POS Testing Is Now Made Easy with the Adoption of Robotics
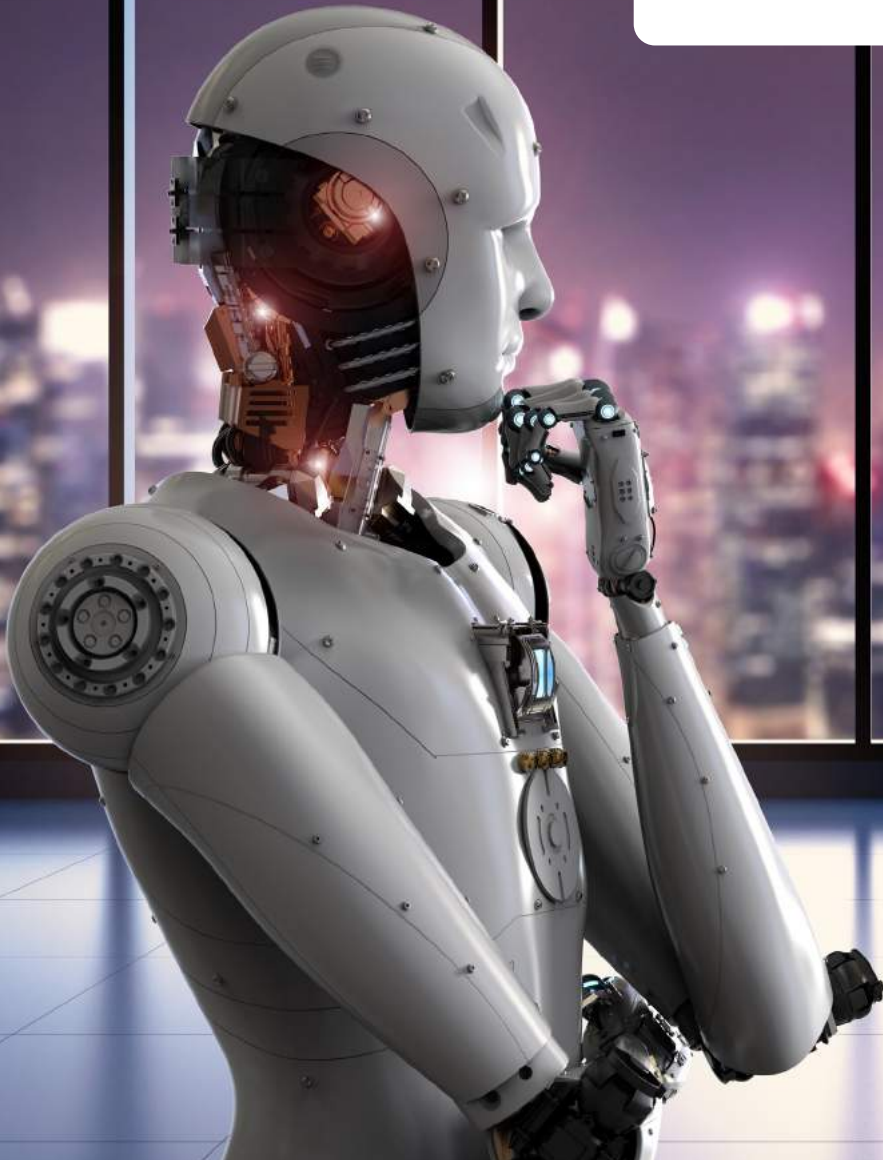
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In today's evolving business ecosystem, it is a well-known fact that robots are competing with the human workforce for jobs and this is true for every industry, especially retail. The arrival of robots in the retail industry made a great transformation in how retailers are engaging and interacting with customers, both in the store and behind the scenes. Unlike the days of confinement in highly controlled warehouses, robots are now capable of engaging themselves with various applications and have become the voice of most competitive retail business. They contribute greatly to the growth of the organization by driving innovation and evolution. Be it warehousing or customer interaction, robots are immensely accurate, efficient and productive thereby cutting down the operational costs and manual errors while scaling customer satisfaction levels.

