Case Study

Achieving Operation Efficiency Through Process Automation

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Domain

Logistics

Challenges

- Manual, time-consuming truck loading process
- High risk of operational errors and inaccurate information exchange

Solution

Semi-automate the process via Universal Parcel Scanner system:

- Adopt computer vision to remove traditional manual parcel checking
- Develop a management system to monitor truck plan, shipment schedule, parcel loading, driver assignment

Benefits

- Time spent on goods loading was reduced by at least 50% per truck
- Real-time visibility into the process operation reduces the risks of miscommunication and operational inaccuracies

Content

Abstract

Operational optimization is one of the most important factors for a company to gain or maintain its foothold in today's highly competitive era. With large enterprises, it is even much more crucial as a minor stage or detail, once being streamlined, can save organizational dollars and produce significant impacts on the overall performance. To help a client – the Vietnamese branch of a multinational FMCG manufacturer take a step closer to operational excellence, FPT Software delivered a solution called Universal Parcel Scanner to semi-automate the process of truck loading, thereby reducing cost and effort spent on executing and managing the task.

The Not-So-Good Old Days

- Manual, time-consuming truck loading process
- High risk of operational errors and inaccurate information exchange

Regarded as one of the largest distribution centres of the global consumer goods company, our client not only distributed products to retail stores across the country but also exported commodities to 28 nations. Its warehouse dispatched daily 700 tons of parcels, which means nearly 50,000 boxes needed to be checked and loaded to the trucks per day.

The manual dispatching process, however, had been hindering the whole procedure's efficiency, as it took a significant amount of time, normally up to 2-4 hours for each vehicle to be fully loaded and ready to go. First, parcels were checked by hands at the dispatch gate against picking slip in around 45 minutes. Pallets will then be lifted and carried by fork-lifts to fill up the truck, which was subject to collision and worker injury, as well as incurred substantial cost for equipment rental.

Additionally, since vehicle directing was hand-operated, drivers only knew the exact dispatch gate number after entering security gate. This led to a long queue of trucks waiting or turning, combined with drivers' stress and inconvenience. Email and phone communication among hauliers and operators also contributed to the painful situation, as it often took time and was prone to errors and inaccurate information exchange.

Realizing the traditional method had become an obstacle to efficiency and productivity, the branch understood that it was time for the adoption of technological advancement.

