Universal AI Interacted Automated Scenario Tester (AI-AST)

Automatically generates, executes, and verifies different simulation test scenarios for railway signalling systems to achieve tests to the maximum possible extent in accordance with international standards, thus improving railway safety.

Problem to tackle 1

Hong Kong has one of the busiest railway networks globally, handling around 5.5 million passenger journeys daily. Urban railway signalling system are being upgraded to meet the city's growing travel needs. Signalling systems prioritise passenger safety and ensure precise train control for optimal railway operations.

Incomplete Coverage

Long Testing Time

Human Errors

MISSION IMPOSSIBLE?

A 16-station railway line may have up to 230,000 simulation cases, each requires about 15 minutes for manual verification to ensure a defect-free system.

Technology 2

Robotic Process Automation (RPA) automates control of simulator and execute test steps

AI Algorithms handles image recognition and result verification
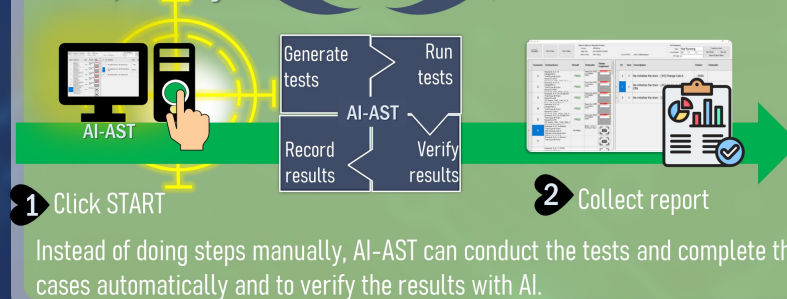
Conventional Manual Operation 3

1 Check steps in test procedure
2 Execute steps using keyboard & mouse
3 Read test result
4 Record result
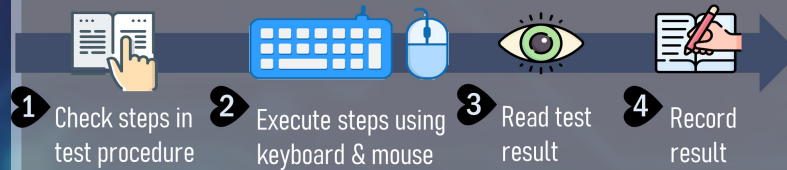
In-cab Simulator

Automatic Train Supervision

Now, newly with AI-AST Automatic!

AI-AST

Generate tests → Run tests
AI-AST
Record results → Verify results

1 Click START
2 Collect report

Instead of doing steps manually, AI-AST can conduct the tests and complete the cases automatically and to verify the results with AI.

Benefits 4

Multiplying Time Saving — Replicable
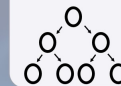
Plug-in Program — Universal

Eliminate Human Error — Accuracy

Maximise Testing — Automated

Way forward 5

1 With its universal design, AI-AST is expandable to apply on other brands of signalling system testing and other projects.

2 Plan to introduce the inclusion of automated simulation tester in relevant international standard and as standard specification of new signalling systems project.

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