Minutes of the 3ʳᵈ Meeting
Multi-functional Smart Lampposts
Technical Advisory Ad Hoc Committee

Date: 8 October 2019 (Tuesday)
Time: 4:30 p.m. – 6:30 p.m.
Venue: Conference Room, 15/F Wanchai Tower, Wan Chai

Present:

<u>Convenor</u>

Mr Victor LAM   Government Chief Information Officer

<u>Members</u> *(list by order of surname)*

Mr Vincent CHAN   Partner, Ernst & Young Advisory Services Limited

Mr Francis FONG   Honorary President, Hong Kong Information Technology Federation

Ir Prof Joseph NG   Professor and Director of the Research Centre for Ubiquitous Computing, Department of Computer Science, Hong Kong Baptist University

Dr Lawrence POON   General Manager, Hong Kong Productivity Council

Mr Wilson WONG   Chief Executive Officer, Hong Kong Internet Registration Corporation Limited

<u>OGCIO Representatives</u>

Mr Tony WONG   Assistant Government Chief Information Officer (Industry Development) [AGCIO(ID)]

Mr Jason PUN   Assistant Government Chief Information Officer (Cyber Security and Digital Identity) [AGCIO(CSD)]

Attendance from Departments

Lands Department:

Mr James WONG	Senior Land Surveyor / Geodetic
Mr Kenny CHAN	Land Surveyor/ Geodetic / HK & Is

Transport Department:

Ms Shirley LEUNG	Senior Engineer/Survey & Projects
Mr Gary LEUNG	Engineer/Projects 2
Ms Priscilla SUM	Engineer/Smart Mobility 12
Mr Raymond LAM	Engineer/Incident Management Support

Environmental Protection Department:

Mr David CHAN	Principal Environmental Protection Officer (Territorial Control)

In Attendance

Ms Clara WONG	Assistant Legal Counsel, Office of the Privacy Commissioner for Personal Data
Mr Alan LO	Principal Assistant Secretary for Innovation and Technology (4), ITB
Mr Nelson IP	Chief Engineer / Lighting, HyD
Mr Rex TONG	Chief Systems Manager (Smart City), OGCIO
Mr Tony KM WONG	Chief Systems Manager (Security), OGCIO
Ms Peggy POON	Systems Manager (Smart City)21, OGCIO

<u>Secretary</u>

Mr Dantes TANG   Senior Systems Manager (Smart City)2, OGCIO

Absent with apology:

Dr K P CHOW   Associate Professor, Department of Computer Science, The University of Hong Kong

Mr Stephen HO   Honorary Chairman, Communications Association of Hong Kong

Mr Ronald PONG   Chairman, IT Governance Committee, Smart City Consortium

Dr K F TSANG   Associate Professor, Department of Electrical Engineering, City University of Hong Kong

Mr Stephen Kai-yi WONG   Privacy Commissioner for Personal Data

Discussion:

Opening Remarks

       Convenor welcomed Members to the third meeting of the Multi-functional Smart Lampposts Technical Advisory Ad Hoc Committee. He also thanked the representatives from Lands Department, Transport Department and Environmental Protection Department for joining the meeting and presenting their smart lamppost applications to Members.

Confirmation of Minutes of Last Meeting

2.   The minutes of the second meeting held on 10 September 2019 were circulated to Members with their comments duly incorporated. It was then uploaded to the thematic webpage on OGCIO website for public reference on 24 September 2019.

Briefing on Smart Lamppost Applications (Part 2)

3.   Further to the four smart lamppost applications discussed in last meeting, Convenor informed Members that six other smart lamppost applications (including some not activated or yet to be installed) would be discussed in this meeting.

4.   Mr James WONG representing the Lands Department briefed Members on Bluetooth Beacon and Geographical Quick Response Code (Geo-QR Code) which were installed at smart lampposts to provide accurate positioning information for supporting the development of various location-based applications by the Government and the industry.

