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Kazuyoshi Kitajima

Mitsubishi Heavy Industries

The Progress and future steps of Multi-Lane Free Flow Tolling

Contents

1. MLFF POC (Proof of Concept) 1

   - Installation and basic operation check
   - High speed communication test
   - ANPR System
   - Remote Control Center

2. Future steps of MLFF POC2

About MHI ITS

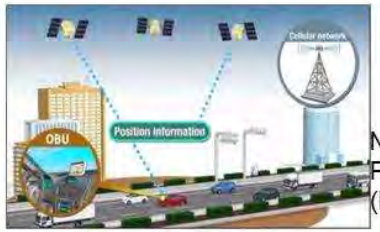
Our Major Experiences in ITS

1967 Tolling System for Japan
1980s First Tolling System for Malaysia
1998 Electronic Road Pricing System (ERP1) for Singapore
2001 Electronic Toll Collection (ETC) system for Japan
2016 Next-generation ERP (ERP2) for Singapore awarded
2016 Multi-lane Free Flow (MLFF) POC1 for Malaysia completed
By 2020 ERP2 to be completed

Electronic Toll Collection (ETC) system In Japan

Electronic Road Pricing System in Singapore (ERP1)

MLFF POC1 In Malaysia



Next-generation Electronic Road Pricing System in Singapore (ERP2)

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POC1 and POC2 of MLFF

Development of MLFF for Malaysia

POC1
Installation and basic operation

High Speed
Communication Testing

POC2
Social Trial

POC1: Installation and basic operation check

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POC1: Installation and basic operation check

Achievement

A) Number of passing vehicle

Total : 703,420

B) Number of Transaction with RFID Tag

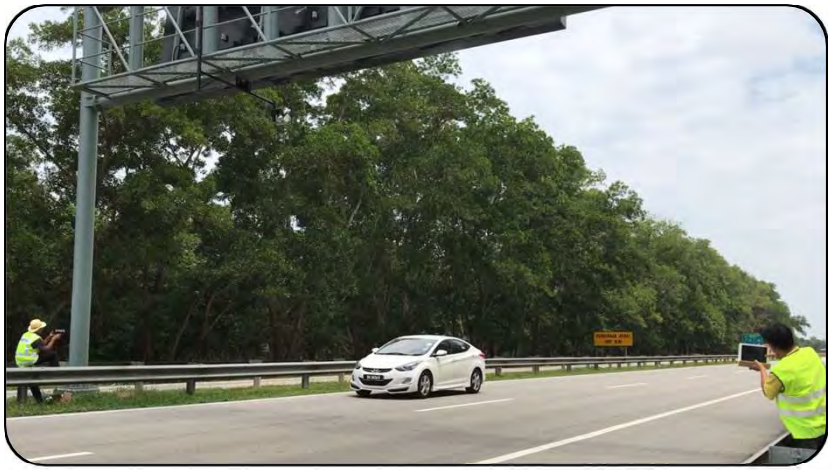
Total : 5,690

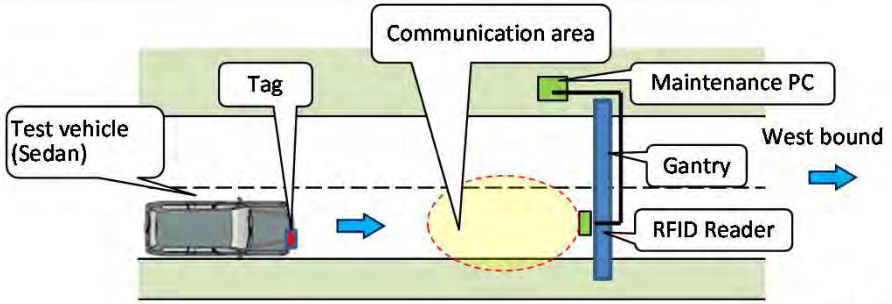
C) Detection Rate(after improvement)

