

## Conceptual and design framework for smart stormwater filtration

### **ABSTRACT**

Cost-effectiveness in monitoring stormwater quality is challenging in practice, particularly when it involves filtration mechanisms on-site. These challenges arise due to variance in stormwater characteristics, which are lead by rapid urbanization and improper waste management. Hence, an alternative conceptual and design framework of utilizing the concept of IoT (Internet of Things) in monitoring the real-time stormwater quality filtration is discussed. The stormwater quality can be monitored in real-time through data acquisition from wireless network technology in the IoT. ESP32 microcontroller is delegated as the central processing unit for the system. Then, collected data from the sensors of main water quality parameters, including temperature, pH, conductivity, water level, and turbidity, are processed and sent to the webserver while updating the collected data at specified time intervals. It can be remotely accessed via WiFi or GPRS protocol (when WiFi network is not available), regardless of the time and place.