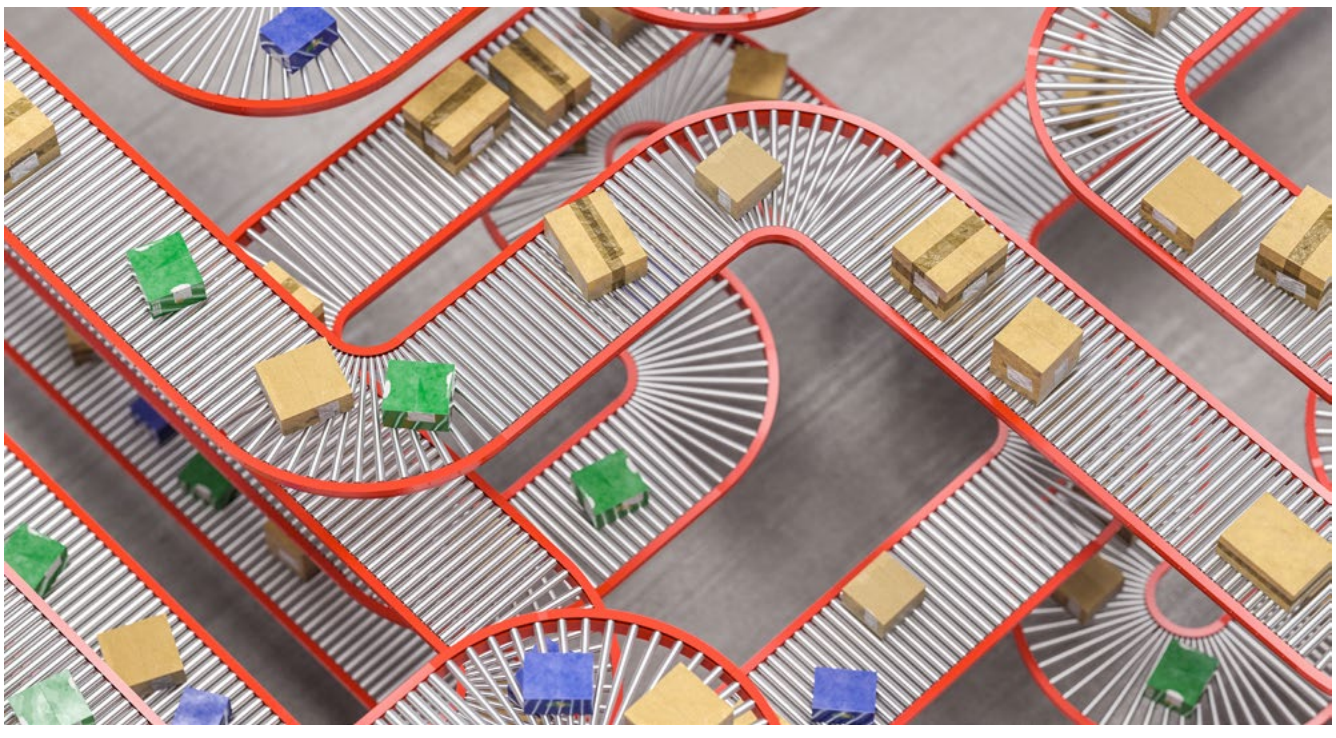
Entering the New Age of Digitalization

Semi-automate the process via Universal Parcel Scanner system:

- Adopt computer vision to remove traditional manual parcel checking
- Develop a management system to monitor truck plan, shipment schedule, parcel loading, driver assignment

Seeking an IT services provider with extensive experience in automation technology and warehouse management, the consumer good company selected FPT Software to design and execute the transformation. Our taskforce soon came up with a system that helps to manage trucks and goods loading activities. The project consisted of two main components: automation and system development.

- **Automation:** Traditional manual parcel checking was removed through the adoption of computer vision. Two cameras were installed to capture parcel's SKU or Stock Keeping Unit number – a unique string of letters and numbers representing each group of product in the inventory. Our team carefully chose the position of cameras so that they would not be affected by sunlight and utilized LED lights to ensure stable image quality. The computing device then pre-processed images and sent them to the server via an internal network, which was provided by wireless routers placed around the warehouse. Finally, all fork-lifts were replaced by adjustable conveyor belt to automate the truck loading process.



Entering the New Age of Digitalization

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- **System development:** In the attempt to achieve better management and communication, a web-based application was also designed. The system ran on AWS and consisted of 9 modules, covering 9 functionalities. Once truck plan and shipment information were uploaded to the system by operators, drivers would receive notifications about the schedule and gate number, as well as updates in case of changes or emergencies. These information were also displayed on big screens so operators, drivers and security guards could be easily aware of the situation. In the next step, parcels were placed on conveyor belts for automatic counting and checking, the result then would be shown in tablets for worker's confirmation. Upon the approval, the system would send notices and information to accountants to prepare invoices.