ANPR : 92 %

RFID Reader : 100%

POC1: High speed communication test



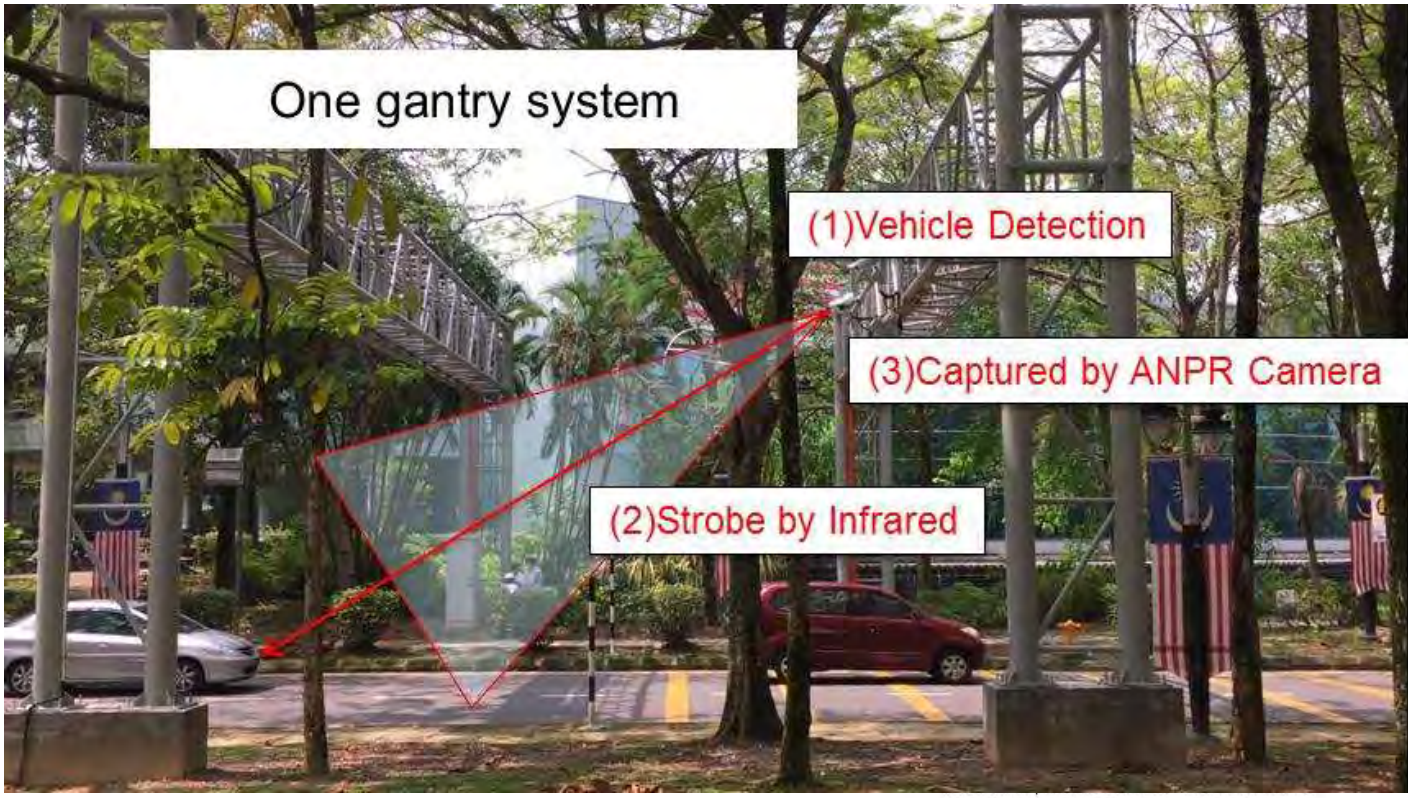


POC1: High speed communication test

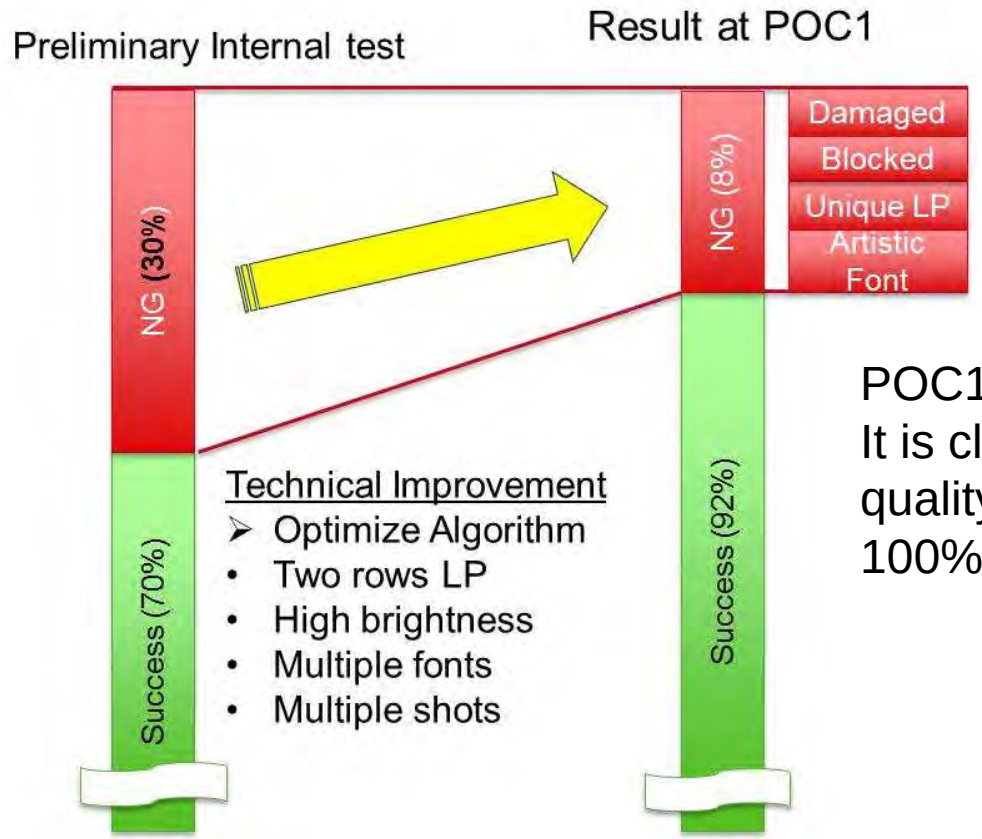
- Purpose – To test RFID detection on high speed vehicle for both windshield and headlamp tag

RFID communication is successfully completed
at vehicle speed of 110kph or more with 2W ERP Antenna power.

