



ITST 2012 Taipei

A-5. FETC's eTag applications

Alex Chang

Far Eastern Electronic Toll Collection Co.,Ltd.

Date : 2012-11-06

FETC Corporate Overview



- Electronic Toll Collection Service since 10 Feb. 2006
- BOT concession period: 20 Years
- Single Lane Free Flow (SLFF), 23 toll stations / 136 lanes
- Passed MLFF (Multi Lane Free Flow) IV&V by TUV on Oct. 2010
- Passive RFID eTag Launches on May 2012

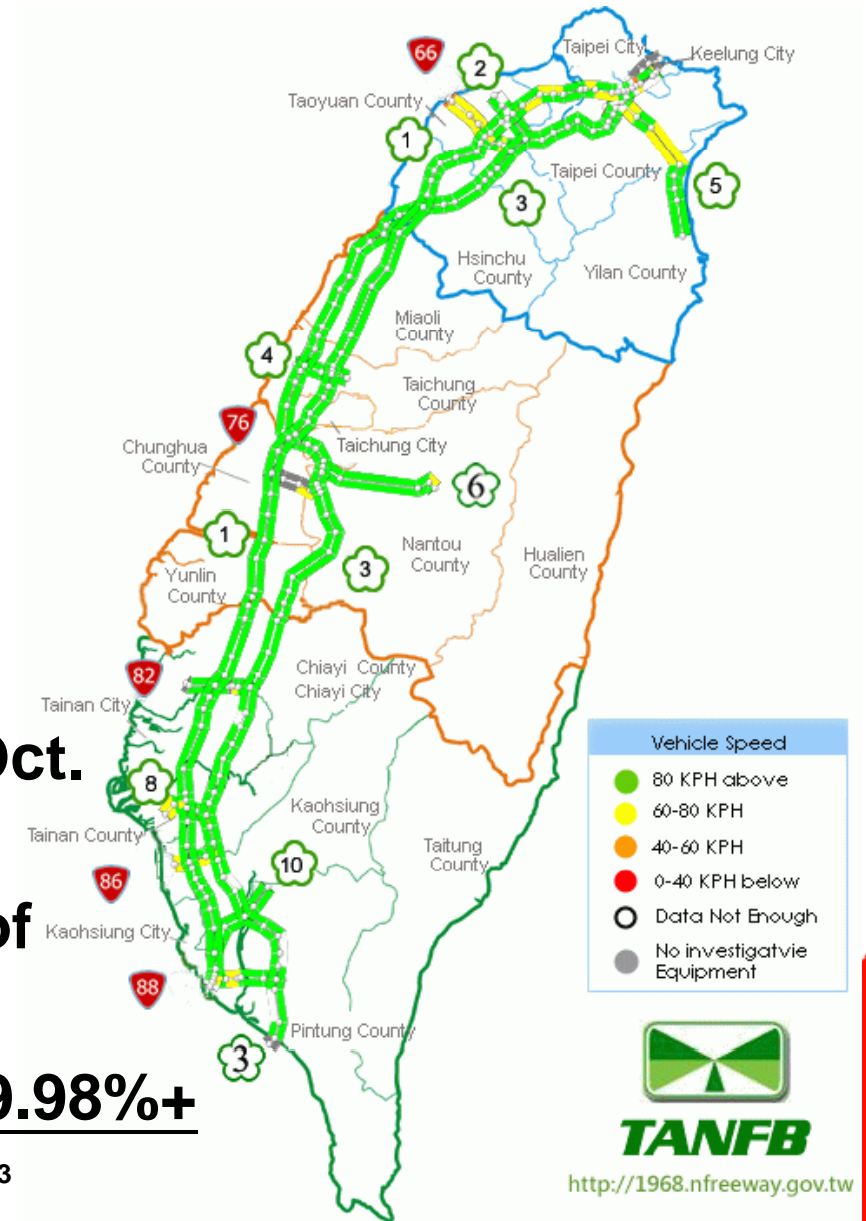


FETC Corporate Overview

Service Landscape



- **Area: 36,192 Km²**
- **Population: 23M**
- **Registered vehicle: 7.1M**
 - Sedan/Wagon (97.2%)
 - Bus (2.2%), Truck & Trailer (0.6%)
- **Total highway distance: 986Km**
- **Toll Station: 23**
- **2.7M+ ETC customers**
- **Accumulated transactions up to Oct. 2012: 1.17B**
- **ETC daily usage rate up to 65%+ of highway tolls**
- **Successful toll collectable rate: 99.98%+**



