



17th Asia Pacific Forum on Intelligent Transport Systems

Brisbane Convention & Exhibition Centre
Queensland, Australia | 12-15 April 2021



Enabling An All-Connected ITS – Taiwan

Philip Tseng, Executive Vice President
Enterprise and Carrier Business Unit



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Agenda

- **5G Progress**
- **ITS Transformation**
- **Smart Transportation Overview**
- **Successful Cases**
 - Autonomous Bus Trials
 - Connected Scooters
 - Multi-Lane-Free-Flow Highway Roadmap
 - Using Cellular Data for Traffic Management
 - CV + AI – Transforming Traffic Law Enforcement



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The 5G progress in Taiwan



2019 Dec –
2020 Jan

5G Spectrum
auctions began

165 rounds and \$87.4 billion Taiwan New Dollar (US\$2.91 billion) in bids, Taiwan's 5G spectrum auction



2020 Feb

5G Spectrum
exceed expectation

Total bids reaching NT\$142.191 billion (approximately \$4.7 billion, avg. \$0.72/MHz/Pop)



2020 Jul

5G Commercial
Launch



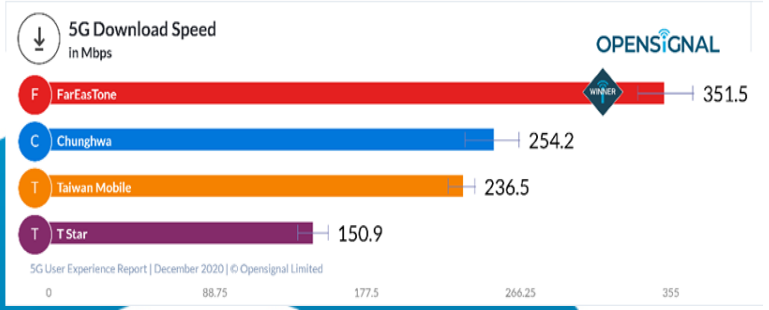
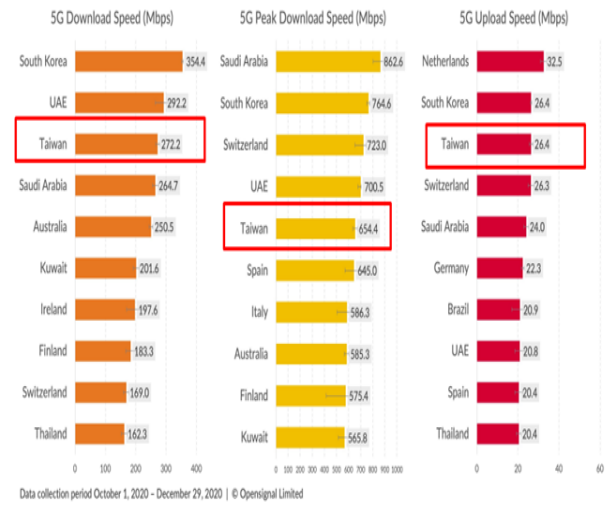
2020 Dec