Robotic Arm

Robotic Arms are used across from building a computer's motherboard to assisting surgeons with open-heart surgeries. In the retail industry, the arms are programmed to identify objects using Artificial Intelligence and therefore control the arm. Like mentioned before, Robotic Arms are involved in various applications that also include the following:

- Point of sale
- Inventory management
- Cleaning
- Customer engagement

While most know that these Robotic Arms are capable of performing tasks, it is time to understand the challenges in robotic applications and the steps that can be taken to solve them. One of the most challenging tasks that Robotic Arms deal with is testing a POS system since they are mostly complex and weary and the processes involved are completely monotonous. However, testing a POS system is of paramount importance since, even the slightest error in the functionality of the POS device can be disastrous and may lead to losing customers and revenue as well.

What Are the Challenges in Testing a POS System?

Multiple configurations, peripheral issues, complex interfaces and PCI Compliances are some of the challenges that can be encountered while testing a POS system. It does not stop there, as the POS devices are way too expensive and the number of updates they require are too many, every update is stacked upon the previous technology that makes it highly difficult to understand all the technical features. To add on, the integration process is complicated and the increased functionalities need to be error-free to keep up with the promised efficiency.

While most of these POS testing challenges can be addressed with automation, there exists some limitations therefore, 100% automation cannot be achieved. For instance, scanning a bar code, swiping a card, pin-pad-entry, opening and closing cash-drawer etc. involve peripheral devices, which require human intervention. These scenarios are difficult to automate which makes the POS test strategy always a combination of automation and manual testing.
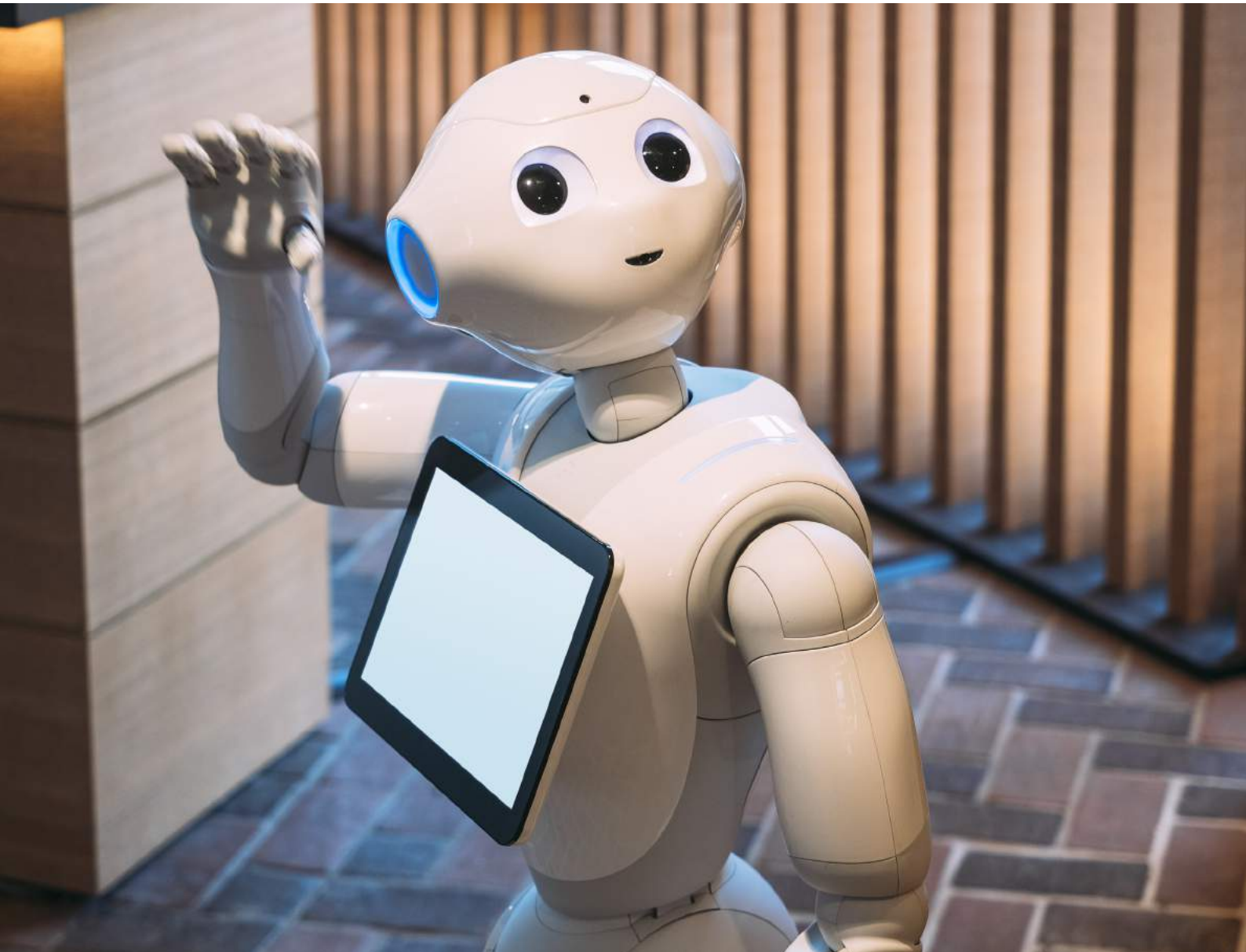
What is Our Solution?

