The Future of Retail, Hospitality and QSR Industries

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AXIOMTEK®

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The pandemic has created stumbling blocks for brick and mortar retailers to overcome, with lock downs and, after reopening, great numbers of consumers still shying away from in-store shopping for fears of Covid-19 virus exposure. At the earlier stage of the pandemic, most retailers, restaurants, grocery stores and hospitality entities shifted their focus from enhancing the in-store shopping experience and increasing operational efficiency to implementing safety measures and forming on-line businesses to survive. Front of House displays are tape on the floor, signs for sanitized shopping carts and Plexiglass walls for social distancing while Back of House management involves inventory and fulfillment of curbside pickup and on-line shopping.
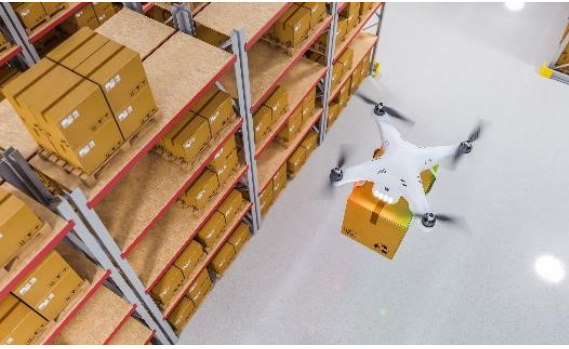
The good news is - there is an emergence of new ideas as well as creative business practices using innovative technologies to transition businesses for resiliency and success. The Front of House now includes creating efficient, safe and unique shopping experiences - making visiting a store and getting exactly what you need a breeze with robot assistance, self-service/minimum-touch kiosks, online ordering, curbside automated delivery systems and smart checkout. The Back of House is now utilizing warehouse robots for picking, fulfillment and inventory management. The scope has expanded to include automated logistics such as drone delivery, robotic packing and digitized real-time shipment tracking systems.

Challenging Times Create Resilience

With emerging trends resulting from the pandemic, fewer in-store patrons usually means declining influence from brand loyalty. To combat this change, a great digital experience and well-executed strategies for on-line interactions can help brands communicate and influence customer choices for future purchases. Creative in-store experiences can also bring some customers back, if the store becomes a place of refuge from the outside world and an exciting venue for exploration. This is where computer technologies such as digital signage, smart display modules, video walls and interactive kiosks can help. Such technologies can offer unique and personalized experiences that set the establishment apart from its competition – hence, allowing for resilience that translates into continued success.
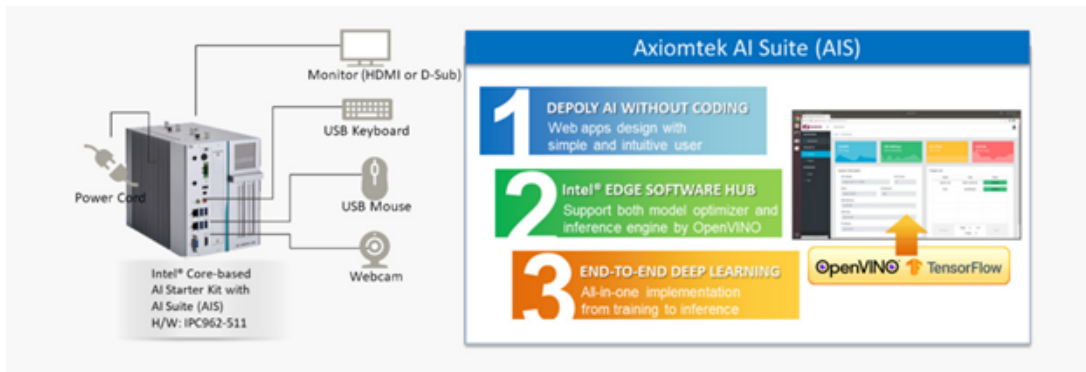
Back of House Technologies

Fewer brick and mortar store visits and dine-in customers have changed the way retail establishments and restaurants operate. In the past, new technology might have been implemented mainly for operational efficiency - it is now also used to gain an edge. These advanced technologies have become a crucial and necessary tool to help a business adapt, stay in operation and succeed in the marketplace.

Back of House factors such as product availability, fulfillment costs, delivery speed and inventory turnover remain vital considerations and are key to survival. Much higher efficiency is required and different innovative approaches on how to meet the changing trends translate into more products sold, faster delivery and less waste.