Taiwan ranks 3rd in
5G download speed
globally



Top ten 5G Countries: Speed

OPENSIGNAL

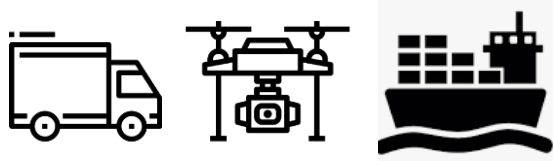




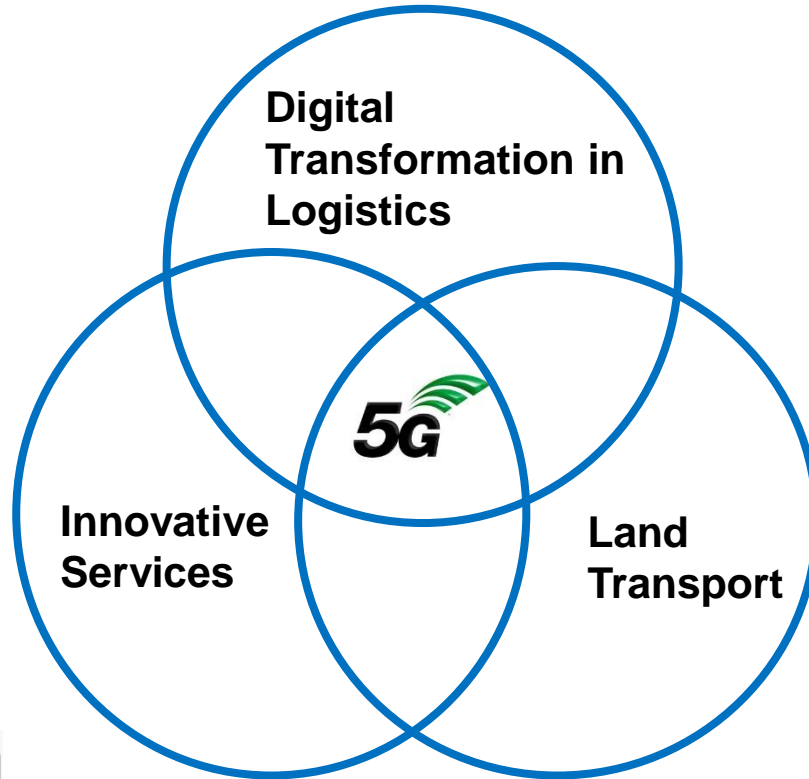
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ITS Transformation

Smart Ocean Shipment
Smart Airfreight
Drone Industry



Big Data Analytics
V2X
Autonomous Mobility



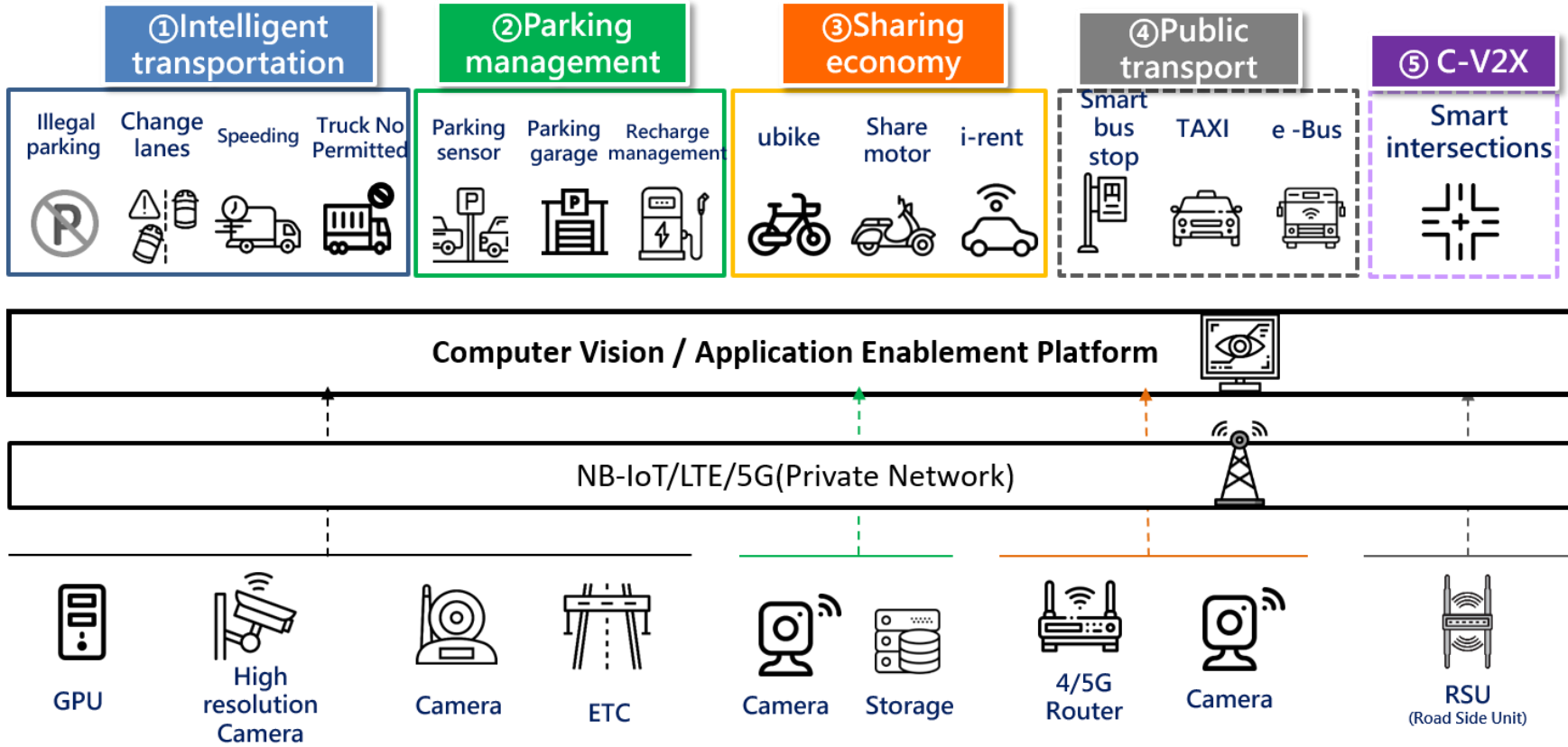
Rail Transport
Smart highway
Electric Vehicles
Connected Scooter