Initially, Aspire Systems introduced Digital Commerce quality automation framework (DCqaf), which automated about 60% of the entire test suite. However, for card transactions each test case scenario had to be checked manually. 30% of the test cases are related to Europay Mastercard and Visa (EMV) and a manual testing process of each of these test cases was a burden on resources and cash flow.

To solve this issue, there was a need for a mighty automation solution in the pipeline and that was exactly what we were ready to offer. Our offer comes in the form of a Robotic Arm, which is completely designed in-house. The arm and the POS machine port were connected and built with high torque stepper, which can be integrated with a Graphical User Interface (GUI). This GUI bridges the gaps between the automation code and the arm. This setup also comprises of a card rack that can hold up to 5 cards simultaneously and this can be increased according to the requirement. The arm can calibrate different dimensions of the pin pad device. Three sensors were connected to the machine to detect all the actions performed by the arm. Once the action was detected, a pop-up was triggered to confirm the completion of each action.

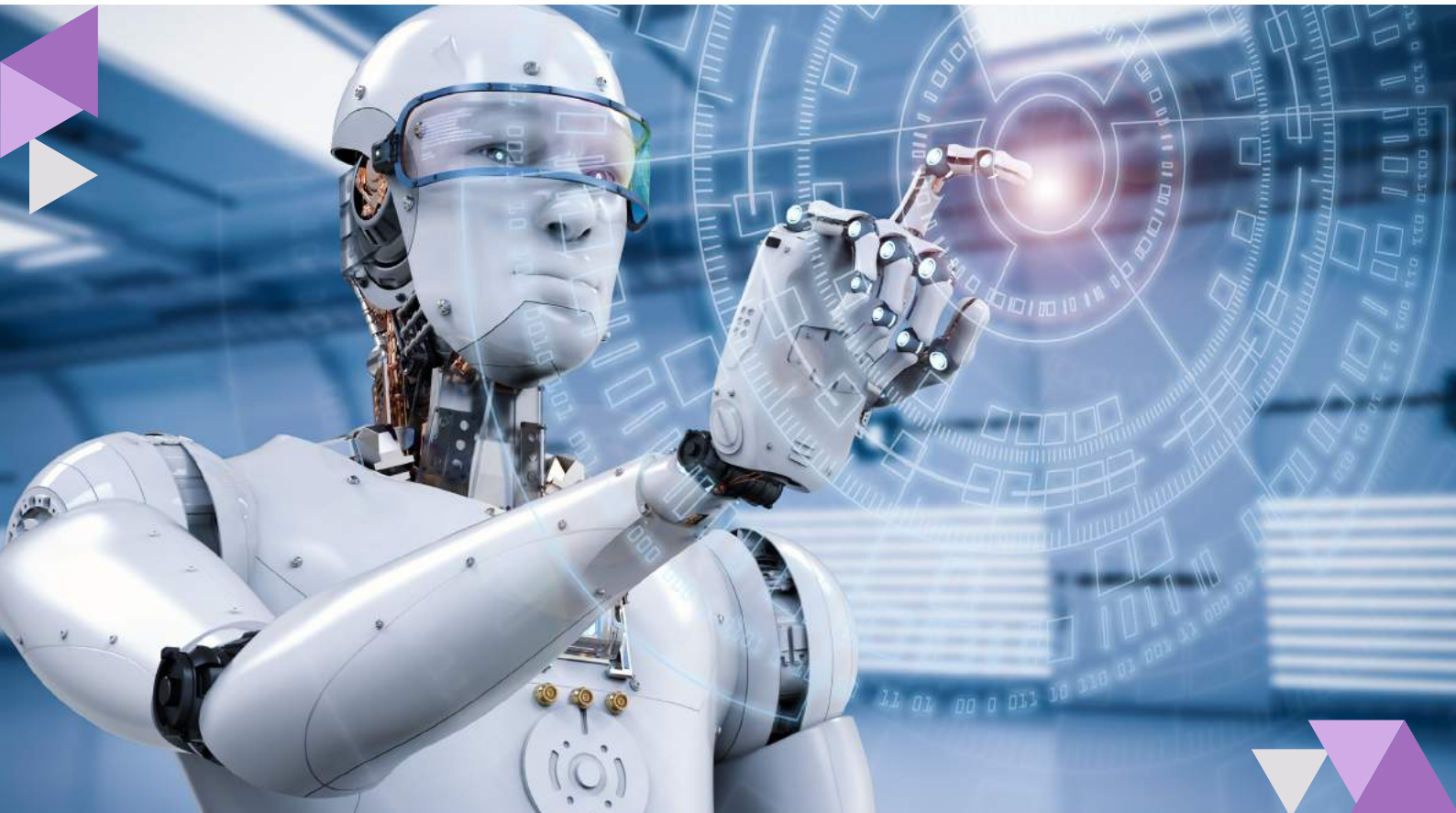# POS Testing Is Now Made Easy with the Adoption of Robotics

How It Works?

Using automation, the arm is capable of inserting, swiping and tapping in the pin-pad.
The following is the step-by-step action to swipe a card:

1. The script runs and triggers the POS terminal from the Desktop automation tool, which is Test Complete.

2. The POS application is launched.

3. After navigating the tender screen, a product can be added.