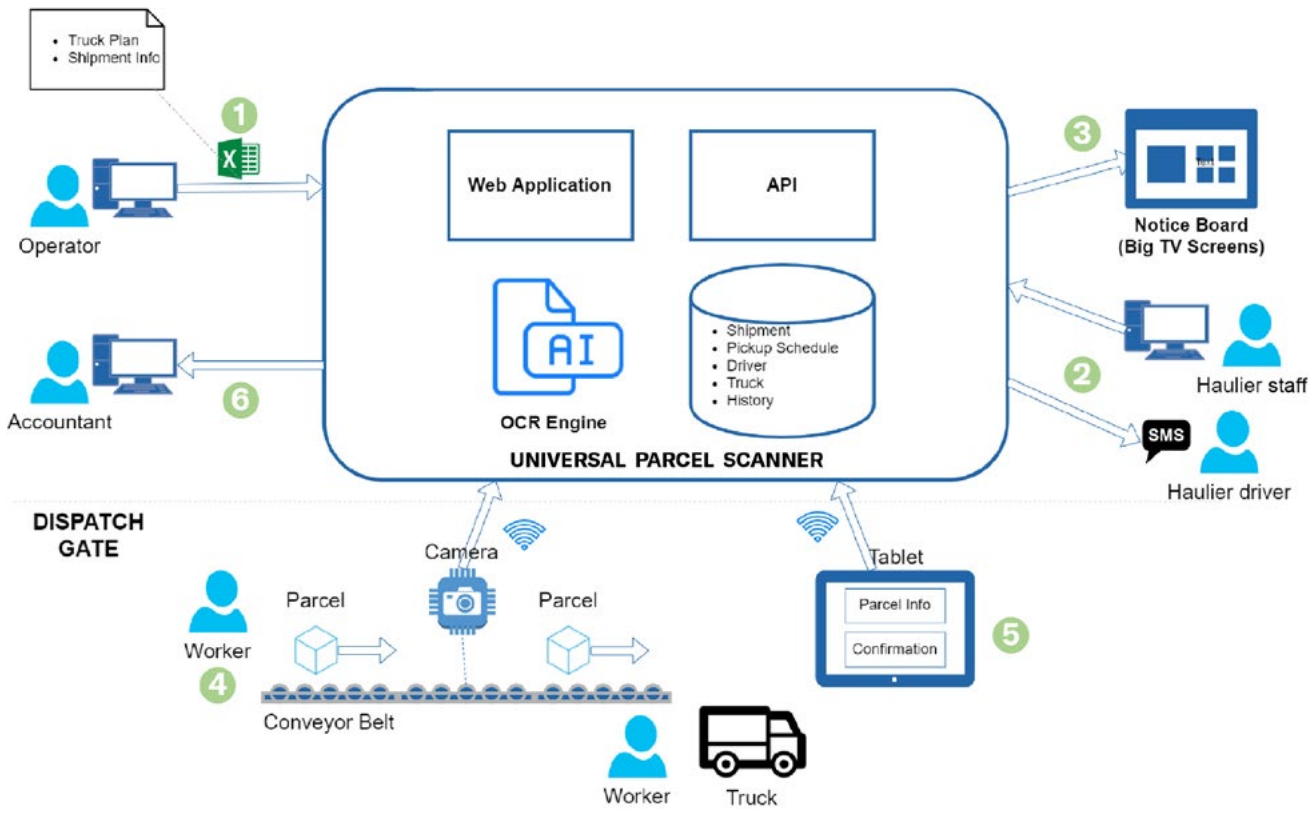

Figure: Universal Parcel Scanner modules

Quick Wins and A Promising Future

- Time spent on goods loading was reduced by at least 50% per truck
- Real-time visibility into the process operation reduces the risks of miscommunication and operational inaccuracies

The project immediately proved it was a smart move of the branch. As almost sub-steps were automatically conducted, time spent on goods loading was reduced by at least 50% per truck. Cutting down fork-lifting stage also allowed to save a huge amount of rental cost and drivers' salary.

In addition, the adoption of a new system ensured real-time visibility and prompt notices of any adjustments. Vehicle directing became effortless without any risks of miscommunications, worker injuries or errors. Since the Cloud offers endless opportunities for data storage, information can be tracked and traced back easily or analysed thanks to reporting function.

Never content with the status quo, FPT Software and the consumer good company are working to improve and extend the functionalities of the system. Two parties intend to upgrade the application to become an advanced warehouse management system that integrates with SAP to further monitor the operation. Cutting-edge technologies are also expected to be deployed such as face recognition, smart card, and data analytics for better security control and business intelligence.

The ongoing work between the branch and FPT Software promises to bring immense value for the FMCG giant's operation and thus maintaining its leading position, as tech-driven improvements, undoubtedly, can be a significant source of differentiation.

FPT Software is part of FPT Corporation, a technology and IT services provider headquartered in Vietnam with nearly US$1.2 billion in revenue and 28,000 employees. Being a pioneer in digital transformation, the company delivers world-class services in Smart factory, Digital platforms, RPA, AI, IoT, Mobility, Cloud, Managed Services, Testing, more. FPT Software has served over 700 customers worldwide, 83 of which are Fortune 500 companies in the industries of Aerospace & Aviation, Automotive, Banking and Finance, Communications, Media and Services, Logistics & Transportation, Utilities, Consumer Packaged Goods, Healthcare, Manufacturing, Public sector, Technology and so on.

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