5.   The Bluetooth Beacon would only transmit Bluetooth Low Energy signals containing respective positioning information and did not have any data collection function.   A total of four Beacons would be installed for each smart lamppost with two installed at around 2m and another two at around 4m above ground to provide sufficient signal coverage array to facilitate more precise positioning.

6.   The Geo-QR Code included two components namely Geo-QR Code Tag and Geo-marker.   The Geo-QR Code Tag consisted of one Geo-QR code label and one passive Near Field Communication (NFC) Tag readable by smartphones. The Geo-QR Code Tag was installed at around 1.3m above ground facing pedestrian walkway for providing accurate positioning information and facilitating users to access the GeoInfo Map website / MyMapHK mobile app of LandsD through a landing page.   The Geo-marker was a 150mm x 300mm aluminium plate, composed of one Geo-QR code label and one Target Marker mounted at around 3m above ground level facing carriageway.   The Geo-QR code label of Geo-marker would provide positioning information for various location-based applications while the Target Marker would provide precise coordinates for supporting various smart city applications.   The Geo-QR Code including the Geo-QR Code Tag and the Geo-marker did not have any data collection function.   Mr James WONG supplemented that security measures such as immutable tag id of the NFC Tag and SHA256 hash function were implemented to protect against fake devices.

7. Ms Shirley LEUNG representing the Transport Department briefed Members about three smart lamppost applications for traffic management, including Thermal Detector, Video Detector and Pan-Tilt-Zoom (PTZ) Surveillance Camera as well as their respective security and privacy protection measures. All these devices had not been installed at the smart lampposts so far. For the Thermal Detector, the installation was postponed due to the delay in product delivery. As for the Video Detector and PTZ Surveillance Camera, they were originally planned to install in the later phase of the pilot scheme.

8. The Thermal Detector detected the thermal energy emitted and radiated by objects to produce black and white "shadow" images based on temperature difference. It served to collect real-time traffic data including vehicle count, speed and road occupancy. Thermal Detector, with resolution of 320 x 240 pixels and fixed detection zone, would be installed facing the rear of passing traffic on the carriageway for traffic data collection. Neither images nor videos would be recorded. No personal privacy issue was identified in the Privacy Impact Assessment for the use of the Thermal Detector. The Thermal Detector was now under testing.

9. The Video Detector was aimed at collecting real-time traffic data, as well as performing automatic incident detection, monitoring traffic condition via live video stream, and providing traffic snapshot images as open data for public dissemination. The Video Detector had a dual camera (i.e. visual camera and thermal camera) for collecting visual image and video stream at 320 x 240 pixels and thermal image at 640 x 480 pixels. The Video Detector had a fixed detection zone and would be installed along the direction of traffic facing the rear of passing traffic. In the Video Detector, the thermal camera was mainly used for automatic incident detection, and the visual camera for verification of traffic incidents via live video stream and capturing of traffic snapshot images. Neither images nor videos would be recorded. No personal privacy issue was identified in the Privacy Impact Assessment for the use of the Video Detector. Product procurement for the Video Detector was currently put on hold.

10. The PTZ Surveillance Camera was aimed at viewing of real-time traffic condition for traffic monitoring and incident management. It was capable of pan,

tilt and zoom control for retrieving video stream at 752 x 582 or less pixels to facilitate monitoring of general area-wide traffic situation. It would be operated with limited zooming power (zooming would only be used for necessary traffic monitoring or incident management) and return to pre-set position with wide-angle viewing. No personal data would be collected and there would be no recording. Privacy Impact Assessment would be conducted to ensure that the use of the PTZ Surveillance Camera would be fully complied with the Personal Data (Privacy) Ordinance and related guidelines. Relevant products for the PTZ Surveillance Camera were still being identified in the market. Ms Shirley LEUNG supplemented that different types of devices aimed to serve different purposes, and they were planned to be installed on different smart lampposts on a need basis. The meeting noted that potential suppliers were free to offer in their bids equipment exceeding the required performance in the bid, for example cameras with higher resolution. However, Ms Shirley Leung re-iterated that video stream at 752 x 582 or less pixels would be sufficient for traffic monitoring purpose.

