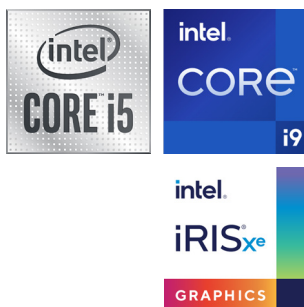


# Digit7 Smart Retail Solutions Streamline Customer Checkout

To allow retailers to meet demand for grab-and-go shopping, Digit7 offers DigitMart and DigitKart smart checkout solutions with computer vision, based on Intel<sup>®</sup> Core<sup>™</sup> Processors



The use of self-checkout systems is helping retailers meet consumer demand for more convenient shopping experiences. Made possible thanks to technologies such as artificial intelligence (AI), edge servers, and internet of things (IoT) sensors, these self-checkout systems allow consumers to grab and go, providing a real-world analog to the convenient online “one-click ordering” experience that consumers have grown used to.

IoT-enabled devices are increasingly being integrated into these systems to improve real-time data capture, allowing for better tracking of inventory, customer purchasing trends, and system performance.

For example, smart sensors embedded in store shelves and checkout terminals enable retailers to monitor inventory levels and usage patterns, while AI-powered image recognition systems can identify items without the need for barcodes. These technologies reduce operational friction, enhance accuracy, and allow stores to offer a truly seamless shopping experience.

Edge computing has also emerged as a critical component in the evolution of self-checkout technologies. By processing data closer to where it is generated—at the edge of the network—retailers can reduce latency, cut back on transporting data to the cloud, and improve system responsiveness.

Digit7 is a pioneer in self-checkout systems offered as a kiosk or as a storewide checkout-free environment. The company is an Intel<sup>®</sup> Industry Solution Builders’ Retail Builders Community member and uses Intel<sup>®</sup> technologies in its DigitMart and DigitKart systems.



## DigitMart – Autonomous Check-Out Store using Intel<sup>®</sup> Core<sup>™</sup> i9 Processor

DigitMart is Digit7’s storewide smart checkout solution designed to transform the retail shopping experience. A shopper can enter a DigitMart-equipped store by tapping their payment card on a gate, picking out their items, and tapping on the gate to depart. The system tracks the items the shopper selects, noting what they put back, totaling it and billing it as the customer walks out of the store by automatically charging their card.

DigitMart is based on an innovative combination of AI and technologies that include computer vision, machine learning, IoT weight sensors, and sensor fusion, all working seamlessly together.

The DigitMart solution allows customers to enter the store as individuals or groups such as a family. Once the customer enters the store, a transaction is created and tracked with the help of a tracking camera, and a virtual basket is maintained for this

transaction. When the customer picks up or puts back any items, the solution correlates the person/basket with the selected items.

Computer vision is used to track item selection and movements in real time. Through machine learning algorithms, the system continuously improves its accuracy in recognizing items and customer product selection actions.

The system's autonomous checkout solution leverages a sophisticated array of cameras that track and identify products as they are removed from the shelves. This means that traditional barcode scanning or manual checkout processes are no longer necessary.

Additionally, weight sensors and IoT devices – all of which are discreetly placed - ensure that every item selected by a customer is accurately tracked, while sensor fusion brings together data from multiple sources to enhance decision-making precision.

DigitMart also features real-time inventory management capability. As items are purchased or returned, the system instantly updates stock levels, providing vendors and store managers with accurate and up-to-the-minute information on inventory status. For perishable goods, the expiration date is entered into the system and is available to the store associate when they conduct an inventory cycle count.

This capability is especially valuable for stores with high turnover rates or those that rely on just-in-time stocking strategies. Additionally, real-time vendor management allows for smooth coordination between suppliers and store operators, improving the efficiency of supply chain operations.

DigitMart is tailored to a wide array of retail environments, including supermarkets, retail chains, convenience stores, airports, stadiums, sports arenas, and the hospitality food and beverage marketplace. Retailers that cater to customers seeking a seamless shopping experience will find DigitMart especially valuable, as it provides not only convenience, but also enhanced customer satisfaction.

In the customer trials to date, the DigitMart service achieves payback of costs in the first three months of service<sup>1</sup>.

### DigitMart Customer Profile: JuiceBabe

JuiceBabe is a Dallas, Texas, next-generation grab-and-go juice bar that uses DigitMart to streamline its retail operations and add to the futuristic aesthetic of their first retail store.