The computer technologies that help make this happen require flexibility in adapting to the desired application's requirements; rich features that can be customized; and high compatibility with related software and required peripherals such as camera for AI/vision applications, RFID scanners, etc. The solutions can offer more than just the hardware. Manufacturers such as Axiomtek have offered great flexibility and ease of project deployment with solution packages that include industrial-grade computers, customized BIOs, choices of drivers for various applications, validated partner software and middleware, proprietary remote monitoring software and more. These market-focused solutions are designed to help system integrators/ project engineers in charge of creating and deploying Back of House applications to easily achieve their project goals. A few examples of these solutions are as follows:

Axiomtek/Intel AI Kit for Warehouse/Logistics Robotics, Machine Learning and AI Inventory Control Systems

Each Axiomtek/Intel AI Starter Kit comes equipped with a choice of one of our high quality, scalable industrial PCs (IPCs), a camera, and a pre-installed software stack that includes the Intel Training and Learning Suite as well as Intel® Edge Insight for Industrial (EII) Software. The kit is designed to be programmable with web apps. It does not require users to have extensive AI coding experience. It is project development and implementation ready, allowing for fast and successful deployment.

eBOX565-52R-FL – Wide DC input, Compact Scalable Computer for Fulfillment Robotics, Forklift Control and Collaborative Robot Uses

This compact embedded system is designed for space-constrained applications in Back of House, warehouse or factory uses. It has been integrated to control autonomous warehouse robot and other machine automation applications, including collaborative robots, automated grocery picking and smart warehouse goods transport. With its wide power input range and good vibration and shock resistance, it can be used for onboard vehicle applications including forklift control. Some key features are listed below.

- 8th gen Intel® Core™ and Celeron® processor onboard (Whisky Lake-U)
- One M.2 Key E 2230 for Wi-Fi module
- 260-pin DDR4-2400 SO-DIMM, max. up to 32GB
- 2 GbE LAN and 2 USB 3.1 Gen2
- Supports DisplayPort++ and HDMI for dual independent displays
- Multiple mounting designs: Wall mount, DIN-rail and VESA mount
- 9 to 36 VDC wide range input

Front of House and Inside the Shop Differentiators

Our changing environments require the Front of House and inside the shop/restaurant to be much more engaging and adaptive. There are higher demands for curbside pickups, minimum contact services and efficient in-store experiences. These factors have increasingly become the norm. Whether these businesses are aiming to deliver more convenience, an increased safety level or out-of-this-world experiences, the use of technology as a strategic differentiator has never been more important.

Some businesses may use the available technologies as a way to deliver memorable experiences that set them apart from their competitors. For example, there are restaurants in many parts of the world that use robots to take orders and serve food, creating a buzz and high incoming traffic for the unique experience.

Transformative Technologies and its Impacts

As previously mentioned, changing trends require the use of technology for businesses to survive and for differentiation. Below are examples of computer solutions and technologies that have created significant impacts in the retail, restaurant and hospitality industries.

Quick Service Restaurants and Food-Related Establishments

For quick service restaurants and other food-related establishments, a digital menu board, minimum-touch self-service kiosks and on-line ordering applications have become a necessary part of their standard operations. Kiosk/food equipment system integrators who create and deploy these systems will consider hardware product longevity, reliability, rich interfaces, easily configurable features and customizable products that do not require long lead times. Integrating advanced computer technology to offer better solutions that are easy to maintain and user friendly are also key considerations.

Axiomtek AI Self-Service Kiosks for Food Services

Suitable for the food and beverage, fashion retail and healthcare industries, the Axiomtek AI kiosk series products offer integrated AI capabilities, powerful computing, rich interfaces for easy integration with peripherals, and modular design for quick deployment and easy customization. They are especially suited for smart applications that are driven by the power of artificial intelligence.

Product Highlights: The SSK527

- 32" FHD with 250 nits of brightness
- PCAP touch screen
- 5M AI camera
- Dazzling LED light bar
- 2"/3" thermal printer
- POS holder
- 1D/2D barcode capability
- 0°C - 40°C

Digital Menu Board Controllers

Digital menu board technology has advanced to the next level, with hardware that offers high flexibility and configurability. A digital menu board can help restaurants boost sales, improve the customer experience and drive effective communication.

The Axiomtek DSP series products can support multiple independent displays. They offer options for various configurations and requirements. They can also be used to control QSR self-service kiosks with interfaces for a variety of needs – i.e., smart card, bar code and/or RFID reader. Some models can provide real time, personalized promotional messages to customers based on smart demographics and deep learning technologies using software and toolkits such as the Intel® OpenVINO. Axiomek DSP products also support computer vision technology and offer camera interfaces and cloud connectivity.

Product Highlights: The DSP500-527

- 8th Gen Intel® Core™ i7/i5/i3 or Celeron® processor
- Ultra-slim size with fanless design
- Rich I/O interfaces
- Dual displays (HDMI/DisplayPort++)

Retail Chains, Grocery Stores and Warehouse Shops

For retail chains, grocery stores and warehouse shops, digital signage can serve a variety of purposes. From operational uses such as cashier queuing systems or robotic shelf restocking to marketing uses for creating personalized shopping experiences, new possibilities and more opportunities from the implementation of a more advanced digital signage technology can be endless. Interactive product demonstrations/in-store product location kiosks, special promotional signage and impressive branding video walls can generate unique and new experiences including augmented reality, virtual closets, recipe recommendations from your grocery list and more. AI/AR and machine learning solutions are allowing stores to tailor their content and offer personalized interactions that can make their customers feel as though they have personal shoppers.