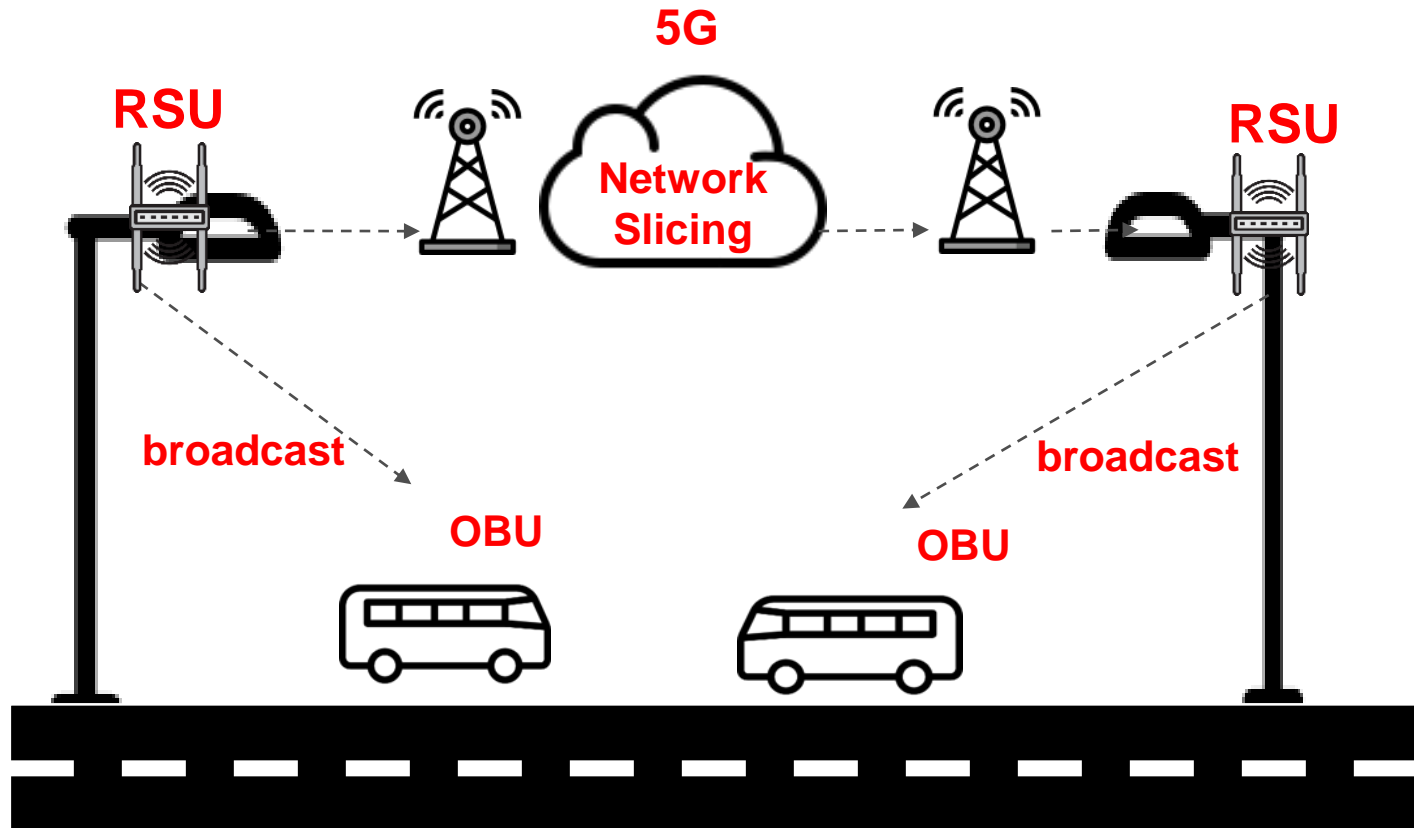
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Smart Transportation Overview