FETC Corporate Overview

eTag

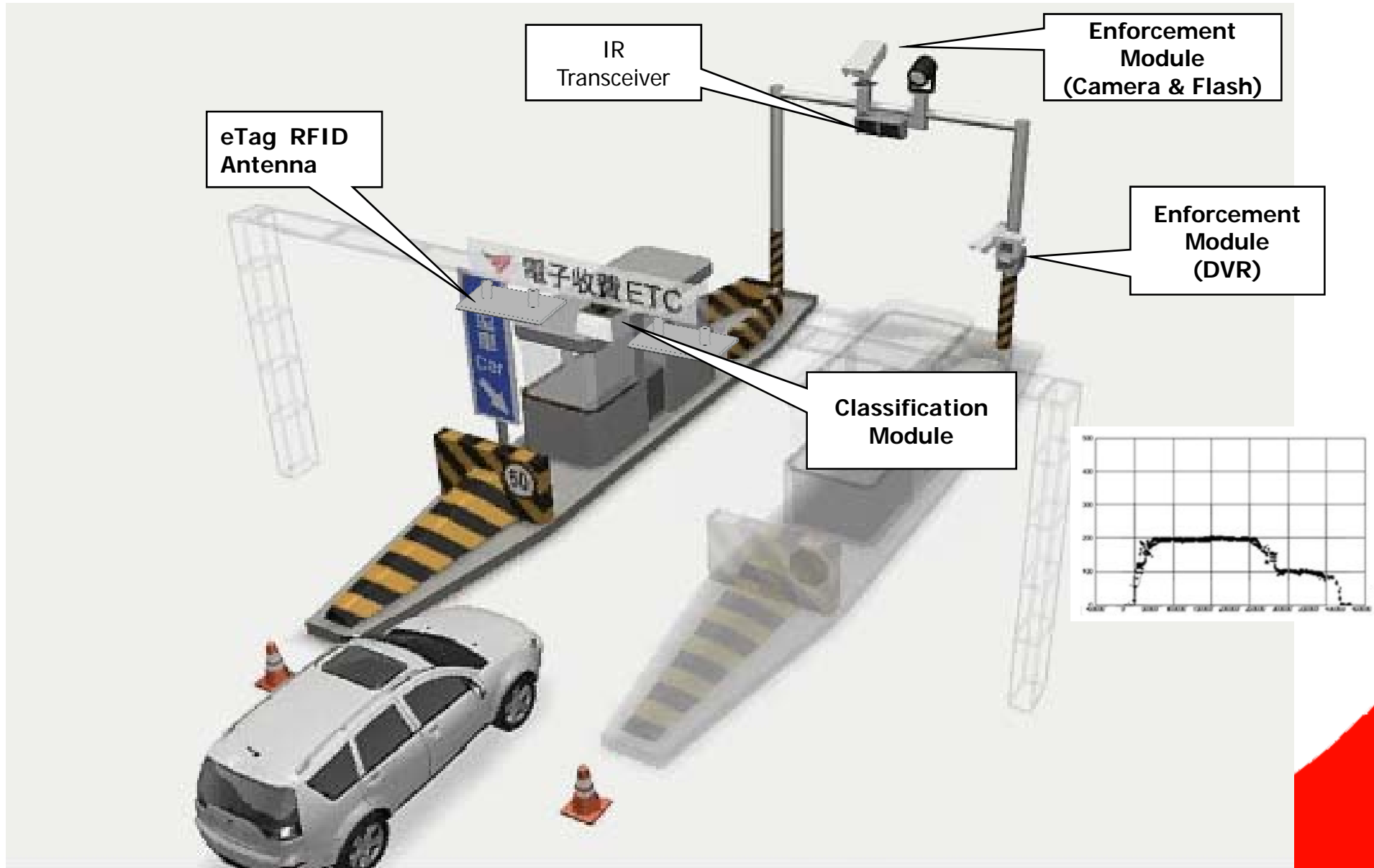


- ISO/IEC 18000-6C (EPC Class 1 Gen 2)
- Passive RFID, 922-928MHz in Taiwan
- Windshield type & Headlamp type
- Prepaid eTag virtual account



