



Katoen Natie Pioneers Driverless Truck at ExxonMobil's Petrochemical Complex

With drivers in short supply, it only makes sense to use automation technology to create driverless trucks, and one was recently put into operation at ExxonMobil in Singapore.

The driver parked the vehicle and then walked into the tent and went up on to the stage where he handed the keys to the truck to Mr Koen Cardon, CEO of Katoen Natie Singapore. With energy, Mr Cardon hurled the keys far away. The keys would never be needed again, and nor would the driver. However, the truck will continue to work, taking itself around the storage yard on Jurong Island on a route 3 – 4km route.

Quick Development

This automation project was first conceived in 2016 and in less than a year the first prototype was completed in May 2017. Trials commenced and were successfully completed in September 2017. This first truck was deployed for operation at the end of October 2017 between one of the packaging plants in ExxonMobil integrated manufacturing site in Jurong Island to its intermediate storage facilities.

After a six-month test run Katoen Natie, the Belgium based industrial logistics group, will gradually expand the project to 12 trucks, moving some three million tons of product annually.

Mr Cardon stated, "We combine engineering, technology and logistics operations to offer innovative and tailor-made solutions to customers in a variety of sectors. This project is a perfect example of the innovation we bring

to the forefront to create value for our customers as well as creating the opportunities to upgrade the skills of our workforce."

A Changing Industry

"We are excited to support Katoen Natie in making this innovative breakthrough in chemical logistics, and helping the world envision how the future of transport will look like," said Damian Chan, Executive Director, Energy & Chemicals, Singapore Economic Development Board. "The transformation of our industry cannot happen without a well-trained and future-ready workforce, and Katoen Natie's commitment to retrain and upskill their workers exemplifies Singapore's continuous efforts to ensure our talent is ready to take on jobs of the future."

Mr. Robert W. Johnston, ExxonMobil's Singapore Chemical Plant manufacturing director said, "Driverless trucks are an example of how the industry continues to adopt automation to improve worker productivity. We are glad to be supporting Katoen Natie in its efforts to safely operationalise new and innovative solutions at our manufacturing site.

"Today's launch is just the beginning," Mr Johnston continued. "With automation, we are just starting to scratch the surface."

Project Partners

Mr Cardon added, "We operate 165 logistics terminals in a network of 36 countries. We selected Singapore as the location for this project given that it has both the vision and the right business environment to undertake such projects. Our partnership with the Economic Development Board has been of key importance for the realization of this project. In addition, many other parties including a team of MBA students from the Singapore Management University (SMU) and the IE Business School have been pivotal for this project."

SMU's Associate Professor of Operations Management (Practice), Professor Lieven Demeester, who guided students in his previous role as Associate Dean of MBA Programmes commented, "We are proud of our MBA students. They helped Katoen Natie identify the technology partners, initiate a productive collaboration between them, and assure the financial viability of the project."

The System

The Navigation System includes a Navigation Controller which regulates the speed and the position of truck to its predefined route. An RFID Transponder, which is implanted on the road, communicates with a Reading Antenna on the truck. An In-Vehicle Camera allows remote access and viewing. The system has an Object Detection System which includes a Safety Scanner, Obstacle Scanner and a Warning System which includes a blue revolving light, reverse warning light and a buzzer. Safety is ensured with the Emergency System that includes a 4 x manual emergency stop around the truck and a Safety Bumper which triggers an emergency stop when in contact with anything. Control Room and Controllers monitor the truck's operation.

New Solutions

Katoen Natie also worked with Dutch industrial VDL Groep as partner for this project, who carried out the truck conversion and automation at its local VDL Automated Vehicles technology centre here in Singapore. Mr. Theo Toussaint, Executive Vice President of VDL Groep, said, "We're delighted to partner with Katoen Natie in this driverless truck project. The ambition of VDL is to become the leader in electric and automated heavy-duty vehicle applications and we see this project as another big step towards our goal."

Since establishment in Singapore 20 years ago, Katoen Natie has developed many new solutions in Singapore that includes safety inspections by drone, transport management through a specially developed mobile phone app and a range of new technologies in packaging and shipping operations. Mr. Cardon said, "The pilot driverless truck project is not an endgame but a milestone in a wide range of innovative solutions that we are introducing for our customers worldwide. Our Singapore operations have become a centre of excellence for Katoen Natie which will enable us to create value for our customers across the world."

