

物聯網應用

Internet of Things Applications

物聯網的迅速發展對通訊技術有很高的要求，尤其是用以連接大量物聯網系統的無線通訊技術，需具低用電量、低寬帶、長距離的特性，當中LoRa、Sigfox及NB-IoT三大新興技術已漸趨成熟。為支持建設智慧城市，向客戶提供增值服務，機電署最近建立了實際的試驗環境，就無線物聯網技術的協調、干擾及網絡效能進行測試。

過去三個月，機電署在總部大樓設置以LoRa為標準的無線網絡基礎設備，並裝設不同的感測器以進行測試，當中包括在會議室的在場感測器及溫濕度感測器、在辦公室的光源感測器，以及在停車場的智慧泊車感測器等，藉以測試感測器和電池的性能及數據準確性。我們現正評估試驗結果，並計劃利用這些數據開發智能停車場和會議室預訂系統，預計於今年年中進行測試。

我們亦會與其他客戶部門合作，在沙田區推行利用LoRa無線通訊的先導計劃。我們已於選定地點設置基站，以供日後根據不同應用場景，安裝合適的感測器進行測試。

除LoRa外，機電署會在總部大樓就Sigfox及NB-IoT技術進行進一步測試，比較不同技術的優劣之處，為日後廣泛推展物聯網應用做好準備。

展望未來，我們計劃在不同客戶的場地陸續裝設基站，收集感測器數據，並在總部大樓建立一個由機電署管理的物聯網平台，為客戶提供上述三種技術收集所得的數據，以供作應用程式開發及分析用途。

如客戶有興趣了解或參與物聯網的試驗項目，請致電2808 3593與高級工程師陳賀賢先生聯絡。

If clients are interested to know more about or join the IoT trial project, please contact Mr. Steve Chan, Senior Engineer, at 2808 3593.

模擬顯示沙田區內特定 LoRa 基站的室外訊號覆蓋範圍。

A simulation indicating the outdoor signal coverage of designated LoRa base stations for Sha Tin district.

The rapid development of Internet of Things (IoT) requires a high level of communication technologies, in particular wireless communication technologies that are used to connect a vast number of IoT systems and have unique features of low power consumption, low bandwidth and long-distance coverage. Among the emerging technologies, the three major ones, namely LoRa, Sigfox and NB-IoT, have gradually matured. To support the building of a smart city and provide value-added services to clients, the EMSD has recently established a physical testing ground for conducting tests on the co-ordination, interference and network performance of wireless IoT technology.

In the past three months, the EMSD set up a LoRa-based wireless network infrastructure at its headquarters building. Different types of sensors were installed for testing the performance of these sensors and their batteries, as well as validating the accuracy of data collected. They included occupancy sensors and temperature and humidity sensors in conference rooms, light sensors in offices, and smart parking sensors in car parks. The test results are being

evaluated. It is planned to utilise the data to develop smart car parks and meeting room reservation systems, which are expected to undergo testing in the middle of this year.

We will also work with other client departments to launch a LoRa-based wireless communication pilot programme in Sha Tin. Base stations have been built at selected locations to facilitate future installation and testing of suitable sensors for different application scenarios.

Besides LoRa, the EMSD will conduct further tests on Sigfox and NB-IoT technologies at the headquarters building so as to compare the strengths and weaknesses of different technologies, and get prepared for the extensive roll-out of IoT applications in the future.

Looking forward, we plan to build base stations at different client venues to collect sensor data. An IoT platform managed by the EMSD will also be established at our headquarters building to provide clients with data collected by the above three technologies for the purposes of application development and analysis.