4. The Robotic Arm GUI is activated now.

5. After the selection of the placement of card in the GUI, the arm picks it up from the card rack.

6. The moving rail starts and the swipe action is performed.

7. The arm now enters the pin as commanded by the GUI.

8. The transaction is now approved.

9. Once the swipe process is complete, the arm sends a confirmation to the GUI.

10. Later, the card is removed and placed in one of the five cardholders.

The same procedure is followed to insert and tap cards and the arm is trained to provide signatures using its pen, if needed before approving the transaction.

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With And Without a Robotic Arm

Let's take an example of a retailer who has 1000 test cases, around 35% would cover peripheral devices and EMV related test cases that are challenging to automate. Hence, automation coverage would only be 65%.

To increase the automation coverage to 90% the Robotic Arm is used for executing EMV test cases. Now with the help of the Robotic Arm, all the 250 EMV cases can be automated, achieving 25% increase in automation test coverage.

Consequently, retailers can now have about 90% of test cases automated. Usually, a manual execution would take approximately 10 hours to complete EMV test cases, but now with the Robotic Arm solution, it can be done in just 2.5 hours. This leads to 75% effort savings and around 40% cost savings in the first year for EMV test cases alone.

POS Testing will no more be repetitive and challenging with Aspire's Robotic Arm Solution. The ROI is huge and the need for human intervention is lesser than ever before. The Robotic Arm is open for business and it is now your call to pick what is best for you!