JuiceBabe struggled to maintain customer loyalty and high levels of customer satisfaction due to multiple operational challenges:

- Long Checkout Times: With a limited workforce, long checkout times, and queues during peak hours the company risked customer defection.

**DigitMart uses Intel® RealSense™ Cameras**

Digit7 chose the Intel® RealSense™ Depth Camera D455 to fulfill the image capture requirements of the DigitMart solution. Intel RealSense Depth Camera D455 is a stereo vision depth camera system. The subsystem assembly contains a stereo depth module and vision processor with USB 2.0/USB 3.1 Gen 1 or MIPI connection to host processor.

The small size and ease of integration of the camera subsystem provides system integrators flexibility to design into a wide range of products. The Intel RealSense™ Depth Camera D455 series is supported with the cross-platform and open source Intel® RealSense SDK 2.0.



Figure 1. View of JuiceBabe DigitMart. Customers scan their payment cards on the entrance gate to the left and the system notes what items they select as they shop.

- Inaccurate Inventory: Difficulty in tracking on-shelf inventory, leading to items unavailable to customers and overstocking at the inventory storage.
- Shrinkage and Losses: Manual order processing and stock inaccuracies led to significant shrinkage and financial losses.
- Lack of Customer Satisfaction: The slow and long wait at the checkouts left customers less satisfied with their shopping experience.

JuiceBabe implemented DigitMart in its Dallas location to streamline operations and enhance customer satisfaction. Customers on the move appreciate saving time by not waiting in a cashier line. The retailer is able to attract customers who don't have time or are discouraged by long lines and may not have come into the store. But now, they will be confident that they can complete their shopping in minutes, and as a result, the retailer now has a new set of customers that bring increased revenue.

The DigitMart solution is complemented by seamless integration capabilities with existing systems, robust data analytics for business insights, and a strong focus on enhancing customer experiences.

“DigitMart has revolutionized our store operations. With its autonomous checkout, we’ve drastically reduced waiting times, enhancing customer satisfaction,” said Afifa Nayeb, JuiceBabe Founder & CEO. “Real-time inventory tracking ensures we never run out of stock, and the advanced security features have cut shrinkage by 100%. Our operational efficiency has tripled, allowing our staff to focus more on customer engagement. DigitMart is truly a game-changer for our business.”

### DigitKart: Frictionless Self-Checkout Solution using Intel® Core™ i5 Processor

DigitKart is a kiosk self-checkout solution that is designed for purchases of up to 15 items that the customer presents at the kiosk. DigitKart streamlines the checkout process for food and beverage operations of hotels, stadiums, airports and other locations.

Customers place their selected items onto a tray, where three strategically positioned cameras capture images of the products. These images are processed by an AI model running on a server powered by 10th Generation Intel® Core™ i5 Processors, which identifies the items with an accuracy of over 99%<sup>2</sup>.

DigitKart is designed to perform rapid item identification. The use of computer vision, in conjunction with machine learning, ensures that items are recognized quickly and accurately. DigitKart achieves this accuracy and performance using only three cameras – half the number of cameras needed by competing solutions, resulting in less compute power needed for the video streams. These factors reduce the hardware costs of the solution<sup>1</sup>.

<sup>2</sup> Intel does not control or audit third-party data. You should consult other sources to evaluate accuracy.

DigitKart provides real-time inventory updates: as items are purchased, stock levels are automatically adjusted, ensuring that store operators and vendors have accurate, up-to-date information on product availability.

DigitKart’s multi-payment-option feature allows consumers to use various payment methods – including charging the purchase to a hotel room - according to their preference, enhancing the overall customer experience.

By offering a subscription-based payment model for DigitKart, Digit7 reduces the amount of capital expense needed for the system to the low thousands, with ongoing monthly charges of several hundred dollars. This operating model allows retailers to benefit from continuous updates and improvements to the system.

