



IOT AND PAYMENTS: TOUCHLESS AND AUTONOMOUS BECOMES THE NEW NORMAL

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The IoT payments market is expected to be worth \$27.6 billion by 2023, impacting every industry and disrupting the current payment model landscape. Many attractive use cases exist: from electric vehicle charging, through to highly convenient walk-in/walk-out shopping experiences, through to sustainable commerce solutions enabled via the sharing economy.

Imagine your fridge ordering the food you need, or your coffee machine ordering coffee beans when you are running out. Your smart assistant can buy movie tickets by itself, schedule a doctor's appointment for you, or order a replacement for a blown light bulb. IoT solutions coupled with payments make all of these and other autonomous orders and payments possible.

NO HUMAN INTERACTION REQUIRED

Simply put, IoT payments are data-driven actions performed by a device with a certain degree of autonomy. In other words, a device orders certain goods or services even with no human interaction.

Powering such transactions is the concept of tokenization, using randomly generated number strings, or tokens, which are based on a real credit card or bank account number.

IoT payments offer several advantages. Ordering a product when it is low on stock is convenient for end-users and enables a more precise management of demand for products and services. In addition to minimizing physical contact, IoT payments reduce time spent on payment-related activities - according to Visa, consumers spend nearly 32 hours per year on cash-related payment activities; the introduction of digital payment is projected to shorten that time by up to 24 hours per year. Finally, the combination of machine learning and IoT payments can analyze consumer habits and preferences and suggest more personalized products.

Naturally, such payment innovations also raise a few concerns, and security is the most common one. However, a token can be traced back to the actual account number or card details only in the secure token vault — a centralized server. Until then, no information about the primary account number (PAN) owner is disclosed. Thus, IoT brings end-to-end payment encryption and minimizes PAN exposure.

IOT SOLUTIONS IN THE RETAIL INDUSTRY

Retail is the natural market for IoT payments. According to a study by PYMNTS and USA Technologies, nearly 50% of shoppers prefer unattended shopping experiences due to the amount of time they save. Thus, it comes as no surprise that retail is leading the IoT payments growth.

Amazon has become one of the leading IoT players since the launch of their Amazon Go store in 2018. Unlike other brick-and-mortar stores, it is a connected store with no checkout. Shoppers grab the items they need and walk out of the store without checking out; the payment will be made automatically. The store functions together

with their own application, creating a virtual cart with your products. The technology, powered by computer vision, sensor fusion, and deep learning, can easily recognize the products you have picked or returned. So, after you leave the store, your Amazon account is automatically charged and you receive the receipt.

Other major retail players are testing similar concepts of cashier-less stores. These unattended stores usually involve an app to check into the store, pay for products and obtain receipts, in a simplified, semi-automatic manner.

There is also a push to upgrade traditional store furniture with new technology concepts. For instance, Caper has developed a shopping cart with a built-in barcode scanner, credit card swiper, image recognition cameras and weight sensors. The technology allows store visitors to pay on the cart and leave the store once they are done. Such AI-powered shopping carts will widen options for autonomous retail.

Furthermore, retail is moving into the home itself. Samsung's Family Hub ecosystem of smart home devices has taken the shopping experience to a new level and integrated payments into the fridge. It allows users to purchase groceries or order takeout while standing in their kitchen.

PAY FROM THE CAR – OR LET THE CAR PAY

Connected vehicles are becoming an evolving trend in the IoT payments sector, with nearly 28.5 million connected vehicles sold worldwide in 2019.

In-car payments powered by IoT technology allow consumers to make transactions without cash or credit cards. Visa, for instance, has described how IoT transactions can streamline the process of refueling your car. The connected car can locate the petrol station on its own, pay for gas, and turn the pump on before you even get out of the vehicle. All you will have to do is pump. Collaboration with payment systems enables in-car payments. A suite of apps allows you to make restaurant reservations, purchase items, and pay for other things like parking, movie tickets, and fuel via the car's navigation system.

IOT MEETS FINTECH

Finally, IoT has the ability to transform financial institutions digitally. The cooperation of banks with IoT players and payment systems presents considerable financial opportunities. The IoT players will gain foothold in fintech operations, and the payment systems will not have to build a new financial infrastructure and end-user relationships.

Most financial institutions are still involved in the majority of financial operations as providers of credit cards or holders of bank accounts. However, IoT payments can include non-bank players like Amazon, and this is when customers can migrate. Thus, the IoT application will help banks and credit unions to win customers back, since traditional banking institutions provide a major advantage when it comes to IoT payments, which is trust.