11.   Mr David CHAN representing the Environmental Protection Department (EPD) briefed Members on the illegal dumping monitoring application with proposed functions including auto-detection of illegal dumping activities, email alerts, recognition of vehicle plate numbers and live viewing at the scene. The application was still under design and development stage. Although the cameras had been installed at some smart lampposts, due to public concern, the cameras were not activated and application development was put on hold. Mr David CHAN expressed that EPD would review the locations and number of smart lampposts for the application to make sure the cameras, if deployed for use in future, would only be installed at the locations with genuine concerns on illegal dumping activities. Furthermore, the application would strictly comply with the Personal Data (Privacy) Ordinance and related guidelines, and the videos and images so collected from the smart lampposts would be kept no longer than necessary.

Views/Comments from Members

12.   Having more in-depth understanding on the purposes, technical details as well as the security and privacy protection measures of the six applications on the smart lampposts, Members expressed their views and suggestions as follows:

Bluetooth Beacon and Geo-QR Code

- Members noted that these positioning devices do not have any data collection function and there is no privacy concern;

- Government to prepare and publish relevant application developer guides to facilitate proper use of the positioning information in developing applications by the community;

Thermal Detector, Video Detector and PTZ Surveillance Camera

- Members noted that the Thermal Detector produces thermal images only and there is no privacy concern; however, further discussion on implementation of the PTZ Surveillance Camera on smart lampposts is required as there are potential privacy issues;

- Government to adopt relevant measures to ensure only low resolution images of raw nature would be taken by devices;

- Government to adopt masking to protect privacy where appropriate;

- Members noted that some of the devices are serving similar functions (e.g. vehicle count, speed and road occupancy) and advised Government to minimise the number and types of traffic devices and consider adopting less privacy-intrusive technologies, such as LiDAR, Radar or thermal detection technologies where appropriate;

Illegal Dumping Monitoring

- Members highlighted that further discussion on implementation of the application on smart lampposts is required as there are potential privacy issues;

- Government to conduct privacy impact assessment to ensure the application is fully complied with the Personal Data (Privacy) Ordinance, particularly for the high resolution videos and images;

- Government to install the application only at selected smart lampposts in less privacy-intrusive locations with genuine needs (e.g. known blackspot) and in full consultation with and support of concerned local communities and District Councils;

- in the longer run, Government to set up rigorous, credible, transparent and publicly recognised processes to review and approve similar applications with potential privacy concern before they are installed on the smart lampposts.

13. Convenor thanked Members for their professional advice and valuable suggestions.

Any Other Business

14. AGCIO(ID) briefed Members that 16 lampposts at Kwun Tong Town Centre were in different degrees of damage during the public event on 4 October 2019. Ten of them were smart lampposts that came into operation in June 2019. All the external covers were either scratched, damaged or dismantled and 3 of them had more severe damages including door locks forcibly opened, power and signal cables cut as well as smart devices and equipment damaged/removed. The other 6 were newly designed lampposts with only lighting function and no smart devices, and the external covers were scratched. Basic road lighting services were resumed on 5 October 2019 and detailed on-site inspection was required in order to confirm the degrees of damage and estimate the repair costs and recovery schedule. The device and function list published on the Public Sector Information (PSI) Portal (data.gov.hk) would be updated to reflect the deactivation of those devices due to the incident.

(Post Meeting Note: The function list on the PSI Portal was updated accordingly.)

15. Convenor advised that items to be discussed in next meeting would include 5G equipment to be installed on smart lampposts and the potential applications, and the smart lamppost design to tie in with the requirements of the smart devices and applications. Furthermore, an initial summary of Members' advice and recommendations collected so far would be presented in next meeting for Members' consideration for inclusion in the committee report. It was anticipated that more meetings would be needed to enable Members to have sufficient time for discussion and deliberation on the report. The schedule for the additional meetings would be proposed in next meeting.

16.   There being no other business, the meeting adjourned at 6:25 p.m.

Office of the Government Chief Information Officer
October 2019