POC1: ANPR System



POC1: Front End ANPR System



POC1 accomplished 92 % accuracy. It is clear that the current state of LP quality will prevent it from reaching 100%.

POC1: Remote Control Center

- All systems at load side are via network
  - Real time Monitored
  - Equipment on the gantry is controlled via network
- Weather condition is always recorded by weather meter

POC2: Future steps of MLFF POC2

Development of MLFF for Malaysia

Conclusion

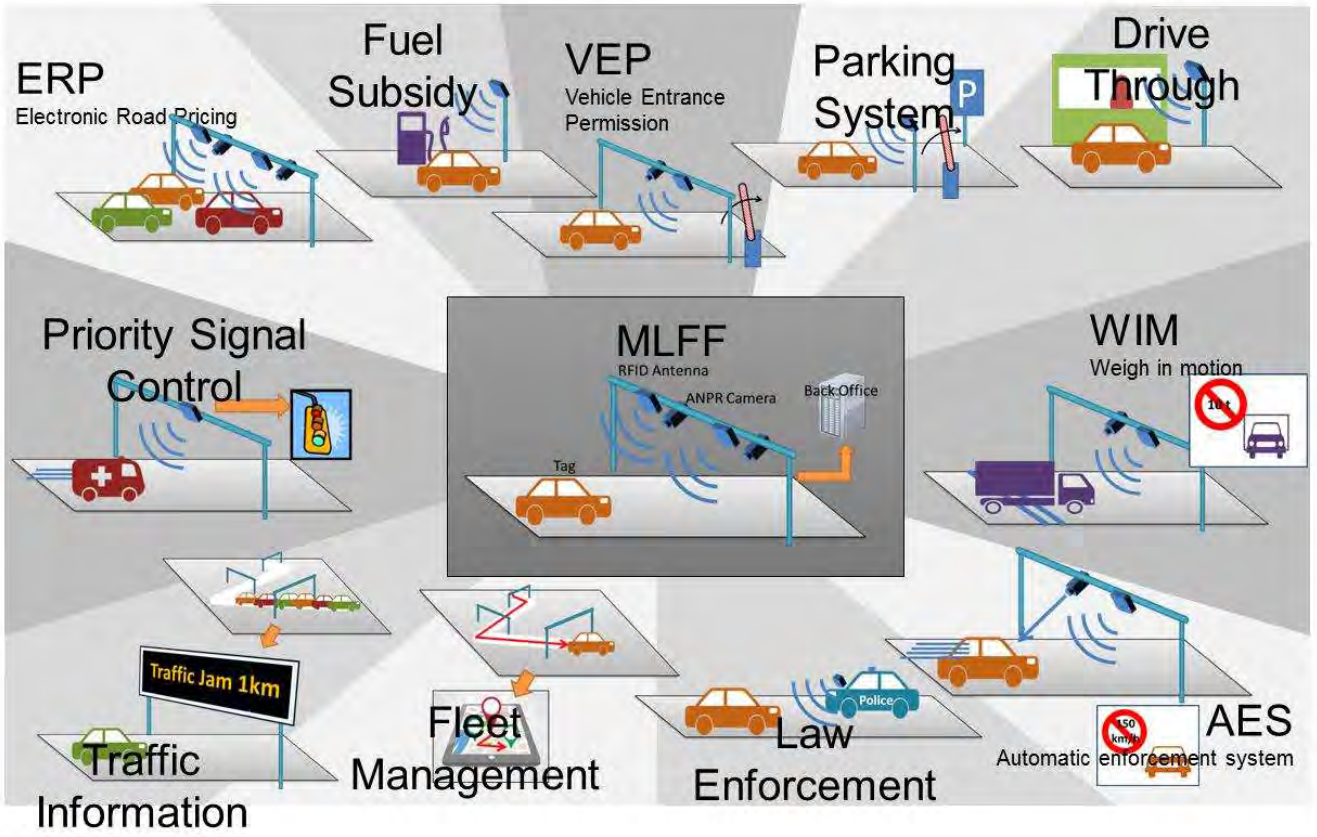
- **POC 1**

  Performance of RFID reader and ANPR applied to MLFF

- **POC2**

  Almost work of the MLFF system will be automated

Application for Various ITS



Thank you for your attention

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