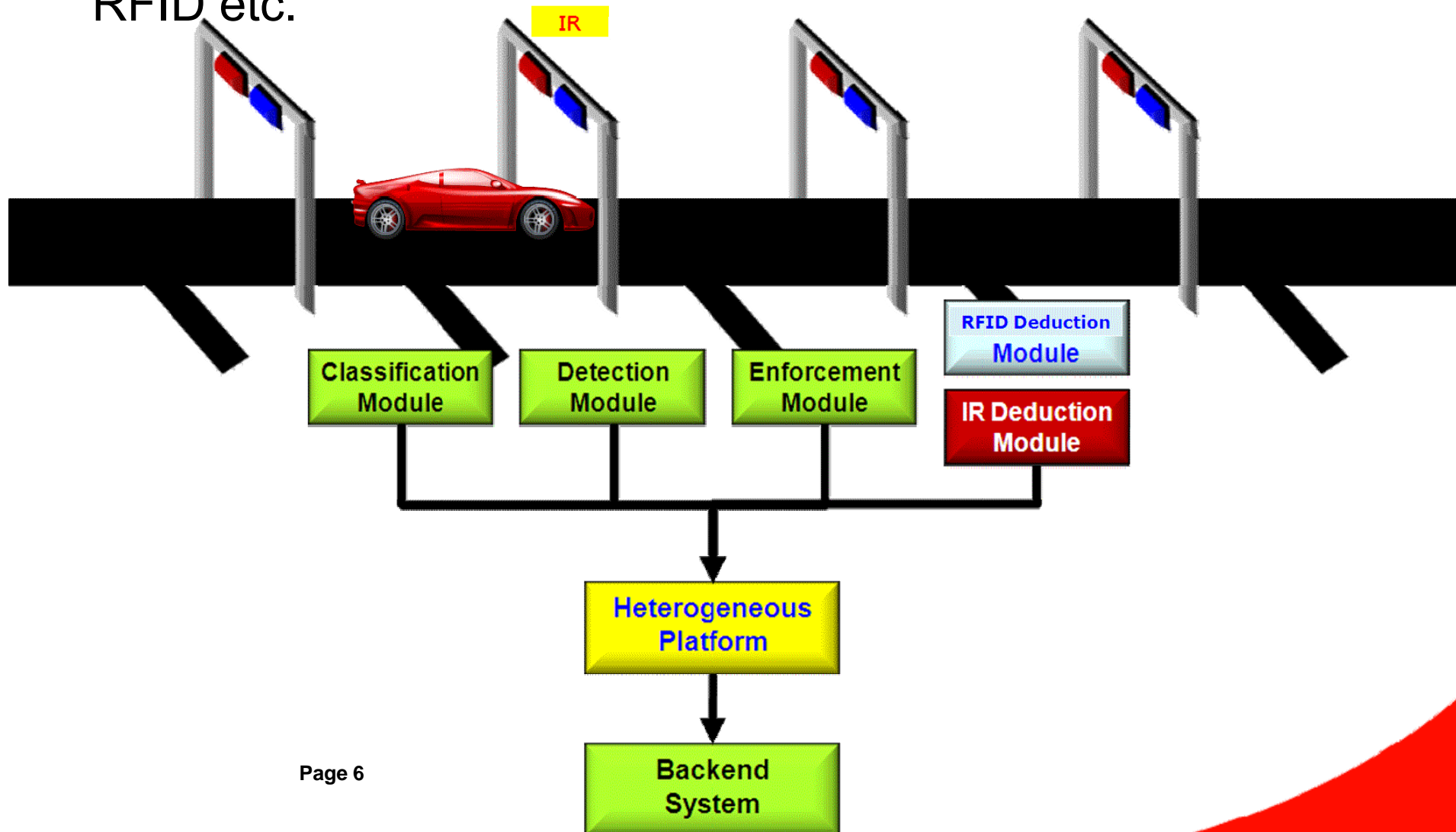
FETC Corporate Overview

Toll Operation



Heterogeneous front-end system

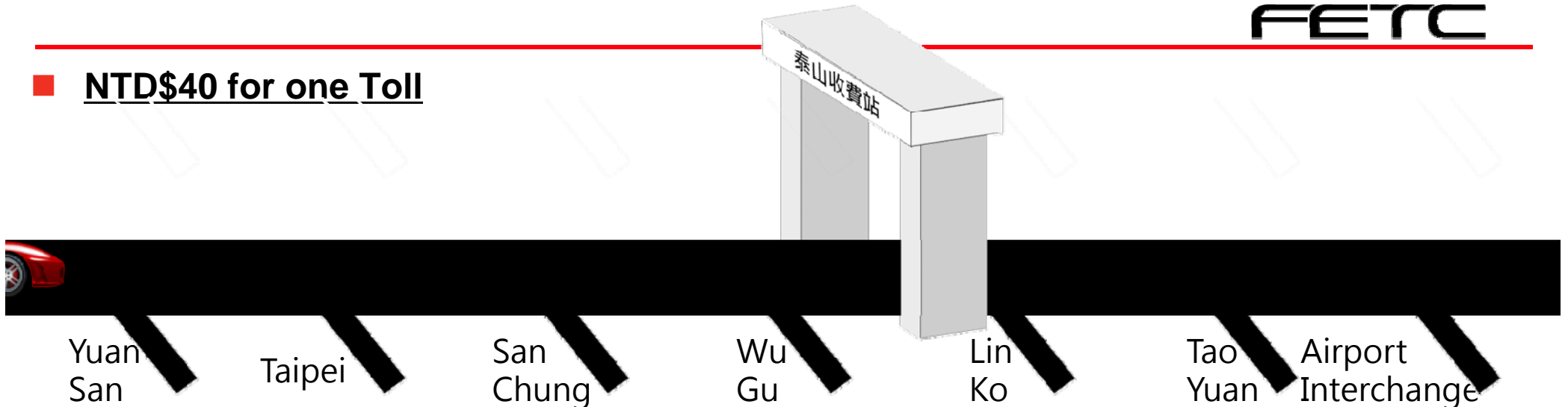
- Support multi-technology client devices simultaneously, ie. IR, RFID etc.



