智慧渠務—防洪監察系統
Smart Drainage – Flood Monitoring System

機電署與渠務署防洪組於年初合作推行試驗計劃，應用政府物聯通在沙田和大埔打造「智慧渠務—防洪監察系統」。客戶部門十分滿意試驗計劃的良好效果，因此決定在十個較易受風暴潮及越堤浪影響的地點進一步試用該系統。政府物聯通所採用的物聯網通訊科技LoRa，具有覆蓋廣、耗電少、成本低、易於安裝和進行維修保養等優點。此外，政府物聯通亦支援數以百種不同類型的感測器，這些感測器能應用於不同範疇，有助促進客戶部門的創新及科技發展。

在7月中至8月底的短時間內，機電署已於全港七個風暴潮點及三個越堤浪點成功安裝多個物聯網感測器，並正式與政府物聯通聯線，讓渠務署得以在今年的颱風季節，在這些地點有效地實時監測水位的漲退，掌握更多水位數據，以便及早採取應變措施，為市民的生命及財產提供更佳保障。

感測器不但能24小時實時監測水位高度，而且能按工作需要而遙距調校數據取樣頻率(由一分鐘至十分鐘不等)，把各監測點的水文資訊不間斷地經政府物聯通基站傳送至機電署總部，並顯示於新設置的防洪監察系統。此外，機電署準備為每個監測點安裝多一組後備物聯網感測器，以加強有關系統的可靠性。根據新設置的防洪監察系統所提供的水位上升趨勢和預定警戒線水位數據，渠務署的同事可快速評估水浸風險，盡早調派緊急應變小隊協助居民和處理水浸個案。

Early this year, the EMSD and the Flood Control Section of the Drainage Services Department (DSD) jointly launched a trial scheme to develop a Smart Drainage – Flood Monitoring System in Sha Tin and Tai Po with the application of the Government-wide Internet of Things (IoT) Network (GWIN). The client department was very satisfied with the good results of the trial and decided to further extend the trial to ten locations which are more susceptible to storm surges and overtopping waves. LoRa, the IoT communication technology used by the GWIN, has the advantages of wide coverage, low power consumption, low costs, easy installation and maintenance, etc. Besides, the GWIN also supports hundreds of different types of sensors, which can be used for a wide array of applications to help promote innovation and technology development of the client department.

In the short period between mid-July and end-August, the EMSD successfully installed a number of IoT sensors at seven storm surge spots and three overtopping wave spots across the territory. The IoT sensors are on live with the GWIN, enabling the DSD to effectively monitor real-time information of the rise and fall of water level at these locations and obtain more data on water level, which will facilitate early implementation of contingency measures for this year's typhoon season to better protect the lives and properties of the public.

The sensors not only monitor the real-time water level round the clock, but also remotely adjust the data sampling frequency (ranging from one to ten minutes) according to the operational need, and continuously transmit the hydrological information of each monitoring spot to the EMSD Headquarters through GWIN base stations for display on the newly installed flood monitoring system. Furthermore, EMSD plans to install an additional set of backup IoT sensors at each monitoring spot to enhance the reliability of the system. With the data on rising water level trend and alert level provided by the newly installed flood monitoring system, DSD colleagues can quickly assess the risk of flooding for early deployment of emergency response teams to assist the residents and handle the flooding cases.
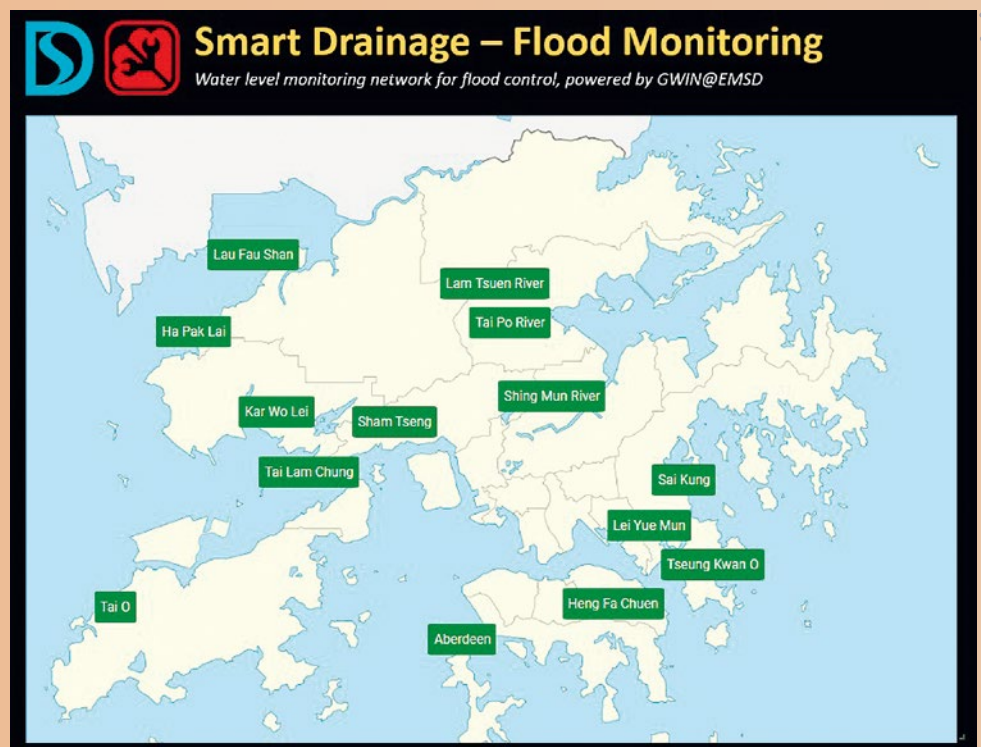
「智慧渠務—防洪監察系統」的用戶界面
The user interface of the Smart Drainage – Flood Monitoring System