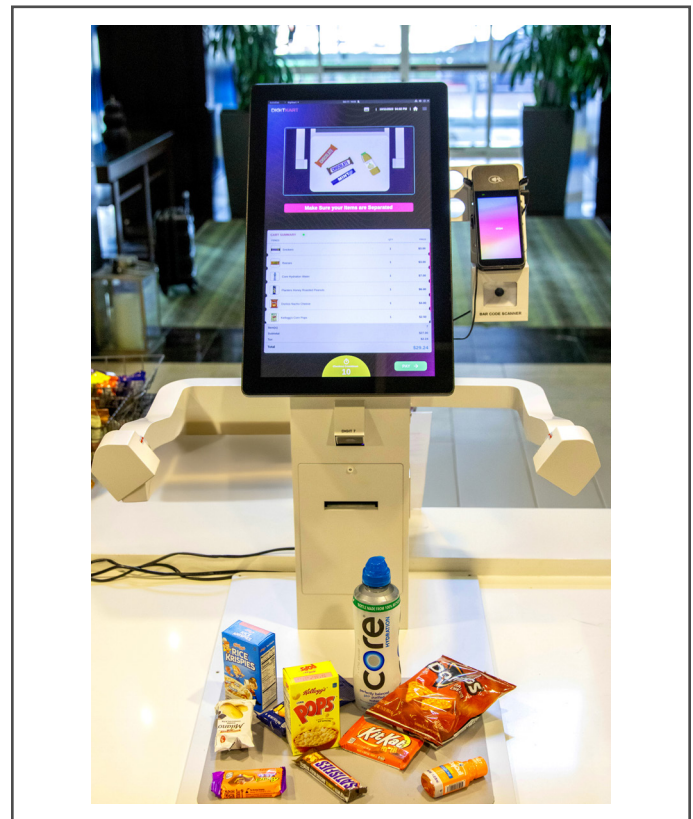


Figure 2. Figure shows DigitKart kiosk. Items for purchase are set on the tray and three cameras record the selections without manual barcode scanning.

DigitKart also provides near real-time data analytics, giving businesses actionable insights into customer behavior, sales trends, and inventory management, driving more informed decision-making.

### Intel® Core™ Processors with integrated Intel® Iris® Xe Graphics Drive AI Inferencing

Digit7 needed compute hardware that offered the right blend of low cost and AI performance for the edge server that powers DigitMart. The solution needed only four CPU cores, but it had to have the performance needed for the computer vision inferencing. The company standardized on the four-core Intel® Core™ i9 Processors (14th gen) with integrated Intel® Iris® Xe Graphics.

For DigitKart, the edge server was based on the Intel® Core™ i5-10400 Processor, which also features four cores with a top clock speed of 4.4 GHz. It also supports an integrated GPU based on Intel Iris X® Graphics.

Both devices support other AI performance boosting technologies including Intel® Deep Learning Boost (Intel® DL Boost).

## Conclusion

Autonomous check out systems have great promise as a solution for customer service challenges facing retailers. But only if the edge servers can deliver the performance needed for AI inferencing and be cost-effective. The Digit7 DigitMart and DigitKart self-checkout systems are based on Intel® Core™ processors with integrated GPUs for AI performance that is cost-effective. These systems have been proven in retail and hospitality applications where they have delivered on the promise of better customer experiences.

## Learn More

[DigitMart](#)

[DigitKart](#)

[JuiceBabe Dallas](#)

[Atrium](#)

[Intel® Core™ i5-10400 Processors](#)

[Intel® Core™ i9 Processors 14900K](#)

[Intel® RealSense™ Depth Camera D455](#)

## Hotels Adopt DigitKart for Food & Beverage

Many hotel chains have similar customer service challenges with their food and beverage (F&B) operations. Two large hotels, one a luxury hotel in Dallas and the other a business hotel in Houston, have recently chosen DigitKart to solve their F&B challenges. The average ROI stands at 82% since the amount a retailer invests is generally returned within three months of lower costs and additional sales.

Guests at both hotels faced long waiting times at the hotel F&B marketplace checkout during peak hours and holiday seasons. Both hotels needed to enhance operational efficiency and improve the guest experience.

To address these issues, these hotels implemented DigitKart and experienced significant reductions in waiting times, sped up transactions, and updated inventory in real-time in a way that elevated guest experiences across their properties. DigitKart also integrates seamlessly with hotel property management systems.

“DigitKart is more about convenience and efficiency. Our guests loved using the self-checkout kiosk! It made their shopping experience so much quicker. Guests could grab their snacks and check out without waiting in line,” said Ben Logan, General Manager, Atrium Hospitality. “Our guests appreciate efficiency; after a long day, they just want to grab some snacks and head back to their rooms. With DigitKart they can do it in under 10 seconds.”



<sup>1</sup>Intel does not control or audit third-party data. You should consult other sources to evaluate accuracy.

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