From Per-Entry-Base to Distance-Base ETC

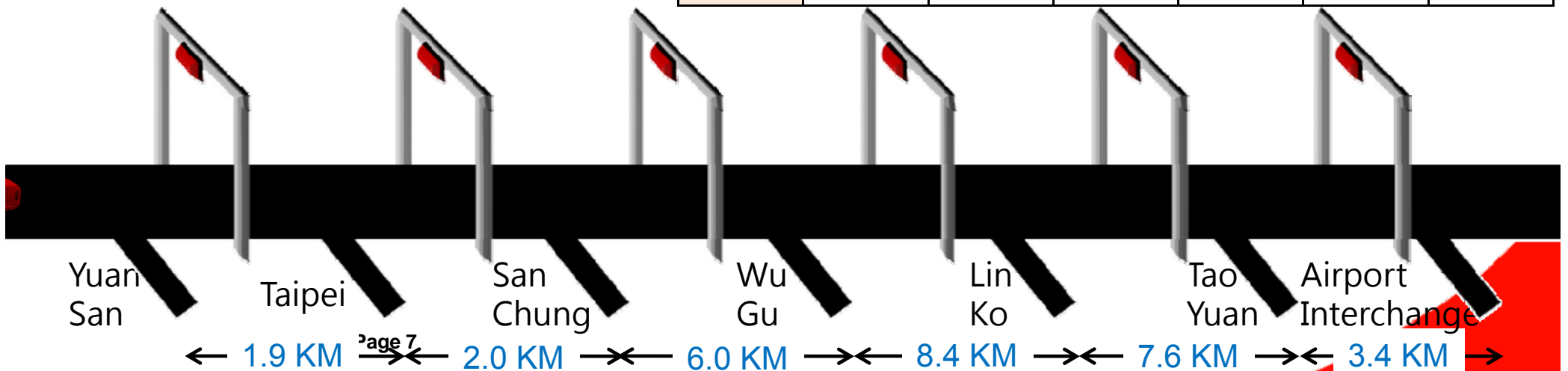


- NTD\$40 for one Toll



- NTD \$31 for Distance-Based Toll
(ex. NTD \$1 for one Kilometer)

| | Taipei | San Chung | Wu Gu | Lin Ko | Tao Yuan | Airport Interchange |
|---------------|--------|-----------|-------|--------|----------|---------------------|
| Distance paid | \$2 | \$2 | \$6 | \$9 | \$8 | \$4 |
| Total paid | \$2 | \$4 | \$10 | \$19 | \$27 | \$31 |



MLFF system – Front end system



eTag Application

- Entrance Control



- eTag Anti Counterfeit & Security Verification
- No swap, No stop, No need to open window while raining
- One eTag for multipurpose ie. highway toll, paid parking...

