# 智慧防洪監察系統 守護重要基礎設施

# Smart Flood Monitoring System Protects Critical Infrastructures

每當極端天氣來襲，香港部分地區便可能出現水浸。為加強防洪工作，機電署開發智慧防洪監察系統，應用創科技術，協助客戶部門監測重要基礎設施的水位情況，以便及早應變。

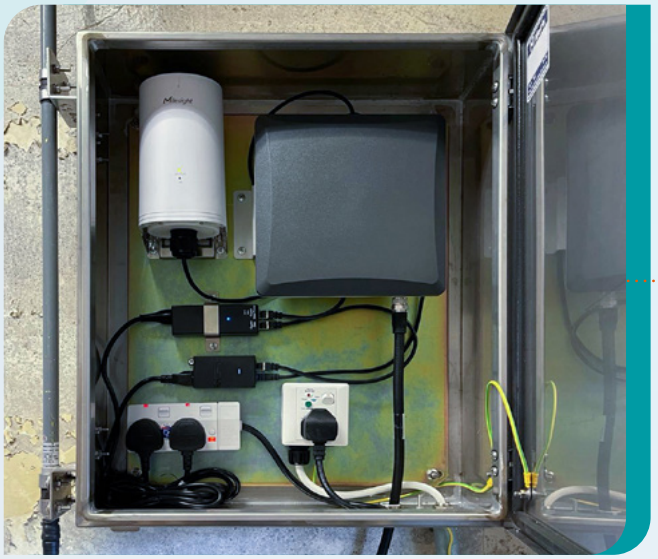
智慧防洪監測系統透過在場地內的超聲波距離傳感器監測水位高度，配合中央儀表板，讓有關人員可隨時隨地監察重要基礎設施的水位情況，以便有需要時立刻通知相關場地負責人員迅速採取應對水浸的行動，減低極端天氣對緊急和必需的公共服務造成的影響。

智慧防洪監察系統時刻守護重要基礎設施，我們在每個設施安裝一至三個超聲波距離傳感器，實時偵測場地的水位變化。傳感器的室內探測範圍為30至500厘米，室外探測範圍為50至1 000厘米。傳感器備有良好防水保護，內部採用防潮塗層，並且設有防水外殼，即使在惡劣天氣下仍能如常運作。系統優化後，更結合香港天文台的即時雨量數據，以確定水位異常讀數的真確性。當發現水位出現異常，系統會以電郵和短訊通知相關場地負責人員，以便他們作出相應行動。

新系統亦利用「政府物聯通」及遠程無線通訊技術傳輸數據，傳輸距離最高可達視距的15公里。傳感器收集所得的數據會定時傳輸到後台系統進行分析，以實時監測水浸危機。

智慧防洪監察系統利用多項科技，為我們城市的重要基礎設施提供適時可靠的保障。

位於沿岸設施的超聲波距離傳感器
The ultrasonic distance sensors at the waterfront facilities



機電署團隊為重要基礎設施安裝智慧防洪監察系統，以應對極端天氣。
To respond to extreme weather conditions, the EMSD team installed the Smart Flood Monitoring System in critical infrastructures.

Flooding may occur in some parts of Hong Kong when severe weather strikes. To enhance flood prevention efforts, the EMSD has developed the Smart Flood Monitoring System (the System) equipped with innovative technologies to facilitate client departments' monitoring of the water levels in critical infrastructures and early responses.

Equipped with on-site ultrasonic distance sensors for water level detection and centralised dashboards, the System allows staff to monitor water levels anywhere and anytime. Responsible site staff will be immediately notified as necessary to take prompt actions against flooding, with a view to minimising the impacts of extreme weather on emergency and essential public services.

The System provides protection for critical infrastructures constantly. One to three ultrasonic distance sensors are installed in each critical infrastructure, enabling real-time monitoring of water level changes. The sensors have an indoor detection range of 30 to 500 cm and an outdoor detection range of 50 to 1 000 cm. With internal moisture-proof coating and waterproof housings, they are well-protected to operate smoothly even under adverse weather conditions. Upon modification, the System also incorporates real-time rainfall data from the Hong Kong Observatory to determine the validity of abnormal water level readings. Once an abnormal water level is detected, corresponding site staff would be notified by email and SMS for relevant actions.

Applying the Government-Wide Internet of Things Network (GWIN) and the Long Range Wide Area Network for data transmission, the new System can provide a data transmission distance of up to 15 km for line of sight. The sensor data will be transmitted in regular interval to the backend system for analysis to allow real-time monitoring of flooding risks.

Employing various new technologies, the Smart Flood Monitoring System enables reliable and timely protection for our city infrastructures.