# AGIL®

# SMART DIGITAL JUNCTION SUITE

**ST Engineering**

# AGIL® Smart Digital Junction Suite

Traffic signal control can be complex and time-consuming. How can traffic controllers automate and optimise junction control to respond dynamically to changing traffic conditions?

## Predictive, Pre-emptive and Future-proof Solution

AGIL Smart Digital Junction Suite is an advanced urban traffic signal control solution that optimises the efficiency of urban road networks. It supports a new generation of advanced traffic management solutions that improves the travel experiences of motorists and commuters.

Smart Digital Junction Suite simplifies traffic control with operator-friendly interfaces, and leverages advanced Artificial Intelligence (AI) and big data analytics to automate labour-intensive processes and minimise manual interventions.

## Key Features

### Self-learning

The Smart Digital Junction is equipped with self-learning capability. It harnesses AI and big data analysis to learn from historical traffic flow pattern and incorporates real-time data to optimise vehicle and pedestrian flow at junctions.

### Predictive and Pre-emptive

Accumulate learning experiences from historical and real-time traffic data to provide a predictive and pre-emptive signal control solution.

### Traffic Pattern Recognition and Real-time Adaptation

Automatically recognises traffic pattern changes by using big data analytics and self-adapt to these changes, unlike conventional time-based traffic signal control. Key benefits:

- Optimise signal timing and strategy based on real-time traffic pattern
- Enable self-adaptive response to unplanned events and incidents

### Scalability

Adopt distributed control to enable easy expansion and reduction of junction nodes with minimum effort. If there is any change in the junction network topology, only the affected neighbouring junctions will be notified of the new junction links.

### Controller-agnostic

Comprise an AI-driven edge processor that can operate with various international standard traffic controllers.

### Flexible Sensors Input

Interface with various types of sensors for real-time adaptation. It works with conventional loops and other detection technologies such as video analytics, radar or individual vehicle detection and identification through Vehicle-to-Everything (V2X) communications.

### Future-proof

Support V2X communications to facilitate autonomous vehicle, truck platooning, and other future mobility needs.
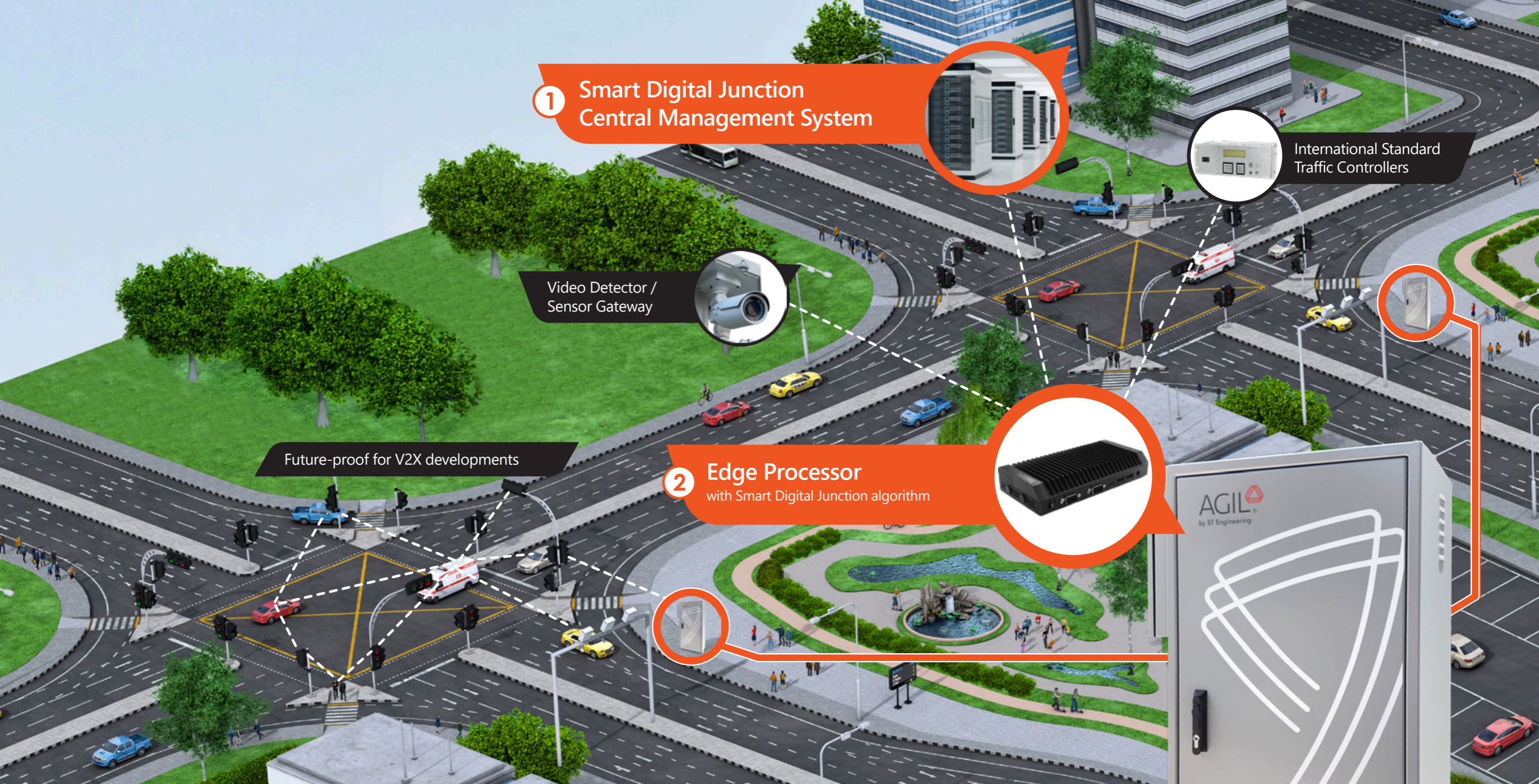
**1** Smart Digital Junction Central Management System

