

Use Case

Training and Simulation

Airfield Driving Simulator



Singapore

Background

The Airside Driving Centre, located at Terminal 2 of Singapore's Changi Airport is responsible for qualifying and administering the Airside Driving and Safety Competency Test for drivers operating in the airside of Changi Airport.

Customer Changi Airport Group (Singapore) Pte Ltd

Challenges

The application of airside driving rules and procedures, hazard perception, the ability to anticipate and react to

impromptu situations are important skills in ensuring safety while driving in airside

Airside drivers have to meet a set of stringent requirements: possessing a valid Class 3 driving license issued by a regulatory authority recognised by the country of issuance, completion of a mandatory airside rules and regulation course, and passing both theory and practical driving tests before they can obtain an Airfield Driving Permit that qualifies them to drive in the airside.

Due to concerns over operational safety, there are limited opportunities for drivers to gain experience driving in the airside environment, particularly the runway, prior to being certified.

Solution

Bridging the experience gap, ST Engineering designed an Airfield Driving Simulator that offers both training and assessment capabilities that closely resemble the actual airfield but in a safe and conducive environment.



Realistic Virtual Airside Environment

The system replicates a simulated virtual airside environment modelled after Changi Airport's airside including airfield pavements, markings and guidance signs, apron roadways with corresponding speed limits, ancillary airfield buildings and airside traffic activity. Intelligent Non-Player Characters include ground-handling vehicles, ground crew and aircraft taking off and landing to enable a realistic training environment.



Driving Cabin Suite

The Driving Cabin Suite (DCS) is mounted on a motion platform with actual equipment of the vehicle (steering, pedals, instrument dashboard) to increase driving realism. Featuring an immersive 360 degree visual screen display, drivers will be tested on their peripheral awareness of any situations that occur around them. The instructor is able to communicate with, view the driver's perspective of the scene, and observe his behaviour via an in-cabin CCTV and communications system.



Instructor Station

The instructor station facilitates candidate registration, selection of the exam route and scenario, while recording the driving session. It offers instructors the flexibility to insert different scenario injects, such as weather conditions e.g rain, fog and time of day. After a driving session, a comprehensive post-session replay and report is generated with the test results, records of mistakes made, and indicates the risk profile of the driver.

Benefits

- Reduce capital and maintenance costs of operational vehicle fleet, as well as mitigating risk to lives and assets of high value i.e. aircrafts.
- Carefully crafted simulated scenarios prepare drivers for high risk situations that cannot be replicated in the real world
- Training of rare but critical situations
- Standardises training intervention and abilities in a controlled environment
- Facilitates repeated performance of the same task until a benchmark is reached
- Offers a repeatable and quantifiable assessment to qualify a candidate for driving

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