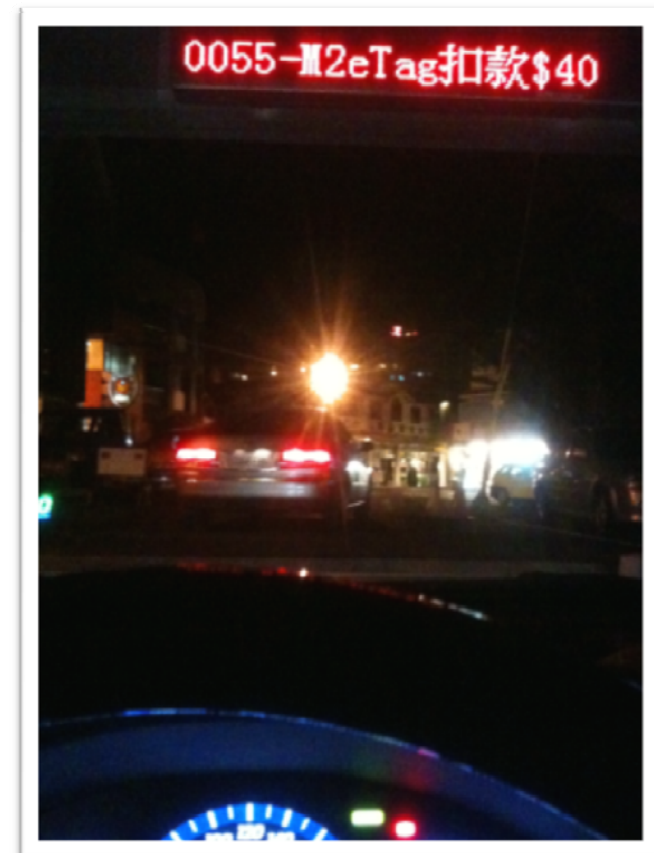
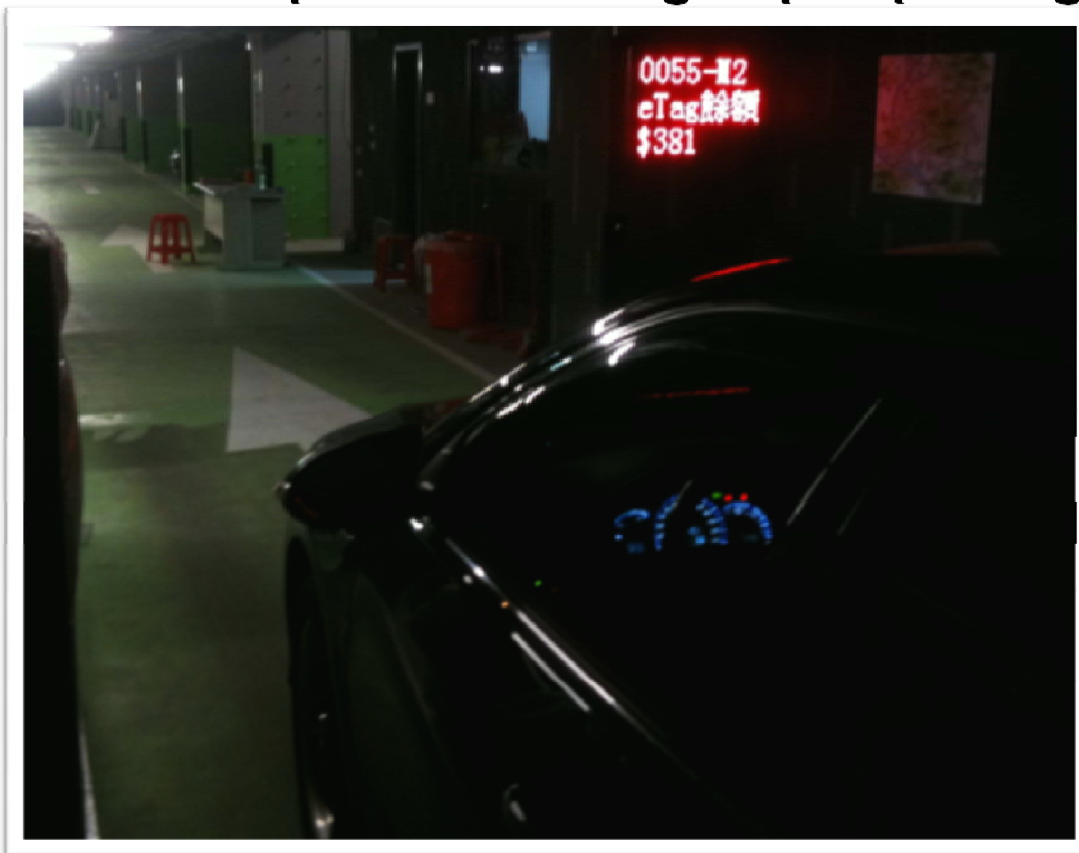


eTag Application

- Paid Parking



- On line balance check & display when entering
- Parking fee deducted from eTag account when leaving
- New service model for monthly rental
 - ▶ multiple cars share group of parking spaces ...