International Standard Traffic Controllers

Video Detector / Sensor Gateway

Future-proof for V2X developments

**2** Edge Processor
with Smart Digital Junction algorithm

AGIL®
by ST Engineering

**2** Traffic Controller

## Our Smart Digital Junction comprises:

**1** Cloud-based Central Management System

An integrated platform that monitors and manages all traffic controllers within a city's road network. Its user-friendly interface simplifies junction management and improves operation efficiency and maintenance of controllers. Traffic operators can fully embrace the benefits of digitalisation for road network optimisation and transport planning.

**2** Algorithm-based Traffic Controller

Leverage AI and data analytics to enhance and manage traffic signal timing and strategy for each traffic controller. It coordinates the timing and strategy of a network of traffic controllers to achieve global and strategic control and optimisation of traffic lights

# Who will Benefit

## Transport Authority

- Improve traffic intersection efficiency: reduce congestion, fuel consumption and carbon emission by minimising start/stop at intersections

- Reduce manpower: use AI-based automation to minimise labour-intensive processes such as data collection for traffic modelling, set up and configuration of traffic signal controllers

## Public Transport Providers, Drivers and Commuters

- Public Transport Priority at intersections to provide smoother journey with minimum delay

- Better travel experience and shorter travel time for commuters and drivers

## Emergency and Autonomous Vehicle (AV) Fleet

- Emergency Fleet Priority (e.g. ambulance) - minimise stops at intersection

- AV Priority - enhance signal priority for AVs to improve safety and mobility

- Vehicle Platooning - facilitate intersection crossing for smooth vehicle platooning

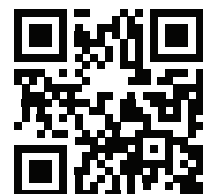## Proven Urban Traffic Management Solutions

The Smart Digital Junction forms part of ST Engineering's comprehensive suite of Urban Traffic Management solutions that has a proven track record of managing more than 5000km of roads worldwide.
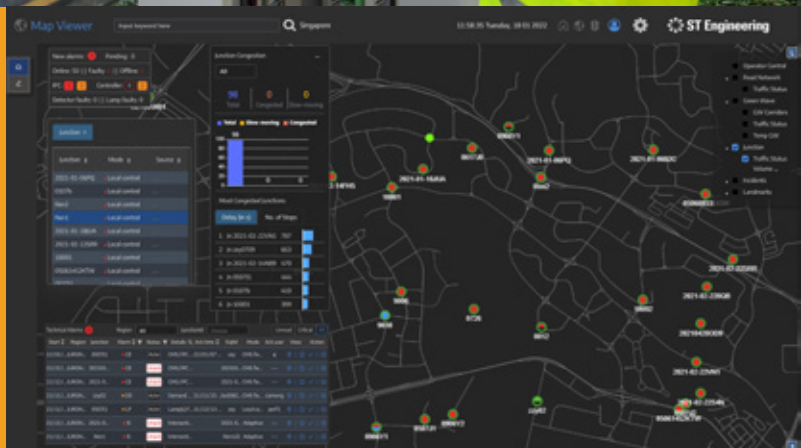
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