Axiomtek OPS Players for Store Digital Communications

Axiomtek offers a wide variety of OPS players that will fit any budget and project requirements. These systems offer scalability, flexibility, superb graphics performance, 4K content playback, and multi-display capabilities. Grocery stores and discount retail chains have used Axiomtek OPS products for applications such as cashier line queuing systems, video walls and multi-purpose in-store smart promotional digital signage.

Product Highlights: The OPS520

- Intel® Open Pluggable Specification (OPS compliance)
- LGA1200 Socket 11th/10th Gen Intel® Core™ i7/i5/i3 & Celeron® Processor (Rocket Lake)
- 2 DDR4-2933 SO-DIMM for up to 64GB of memory
- 1 M.2 Key M 2280 for NVMe storage
- 1 M.2 Key E 2230 for Wi-Fi/BT solution
- USB 3.2 Gen2 supported
- Supports Intel vPro® Plateform (Intel® Q570 chipset only)
- Supports Trusted Platform Module (TPM) 2.0
- Easy installation and maintenance

▲ 2-side display

Intelligent Terminal Series: Interactive Touch Computers Powered by AI Smart Display Technology for In-Store Communication, Price Check and Product Search

Axiomtek ITC series products are designed with pluggable and modular architecture and are highly flexible, easily customized, future-proof and painlessly upgradable. They offer great capabilities, intelligence and interoperability. Retail shops, restaurants and grocery stores can take advantage of advanced technologies supported by the ITCs and create scenarios that can be auto-triggered for personalized shopping experiences. They also support facial recognition applications, deep learning through artificial intelligence technology and more. The ITC solutions can enhance learning through their analytics capabilities and deepen customer brand loyalty.

Product Highlights: ITC150WM/ITC210WM

- 1 x HDMI 1.4/2.0
- 1 x USB 3.0
- 2 x USB 2.0
- 1 x Micro SD socket
- 1 x 12VDC-in
- 1 x SDM-S slot & SDM-L slot

Hospitality Industry

The hospitality industry has adapted to the 'new normal' brought about by the pandemic. Advanced digital signage systems, interactive minimum touch/touchless kiosks and video walls used for operations and marketing communications are a 'must' at these establishments. Hotels and entertainment venues are using video walls to create exceptional experiences and deeper brand impressions while anti-microbial interactive kiosks are offering more convenience and safety to their

customers and employees. Robotics check-in assistance, for example, is used to provide services and deliver memorable experiences to the customers.

Axiomtek's Multi-Functional Kiosks for Self Check-in

Our Multi Series products offer a compact footprint, seamless integrated hardware peripherals, modular construction and an attractive design. The products can be customized with choices of multi-functional stands and peripheral interfaces. They are optimized for self check-in functions with an IC card printer, a 13.56 NFC reader, 1D/2D barcode capability and thermal 2"/3" printer support. These Multi Series products offer a perfect balance of function and aesthetics needed for Front of House/lobby display.

Product Highlights: SSK315

- Intel® Whiskey Lake-U
- 15.6" FHD with 400 nits of brightness
- PCAP touch screen
- Elegant streamlined design
- LED light bar
- Diverse multi-functional stand options
- Easy maintenance

AI Self-Service and Informational Kiosks for Tailored Experiences

Axiomtek AI Kiosks are an important sales-boosting tool that can give an establishment a competitive advantage by offering customers personalized unique experiences and convenience. These kiosks can also offer management valuable insights from customer information gathered by their interactions and additional labor-saving benefits. AI kiosks can help businesses grow and improve their bottom line.

Product Highlights: The SSK521

- 32" FHD with 250 nits of brightness
- PCAP touch screen
- Supports A4 laser printer
- Supports loudspeaker
- 5M AI camera
- Dazzling LED light bar
- Rich I/O interfaces

Using Power of Technology to Transform Your Business

With the current economic climate and the complex environment in which we are operating, retailers, food and beverage businesses and hospitality establishments need tested solutions that can be deployed right away. Industrial computer manufacturers such as Axiomtek can offer personalized engineering support and comprehensive value-added services that help retail, kiosk/POS and food service system integrators and equipment manufacturers achieve their project goals swiftly and painlessly.

To win the economic race, companies are harnessing the power of technology to meet the demands of the 'new normal.' And the ones that are winning are making data-driven decisions and moving forward with a commitment to major changes.

To learn more, contact Axiomtek at solutions@axiomtek.com.