eTag Application - Smart Parking

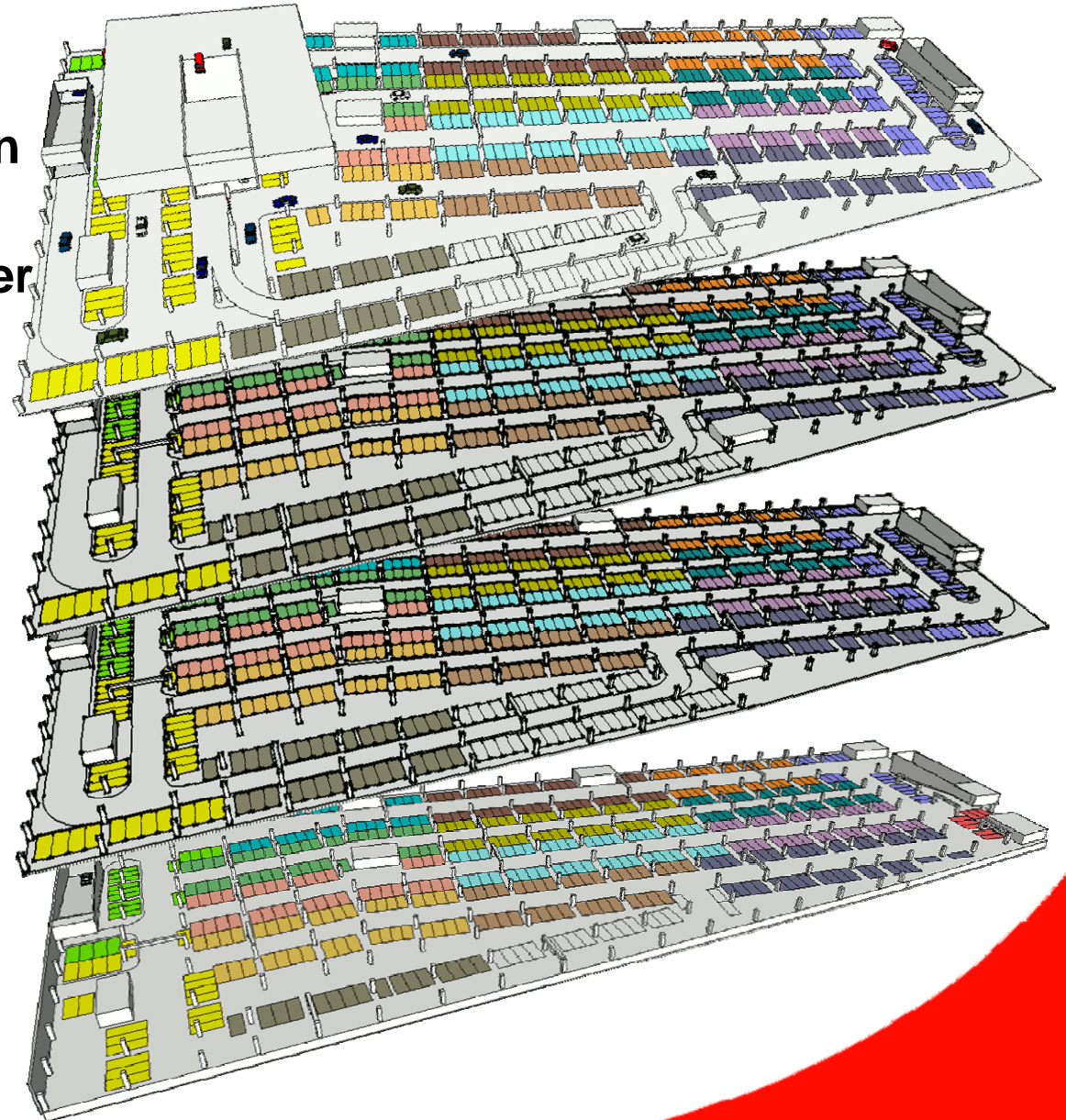


■ Situation

- ▶ 2,000+ parking spaces within 4 floors
- ▶ 1,600~1,800 during commuter rush hours

■ Requirements

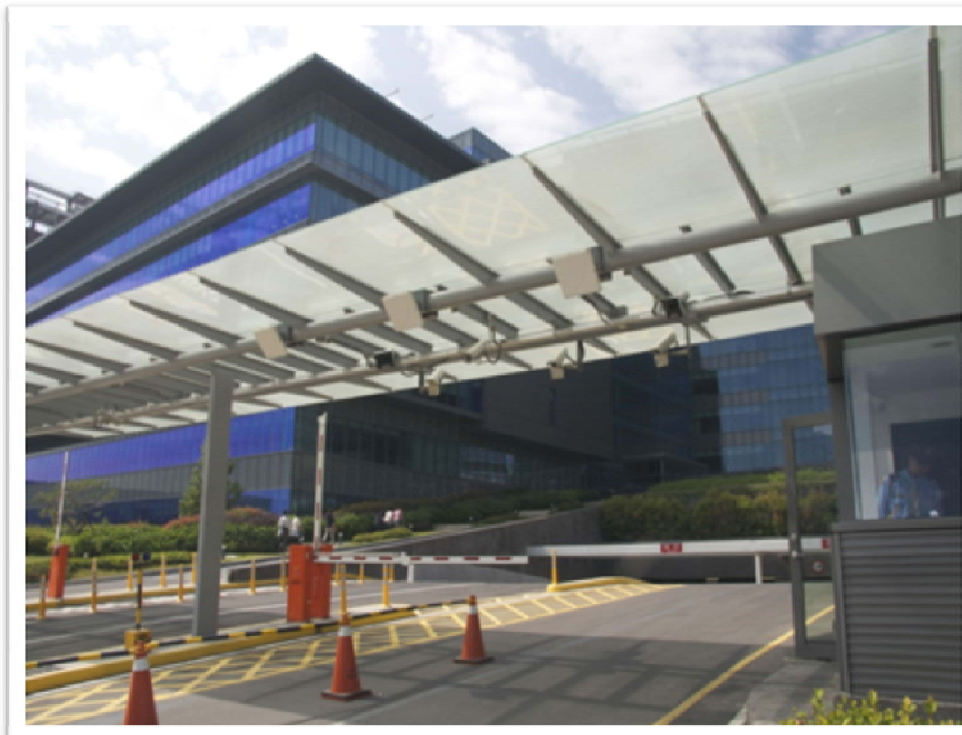
- ▶ Security
- ▶ Smart guidance
- ▶ Enquiring
- ▶ Violation control



eTag Application - Smart Parking



- 100% High security vehicle identification
- No human interruption
- Invalid vehicle real time alert
- Reduce traffic jamming up to the outside road



Non Disclosure
Customer Photo

eTag Parking - Smart Parking



- Query your car location from your desk computer or touch panel system setup in the parking lobby as well