Smart Transportation powered by 5G



Camera



Traffic
Detector



Lidar

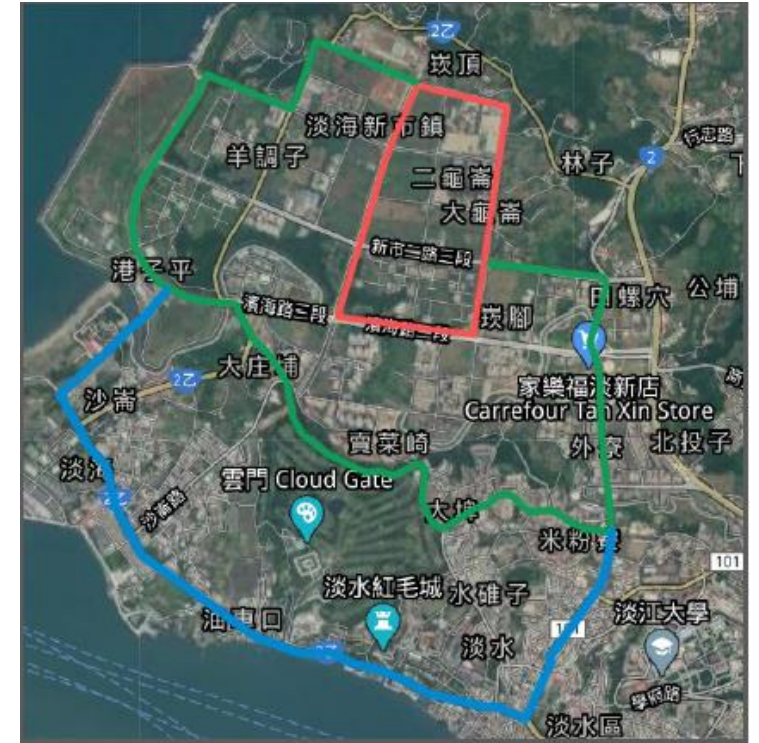
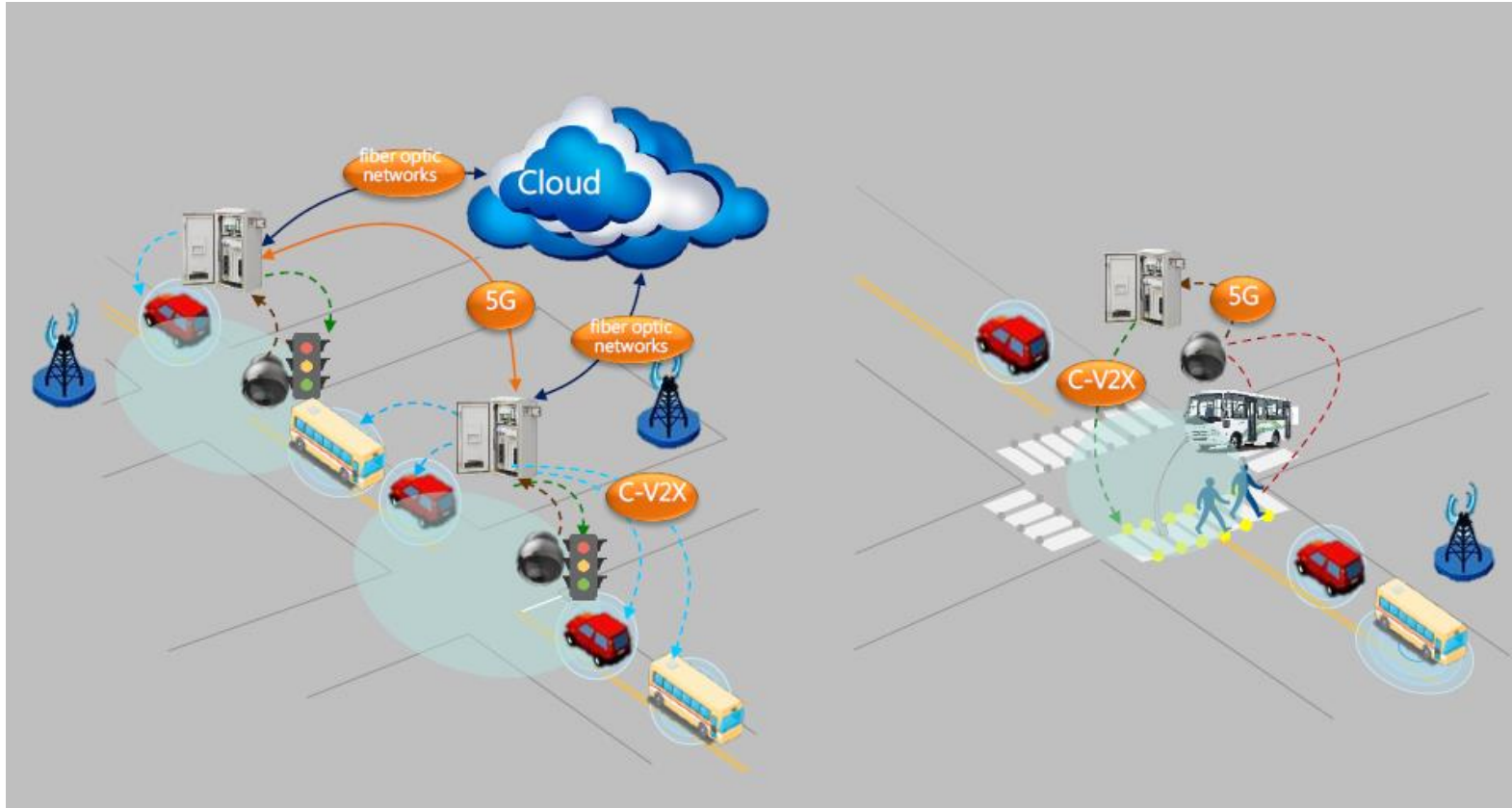
5G PN Provides:

- Transmission security with dedicated network resources allocated to the CV2X modules
- Data Security / shielding from Internet data traffic
- Customizable network for various CV2X business case
- FET is providing 24x7 services, great for mission critical applications monitoring and maintenance



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Autonomous Public Transportation Field Test





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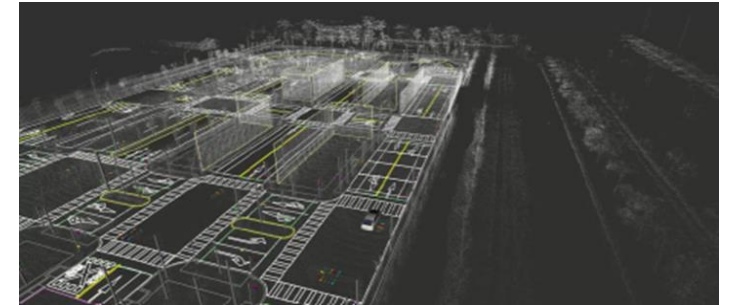
Special Purpose Autonomous Bus

