Multi-functional Smart Lampposts: Technical Advisory Ad Hoc Committee 3ʳᵈ Meeting

8 October 2019

Meeting Agenda

Date: 8 October 2019 (Tuesday)

Time: 4:30 p.m. – 6:30 p.m.

Venue: Conference Room, 15/F Wanchai Tower

Agenda:

1. Confirmation of Minutes of Last Meeting
2. Briefing on Smart Lamppost Applications (Part 2)
3. Q&A

Briefing on Smart Lamppost Applications (Part 2)

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Applications of TD, EPD and LandsD:

TD:

✓ **Thermal detector, Video Detector & Pan-Tilt-Zoom (PTZ) Surveillance Camera (not yet installed, original plan is to be installed in later phases)** – to collect real-time traffic data, including vehicular speed, vehicle types and traffic flow, and to monitor traffic conditions

EPD:

✓ **Surveillance Camera (not activated)**

- No facial recognition function

- To monitor illegal dumping activities

- To analyze patterns of illegal dumping activities for planning relevant ambush operations

LandsD:

✓ **Bluetooth Beacon and Geo-marker** – to provide more accurate positioning services to support the development of location-based applications by the Government and the public

Lands Department – Bluetooth Beacon

Application Overview

- The Bluetooth Beacon will transmit 2.4 GHz Bluetooth Low Energy (BLE) signal containing unique beacon identifier (ID) for users to obtain its corresponding spatial coordinates for real-time positioning applications with about 5m positioning accuracy for general smartphone (both iOS and Android) users. For each smart lamppost, 2 Bluetooth Beacons are installed at about 4m above ground level and 2 others installed at about 2m above ground level.

Implementation Progress

- Field equipment installed and activated

Personal Privacy Protection

- The Bluetooth Beacon does not have any data receiving/ collection function.
- No personal privacy issue exists.

Lands Department – Geo-QR Code

(1) Geo-QR Code Tags (with NFC Tags)

Application Overview

• The Geo-QR code tag consists of a passive Near Field Communication (NFC) tag readable by smartphones (both iOS and Android) and one Geographical Quick Response Code (Geo-QR Code) printed on its cover panel. It is installed at about 1.3m above ground, facing towards pedestrian walkway.

Operation Frequency	13.56 MHz
Support Tag Standard	NFC Forum Type 2 Tag
Operation Specification	ISO/IEC 14443-A or equivalent
Read Range	5 to 20mm
Memory	888 bytes user memory or above
Security Mechanism	Field programmable read-only locking function
	32-bit password protection to prevent unauthorized memory operations

Lands Department - Geo-QR Code

(1) Geo-QR Code Tags (with NFC Tags) (cont'd)

<u>Application Overview (Cont'd)</u>

- The Geo-QR code provides accurate positioning information and a platform for users to access nearby geographical information.

- The passive NFC tag provides users with positioning data and lamppost information for various location-based applications, such as accident and emergency reporting.

<u>Implementation Progress</u>

- Field equipment installed and activated

<u>Personal Privacy Protection</u>

- The Geo-QR Code and passive NFC tag do not have any data receiving/ collection function.
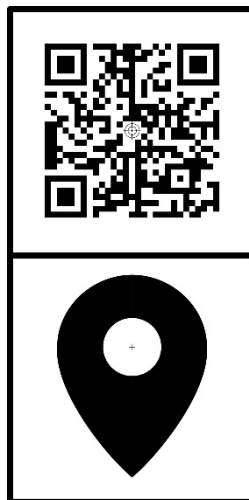
- No personal privacy issue exists.

Lands Department – Geo-QR Code

(2) Geo-marker

Application Overview

- The Geo-marker is a 150mm x 300mm aluminum plate which consists of one Geo-QR code and one Target Marker mounted at about 3m above ground level facing carriageway.

- The Geo-QR code provides accurate positioning information for various location-based applications and also works as a unique identifier for the Target Marker annexed. The Target Marker provides precise coordinates for supporting various smart city applications, such as creation and maintenance of high-quality 3D digital maps, production of geo-referenced street view video, road inventory asset management, etc.

Lands Department – Geo-QR Code

(2) Geo-marker (cont'd)

Implementation Progress

- Field equipment installed and activated

Personal Privacy Protection

- The Geo-marker does not have any data receiving/ collection function.

- No personal privacy issue exists.

Transport Department - Thermal Detector

Application Overview

- Real-time traffic data collection (4-class vehicle count, speed, road occupancy)

Implementation Progress

- Under testing in test site
- Originally planned to be installed in later phases

Personal Privacy Protection

- Thermal image (320 x 240) with no recording. Fixed detection zone.

- View followed traffic direction (view rear of passing traffic)

- No personal privacy issue identified in Privacy Impact Assessment

Information Security Technology Issues

- Provisions for system access control, network and communication security, data security

- Security Risk Assessment & Audit will be conducted

Transport Department - Video Detector

Application Overview

- Real-time traffic data collection (4-class vehicle count, speed, road occupancy)

- Automatic incident detection (stopped vehicle, speed drop, congestion, wrong direction vehicle)

- Live video stream for traffic condition monitoring

- Traffic snapshot images for the general public to visualise the latest traffic conditions, via the PSI Portal (data.gov.hk), TD's website (www.td.gov.hk) and mobile application (HKeMobility)

Implementation Progress

- Preparation for product procurement, originally planned to be installed in later phases

Personal Privacy Protection

- Low resolution visual image (320 x 240), video stream (320 x 240), thermal image (640x480).

- Fixed detection zone with no recording.

- View followed traffic direction (view rear of passing traffic)

- No personal privacy issue identified in Privacy Impact Assessment

Information Security Technology Issues

- Provisions for system access control, network and communication security, data security

- Security Risk Assessment & Audit will be conducted

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Transport Department - PTZ Surveillance Camera

Application Overview

- Viewing of traffic condition at locations out of existing cameras coverage
- Video streaming of real-time traffic condition for traffic monitoring and incident management

Implementation Progress

- Product identification in progress, originally planned to be installed in later phases

Personal Privacy Protection

- Fully complied with Personal Data (Privacy) Ordinance
- Limited resolution, zooming power
- Wide-angle view
  - Zooming for necessary traffic monitoring or incident management
  - Return to pre-set position with wide-angle view
- No recording, no personal data collected
- Masking features
  - Tailored-made masking zones to prevent viewing sensitive targets (e.g. residential flats, hotels)

Transport Department - PTZ Surveillance Camera (cont'd)

Information Security Technology Issues

- Provision for system access control, network and communication security, data security

- Security Risk Assessment & Audit will be conducted

Environmental Protection Department - Illegal Dumping Monitoring

Application Overview

- **Objective:** To assist EPD to monitor illegal dumping activities
- The following features are needed for EPD's operation and enforcement against illegal dumping activities:
  - ➢ Auto-detection of illegal dumping activities
  - ➢ Email alerts
  - ➢ Recognition of vehicle plate numbers
  - ➢ Live view at the scene

Implementation Progress

- Field equipment installed (not activated)
- System Design on hold

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Environmental Protection Department - Illegal Dumping Monitoring (cont'd)

Personal Privacy Protection

- No facial recognition function

- Collected data would only be sent to EPD

- Collected data would not be stored in the smart lampposts

- Various local stakeholders and District Councils will be consulted prior to the activation of the application

- Complied with Personal Data (Privacy) Ordinance, including -

    ➢ Cameras are set up to face and record videos at public places only

    ➢ Notices or banners are erected at prominent locations to notify the public

Q & A