Non Disclosure
Customer Photo

Non Disclosure
Customer Photo

eTag Parking - Smart Parking



- **To analyze vehicle violation through location & time detected**
 - ▶ **Speeding**
 - ▶ **Reverse driving**
 - ▶ **Overtime parking**
- **System generates the non-compliance reports**
- **And, violation notice will email to staff automatically**

Non Disclosure
Customer Photo

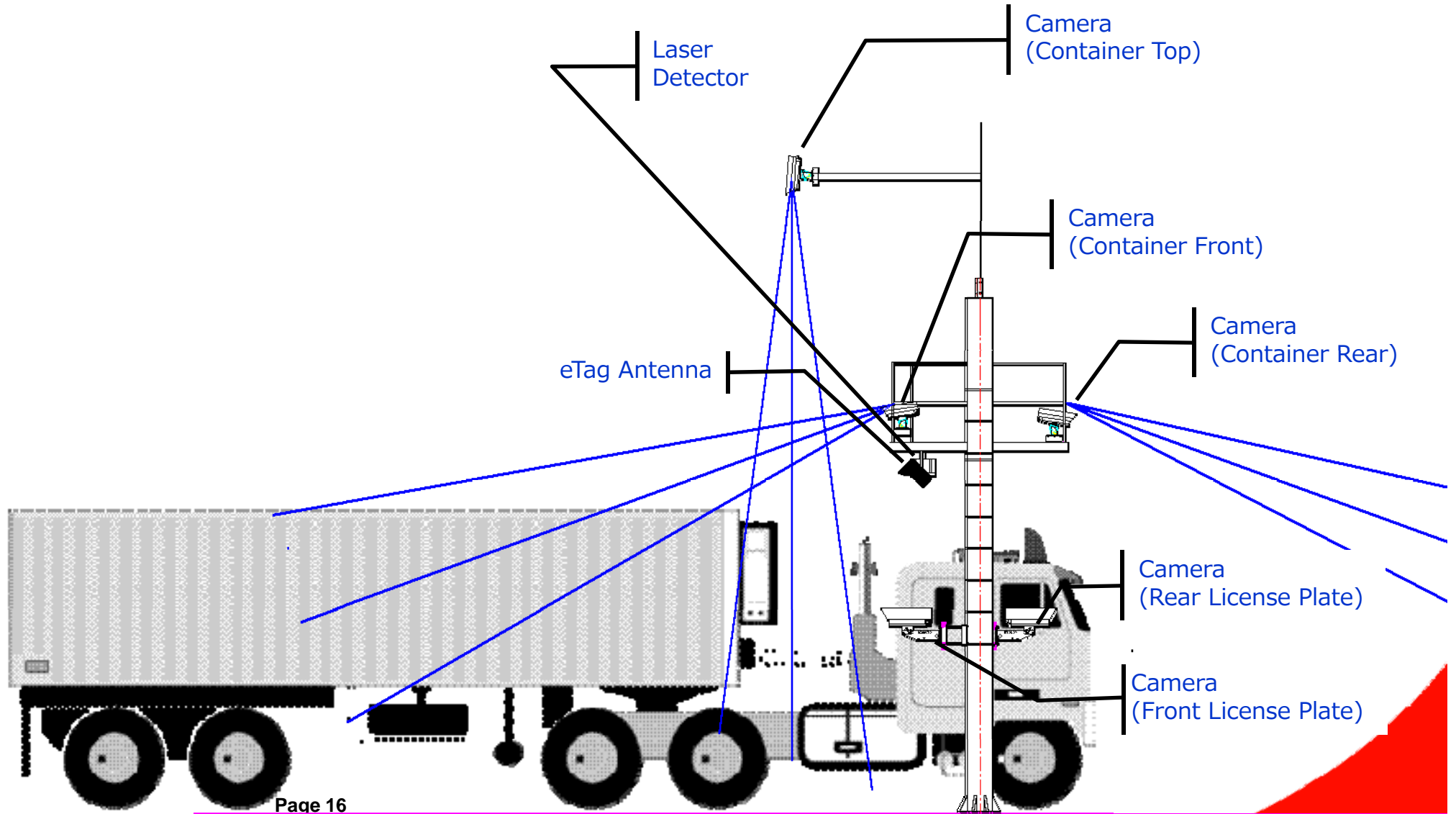
eTag Smart Parking Benefits



- **Counting accuracy by total/by floor/by zone**
- **Invalid vehicle alert**
- **Reducing vehicle-pass management**
- **Time saving for both seeking space and searching car**
- **Correcting driving behavior to prevent accidents**

- **Fuel saving : 57,000 Liter/Year**
- **Time saving : 17,850 Hour/Year**
- **CO₂ emissions : 267, 448 Kg/Year**

Advance Application - Vehicle & Container Automation



Advance Application - Container Number Recognition System

A grid of four images showing container number recognition. Each image shows a container with its number and a corresponding data table below it.

