

Kick-start of the Jockey Club Smart City Tree Management Project



(from L to R) Dr Miranda Lou, Ir Hon Chi-keung, Ms Imelda Chan and Ir Prof. Xu You-lin officiated the ceremony.

Jockey Club Smart City Tree Management Project, a large-scale pilot project in Hong Kong, was ticked off on 14 June 2018 with the support from academia, non-government organisations (NGOs) and the Government, to apply smart sensing technology (SST) and Geographic Information Systems (GIS) for monitoring tree stability to enhance timely appropriate mitigation measures for sustaining longer tree lives.

Tree anchorage is critical to its structural stability. Weak anchorage will be reflected in a tree tilting, which in serious case poses the hazard of falling. Led by Dr Charles Wong, Assistant Professor of LSGI, this Project uses sensors which are tailor-made and installed on the lower trunk of selected urban trees to

monitor their tilting angle in a 3-dimensional manner, as a way of assessing the stability of the root and thus the tree. Data will be collected for a quantifiable analysis of the trees' root plate movement through the use of SST, i.e. the technology of monitoring environmental changes with the use of remote sensors and techniques, via the GIS-based platform.

Taking into consideration of various environmental factors, a threshold will be determined to design the monitoring system as a scientific measurement of the root plate movement and stability. When the tilting angle of a tree exceeds the threshold, the project team will be alerted to conduct a visit to verify the data for the purpose of calibrating the system. When considered necessary, it will inform the relevant tree management team to undertake actions in a timely manner.



Group photo for all supporting parties to the Project.

Officiating at the kick-off ceremony of the Project,

PolyU's Executive Vice President, Dr Miranda Lou, said PolyU has been striving to promote the sustainable development of our city and the Project is a typical example of this mission. "Committed to the pursuit for application-oriented research, PolyU researchers will apply smart sensing technology and Geographic Information Systems for monitoring tree stability. Our vision of establishing this system is to facilitate green management in the city for longer tree lives, so as to further improve our air quality for enhancing the living environment for the local community," she said.

Ir Hon Chi-keung, JP, Permanent Secretary for Development (Works) of HKSAR Development Bureau, said, "This project is a good opportunity to showcase Hong Kong's positive attitude towards innovative technologies and technology applications. Through the close co-operation between the tree management departments and the project teams, an effective tree monitoring system will be established to enhance the tree management works in all aspects, enabling the continual development of Hong Kong into a safe and liveable city."

Ms Imelda Chan, Head of Charities (Grant Making-Elderly, Rehabilitation, Medical, Environment & Family) of The Hong Kong Jockey Club, said being committed to environmental protection, the Club has donated over HK\$32 million to the Project. "In addition to the development of a smart sensor and tree monitoring system, the Jockey Club Smart City Tree Management Project includes public education programmes to encourage students and various stakeholders to learn more about urban forestry and biodiversity, as well as mobilise their participation in environmental protection."

In addition to PolyU LSGI, the Project includes members from The University of Hong Kong (HKU), The Hong Kong University of Science and Technology (HKUST), and Friends of the Earth (Hong Kong). The project also receives support from relevant government departments.

The Project started in February 2018 and SST sensors will in due course be installed on approximately 8,000 urban trees across the territory for monitoring over a 3-year period. It is expected that the Project will provide scientific data to supplement the existing tree preservation mechanism through early notification and response, aiming to contribute towards sustaining the invaluable urban trees in the city.



(from L to R) Dr Lilian Pun, Dr Charles Wong and Prof. John Shi from LSGI.

Chinese version of press release:

https://www.polyu.edu.hk/web/tc/media/media_releases/index_id_6551.html

Media coverages on 15/6/2018:

- Ming Pao 8000 樹裝儀器 遙距監測傾斜 <https://goo.gl/CWb6mz>
- Oriental Daily 智能傳感器監測樹健康 <https://goo.gl/UUKgVA>
- Am730 8000 樹裝傳感器 監測樹木健康延樹齡 <https://goo.gl/cPCDfZ>
- Metro Daily 監測樹木 <https://goo.gl/Poir3L>
- Sky Post 理大為 8000 棵樹裝傳感器安排護養 <https://goo.gl/GMRU16>
- Hong Kong Economic Journal (HKEJ) 馬會捐 3200 萬元裝樹傳感器 <https://goo.gl/qnPMwj>
- Lion Rock Daily 400 樹木裝傳感器 智能監測倒塌危機 <https://goo.gl/JJ9vo3>
- Sing Pao Daily News 賽馬會智慧城市計劃啟動 監測八千樹木適時護養 <https://goo.gl/ft1yqA>