront of this change. With its powerful processing capabilities, integrated AI optimization capability, and extensive peripheral device support, the [UP Squared Pro 710H Edge](#) provided the ideal solution for AAEON's client. By working with AAEON, the client continues to expand and deploy their complete solution to more diverse retail spaces and transform DOOH advertising, demonstrating the significant benefits that AI and real-time data analysis can have for retail as a whole.

## 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. AAEON also provides industry-leading experience and knowledge to provide OEM/ODM services worldwide. AAEON works closely with premier chip designers to deliver stable, reliable platforms. For an introduction to AAEON's expansive line of products and services, visit [www.aaeon.com](http://www.aaeon.com).

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