| | | | | | | | | | |
|---------------|-----|-----|----|-----|-----|----|-----|----|-----|
| KKFU 710807 9 | | | | | | | | | |
| K | K | F | U | 7 | 1 | 0 | 8 | 0 | 7 |
| 98 | 100 | 100 | 99 | 100 | 100 | 98 | 100 | 91 | 100 |

| | | | | | | | | | |
|---------------|-----|-----|----|-----|-----|----|-----|----|-----|
| KKFU 710807 9 | | | | | | | | | |
| K | K | F | U | 7 | 1 | 0 | 8 | 0 | 7 |
| 98 | 100 | 100 | 99 | 100 | 100 | 98 | 100 | 91 | 100 |

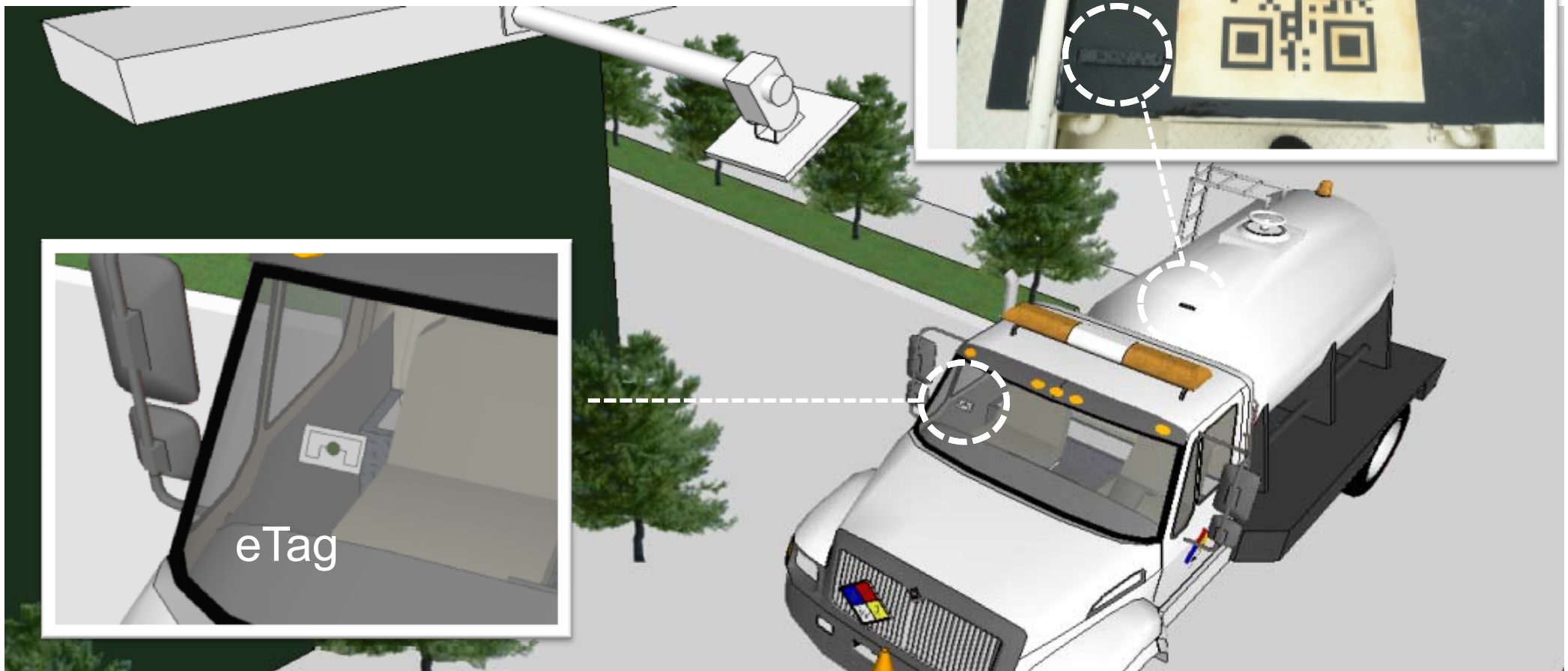
| | | | | | | | | | |
|---------------|-----|-----|-----|----|-----|-----|----|-----|-----|
| CLHU 895798 4 | | | | | | | | | |
| C | L | H | U | 8 | 9 | 5 | 7 | 9 | 8 |
| 98 | 100 | 100 | 100 | 99 | 100 | 100 | 97 | 100 | 100 |

| | | | | | | | | | |
|---------------|-----|-----|-----|----|-----|-----|----|-----|-----|
| CLHU 895798 4 | | | | | | | | | |
| C | L | H | U | 8 | 9 | 5 | 7 | 9 | 8 |
| 98 | 100 | 100 | 100 | 99 | 100 | 100 | 97 | 100 | 100 |

Advance Application - eTag Trailer & Tanker Management



- Both trailer & tanker's eTag are read
- The highest accuracy rate
- Simple and cost effective



Public Service



- OD table for traffic management
- Emergency & Rescue
- Evacuation notice
- ...



Road to The Future



Thank You!

www.fetc.net.tw