Field Trial in a controlled environment

- Amusement park
- Golf courses
- Harbor



www.turing-drive.com

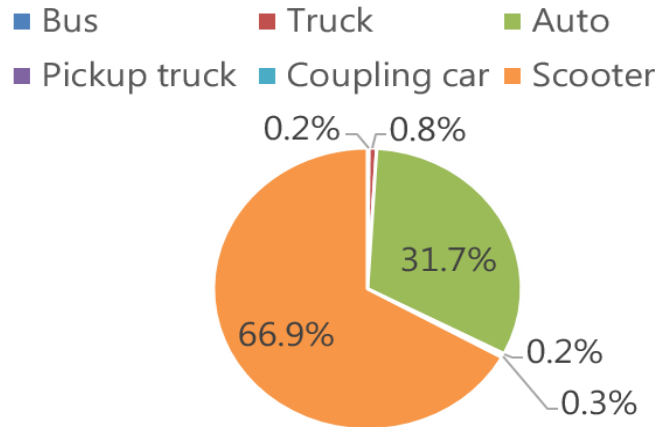




Connected Scooters

Government Policy White Paper (2020)

The Statistics of Taiwan Vehicle



Almost 70% are scooters and motorcycles.

Issues

“Smart” Connected Motorcycle

“Electric” Friendly Environment

“Enhanced” Motorcycle Industry

Strategy

- ❑ Improved safety with IoT smart sensors on electric motorcycles.
- ❑ Encourage sharing motor services.
- ❑ Reviewing the standard of recharging / battery changing stations.
- ❑ Adding more recharging / battery changing stations, and build up maintenance platform.
- ❑ Recycle and reuse retired batteries.
- ❑ Electric and fuel motor policy.
- ❑ Transformation of motorcycle shop.





