



# **SNS COLLEGE OF TECHNOLOGY**

**Coimbatore-35**

**An Autonomous Institution**

Accredited by NBA – AICTE and Accredited by NAAC – UGC with  
'A++' Grade

Approved by AICTE, New Delhi & Affiliated to Anna University,  
Chennai



## **DEPARTMENT OF ELECTRONICS & COMMUNICATION ENGINEERING**

### **19ECE306- SMART IoT APPLICATIONS**

III ECE / V SEMESTER

UNIT 2 – BASICS APPLICATION

**TOPIC 6 – Smart Water: Swimming Pool Monitoring**

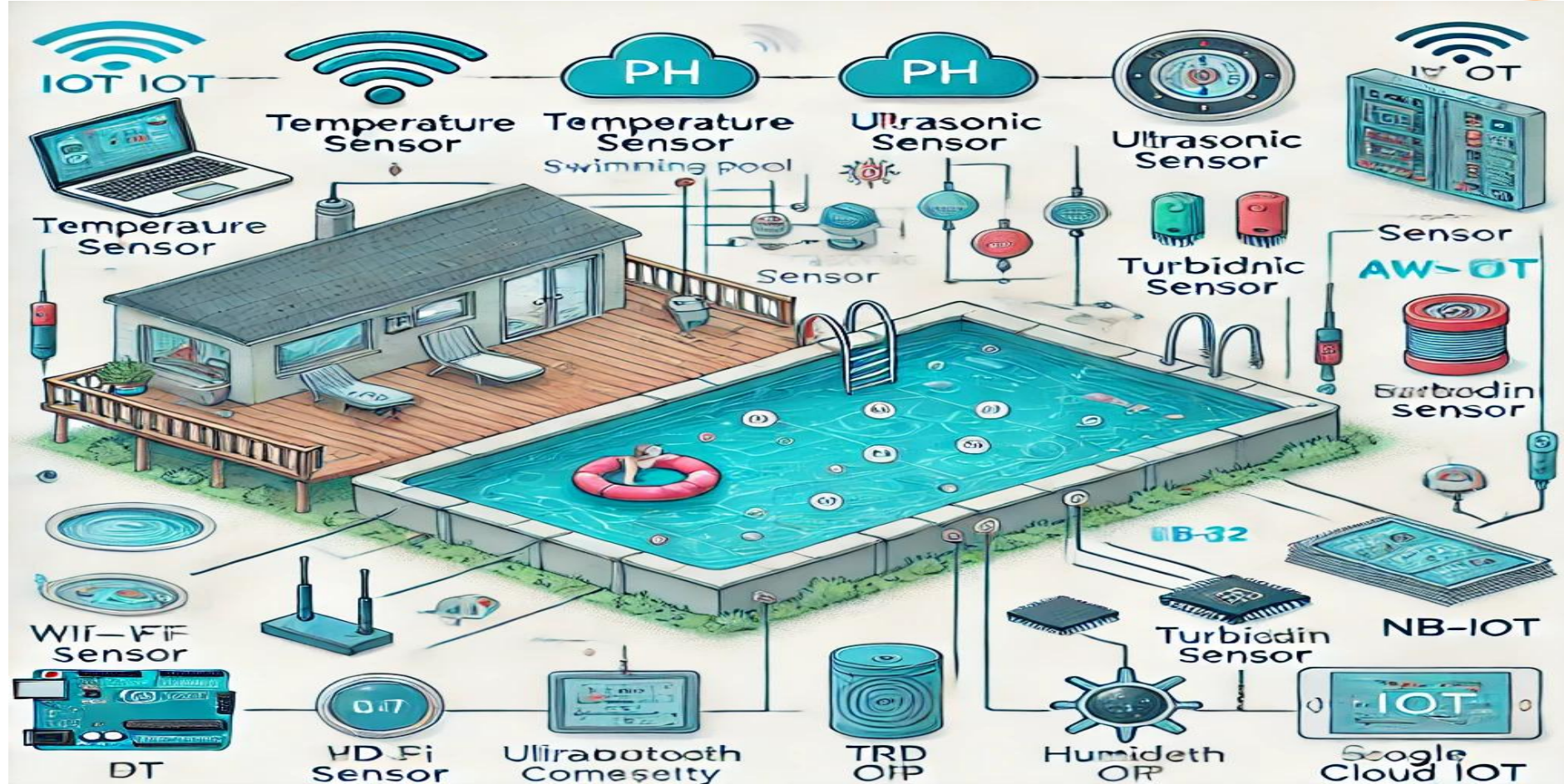


## Swimming Pool Monitoring

- Measuring oxidation-reduction potential (ORP), pH and Chloride levels of water can determine if the water quality in swimming pools and spas is sufficient for recreational purposes.
- The Smart Water platform is an ultra low-power sensor node designed for use in rugged environments and deployment in Smart Cities in hard-to-access locations to detect changes and potential risk to public health in real time.
- It may use cellular (3G, GPRS, WCDMA) and long range 802.15.4/ZigBee (868/900MHz) connectivity to send information to the Cloud, and can accommodate solar panels that charge the battery to maintain autonomy. Smart Water nodes are ready to deploy out of the box and sensor probes can be recalibrated or changed in the field.



# Swimming Pool Monitoring





# Swimming Pool Monitoring - Components



- Water quality sensors: These sensors measure various parameters of the water, such as pH levels, chlorine levels, temperature, and conductivity. They provide real-time data on the pool water's quality and chemical composition, ensuring optimal swimming conditions and maintaining a healthy environment.
- Atmospheric pressure sensors: Monitoring atmospheric pressure helps detect changes in weather conditions, allowing the system to adjust pool settings or prepare for severe weather events.



# Swimming Pool Monitoring - Components



- Humidity sensors: By measuring the humidity levels in the pool area, these sensors help maintain a comfortable atmosphere and prevent issues like excessive moisture or condensation.
- UV sensors: UV sensors detect the intensity of ultraviolet radiation in the pool area, allowing for appropriate measures to protect swimmers from overexposure to harmful UV rays.
- Ambient temperature sensors: These sensors measure the air temperature surrounding the pool, providing valuable data for maintaining optimal water temperature and adjusting heating or cooling systems accordingly.



# Swimming Pool Monitoring - Components



- **Connectivity and Data Transmission:**
- **Connectivity options:** Smart swimming pool systems offer various connectivity options for seamless communication and control.
- Wi-Fi connectivity allows users to access and manage the pool system remotely via smartphones, tablets, or web interfaces.
- Bluetooth connectivity enables direct communication between the pool system and nearby devices, offering convenient control within a limited range.
- Cellular connectivity allows remote access and control from anywhere, making it ideal for monitoring and managing the pool system when no local Wi-Fi network is available.



# Swimming Pool Monitoring - Components



- Cellular connectivity allows remote access and control from anywhere, making it ideal for monitoring and managing the pool system when no local Wi-Fi network is available.
- **Data transmission:** The collected sensor data is transmitted through the chosen connectivity option to a central control unit or a cloud-based platform. This facilitates real-time monitoring and analysis of pool conditions, enabling proactive maintenance, timely adjustments, and swift response to any issues. The data can be used to generate insights, identify trends, and optimize pool operations, and energy efficiency.