

**Award-winning Speed and Position Monitoring System
to Further Enhance Operational Safety of Light Rail**

An innovative “Integrated Speed and Position Supervision System” (iSPS) developed for Light Rail by MTR engineers has been put on trial on three Light Rail routes in Tin Shui Wai, enabling real-time speed monitoring of Light Rail vehicles (LRV) and including other advanced features to further enhance the operational safety and efficiency of Light Rail services.

MTR Corporation strives to provide a safe and reliable service to customers and always seeks continuous improvement. Through a rigorous process of research, design, production and testing, MTR engineers successfully combined the mature and widely-used technology of Global Positioning System (GPS) and Radio Frequency Identification (RFID) to develop the award-winning iSPS. The system operates with in-train GPS receivers and RFID readers as well as RFID tags installed in track areas. During operation, the speed data as well as the position of LRVs will be relayed back to the Light Rail Operations Control Centre via a mobile communications network for real-time monitoring. Train captains would receive an audio reminder from the system when the speed of the LRV is about to reach the limit of the section being traversed.

The system also has other useful features including reminders for train captains to perform platform duty, and alerts when passing through designated junctions and turnouts.

Head of Operating – West Region of MTR Corporation Mr Cheung Chi-keung said, “Serving over 500,000 passenger trips per day in Tuen Mun, Yuen Long and Tin Shui Wai, LRVs run on sections of track that are shared with other road users. We have been working hard to enhance safety performance (see annex for details). The iSPS helps enhance not only the efficiency of LR operations but also the alertness of train captains. We will also continue to explore measures to enhance public awareness of railway safety.”

iSPS is an innovative “GPS+RFID” solution applied in speed monitoring and fleet management in Hong Kong public transportation. Through Big-Data analysis of the driving speed data, the Corporation can promote good driving practices to enhance safety. iSPS was awarded the Highly Commended Award in the Transport Category of the Institution of Engineering and Technology (IET) Innovation Awards 2014, organised by the Institution of Engineering and Technology in the UK, and also as the Champion (Open Section) of the Young Professionals Exhibition and Competition organised by the Institution of Engineering and Technology Hong Kong in 2015. A patent has also been granted by the Intellectual Property Department of the Hong Kong SAR Government in 2017.

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“As there is no commonly adopted solution for Light Rail speed monitoring in the market, our engineers had to innovate and develop one on our own. Our team had assured the stability of the system in GPS position accuracy, reception and RFID detection through rigorous tests and assessments before it was adopted for service. The Electrical and Mechanical Services Department has also rendered great support to the Corporation on launching iSPS to enhance railway safety,” said Mr Lu Wong, General Manager – Rolling Stock Fleet.

The iSPS system has been put on trial in the Tin Shui Wai area (Route 705, 706 and 751P) with promising results. The Corporation targets to launch the system in the whole LR network progressively from Q2 2019.

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About MTR Corporation

MTR Corporation is regarded as one of the world’s leading railway operators for safety, reliability, customer service and cost efficiency. In its home base of Hong Kong, the Corporation operates ten commuter railway lines, a Light Rail network, an Airport Express link as well as a new High Speed Rail service connecting Hong Kong to the Mainland of China that was launched in September 2018. These services carry about 5.8 million passenger trips on a normal week day. Another 6.5 million passenger trips are made on the rail services MTR operates outside Hong Kong in the Mainland of China, the United Kingdom, Sweden and Australia. In addition, the Corporation is involved in a range of railway construction projects as well as railway consultancy and contracting services around the world. Leveraging on its railway expertise, the Corporation is involved in the development of transit-related residential and commercial property projects, property management, shopping malls leasing and management, advertising media and telecommunication services.

For more information about MTR Corporation, please visit www.mtr.com.hk

Photo caption:

1. Mr Lu Wong, General Manager – Rolling Stock Fleet of MTR Corporation (left) and Mr Cheung Chi-keung, Head of Operating – West Region of MTR Corporation (right), demonstrate the functions of the iSPS system.



2. Standing in front of a 30th anniversary themed Light Rail vehicle, Mr Lu Wong, General Manager – Rolling Stock Fleet (1st left) and Mr Cheung Chi-keung, Head of Operating – West Region of MTR Corporation (2nd right) commended young engineers who participated in the development of iSPS system for the successful trial in Tin Shui Wai.



Annex: Highlights of safety initiatives launched in Light Rail

1. Zigzag barrier



- Installed at 47 locations as at October 2018
- To remind pedestrians to pay attention to any approaching Light Rail vehicle before crossing the tracks.

2. Smart Pedestrian Warning Bollard



- Currently installed at designated pedestrian crossings for trial
- To remind pedestrians when a LRV is approaching the crossing with flash light and “ding-ding” sound

3. Inter-car barrier



- Currently installed at 18 platforms
- To prevent passengers from falling down from the inter-car gap between LRVs

4. Enhanced road marks and features for preventing vehicle intrusion



- Red zone with rumble strips, castellated kerb etc. are implemented at designated Light Rail junctions to prevent external vehicle intrusion and traffic incident.

5. Full-length platform gap filler



- To minimise the gap between the LRV and platform so as to protect passengers from platform gap incident
- Installation is ongoing along the system