Application on the Highway Flexible Charging

Basic factor

- Vehicle classes
- Initial charge
- Per kilometer charge

Road pricing factor

- Time period
- Road segment
- Direction
- Congestion Status

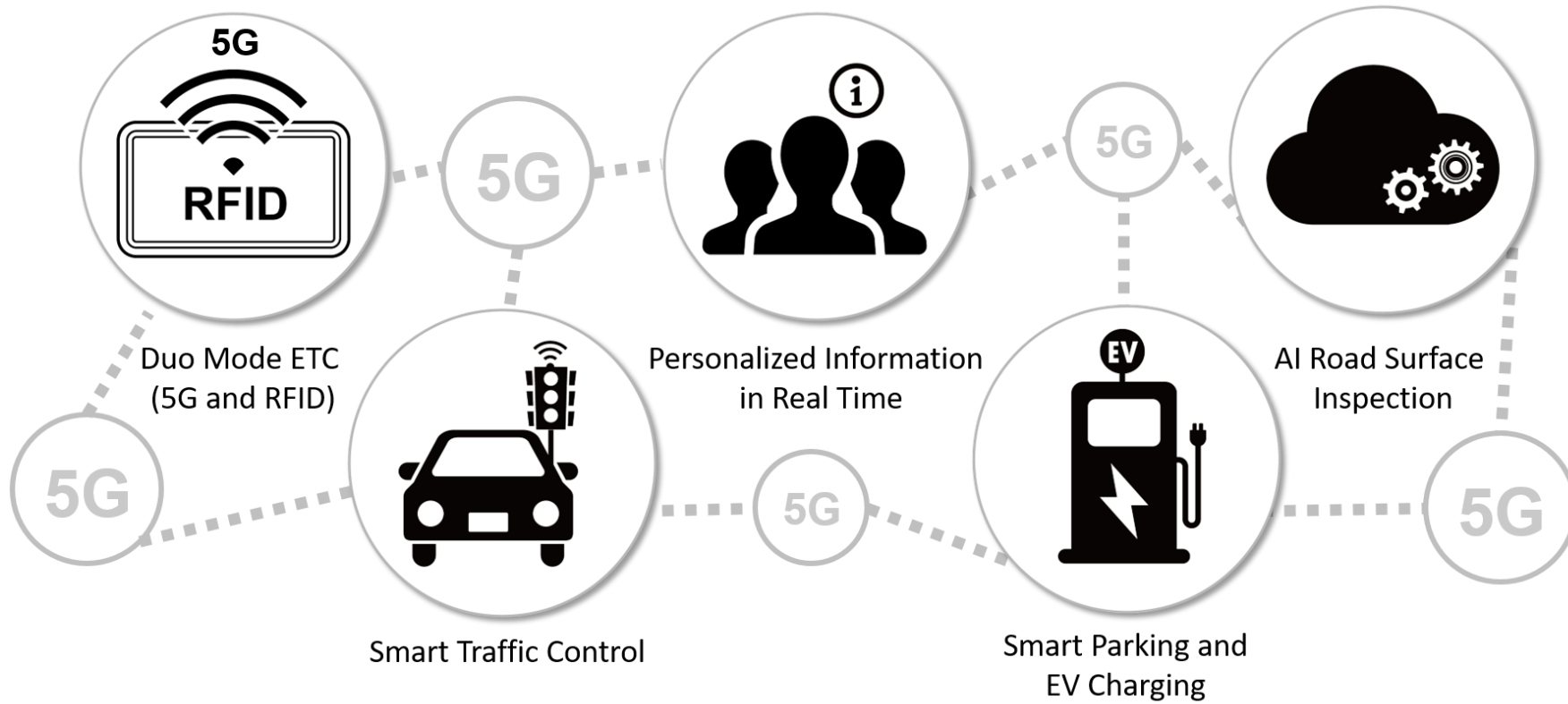
Discount factor

- Long distance
- eTag customer
- Account balance sufficient





Future of Road User



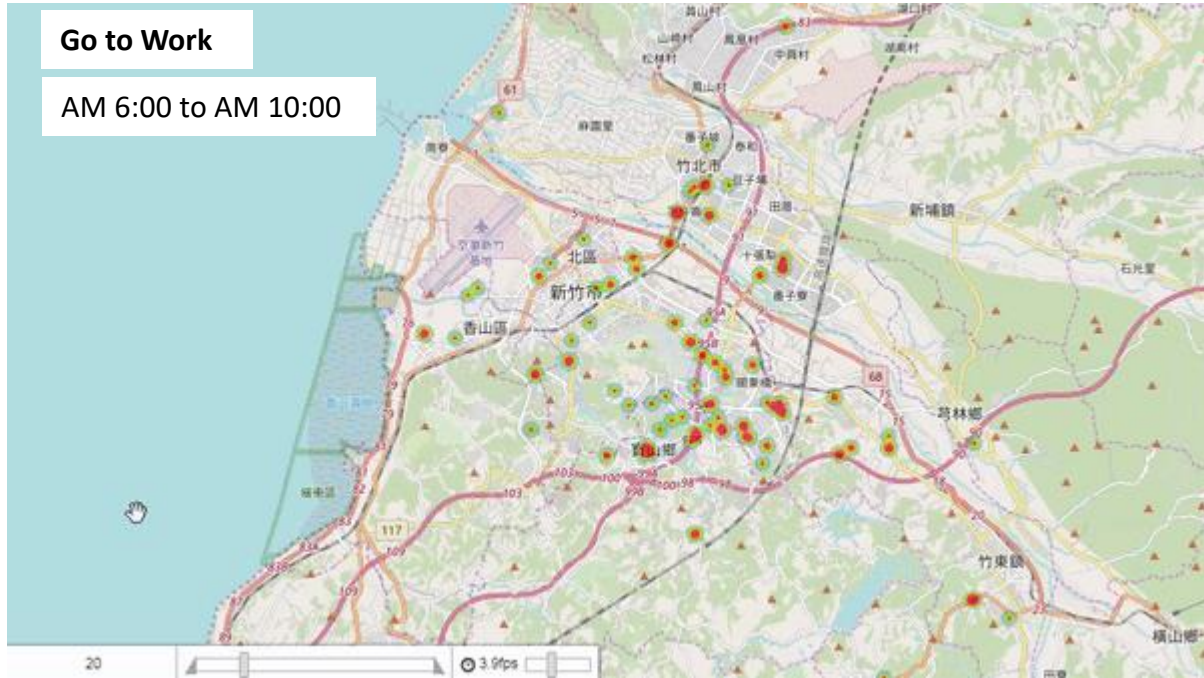


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Using Cellular Data for Traffic Management

