Remote Monitoring System for Swimming Pools Water Quality (IOT)

Alshaibi, Mohammed (School: Ahmad Bin Hanbal Secondary School)
Makableh, Ahmad (School: Ahmad Bin Hanbal Secondary School)

The importance of swimming in our life is evident; it reduces the rate of heart attack incidences and accordingly extends a person's expected lifetime. Besides the health benefits. On the other hand, due to the degraded water quality, swimming pools could be a cause of many eye, skin, or respiratory infections/diseases. In fact, poor maintenance and irregular monitoring of pools are the main reasons, especially with the presence of wastes resulted from swimmers and other external pollutants. Typically, swimming pools are filled by large quantities of fresh water that are regularly circulated by mechanical pumps and purified through chemical filtration systems. Despite of these protection mechanisms, it was reported in the literature that pollutants cannot be fully mitigated, and pool users would be still subjected to infections. The failure to maintain the appropriate water quality is due to many reasons. Critical among them are the increased number of users, ineffective disinfection material, inappropriate settings and monitoring of pH, oxygen and chlorine, and others. This project is to develop IoT-based real-time monitoring system to detect and control pollutants in a swimming pool. Four sensors are equipped to measure, the pH, oxygen, organic content, and turbidity of the pool water. Arduino board (IoT piece) is used to collect the sensor outputs and bring the data to a web-based platform for further analysis, control, and visualization. A GPS locator is used to identify the device location via satellite. The project outcomes would be useful to the municipality regulatory bodies, pool operators, pool users, and visitors. The pool operators can promptly react and correct the water conditions if pollutants increase preset thresholds.