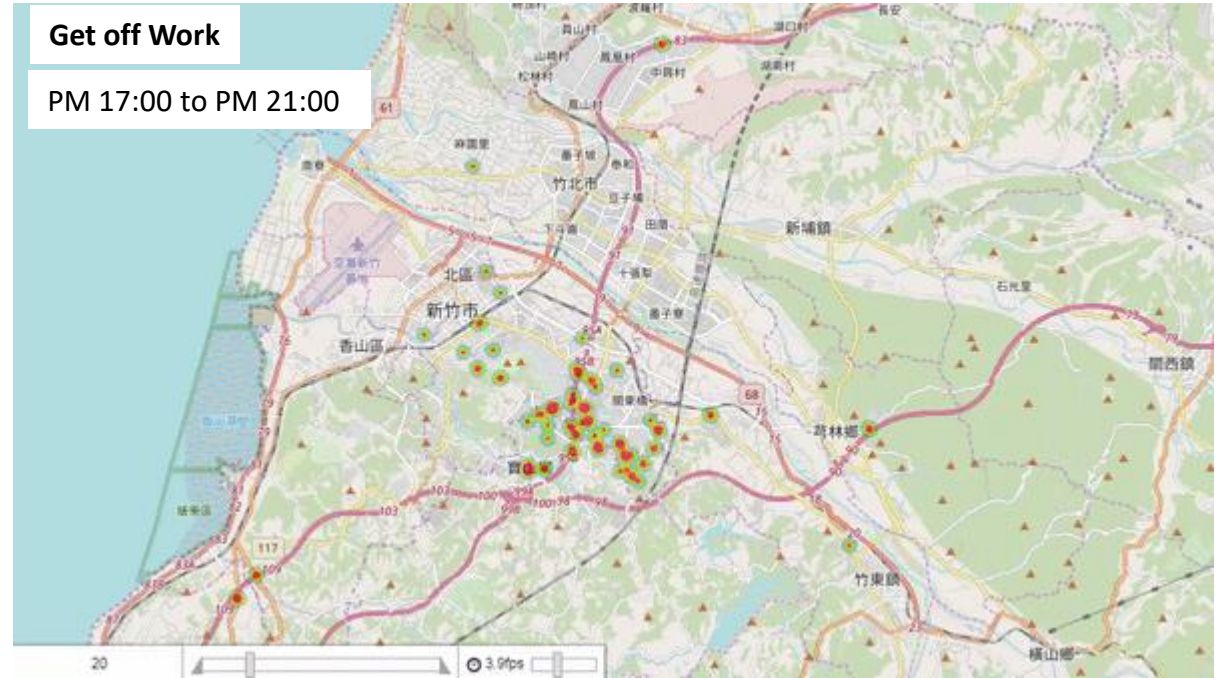
Go to Work

AM 6:00 to AM 10:00



Get off Work

PM 17:00 to PM 21:00





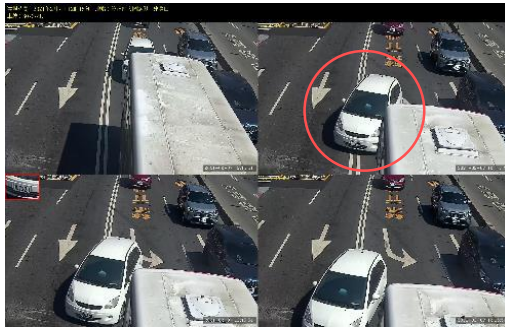
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CV + AI – Transforming Traffic Law Enforcement

Location	Park	New Taipei City	New Taipei City
Type	Ride on sidewalk	illegal Lane changed	illegal Left turn
Count	12	250	541



Ride on sidewalk



illegal Lane changed



illegal Left turn





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