# ENVIRONMENTAL MONITORING USING IOT

**Problem Definition:**

1. **Project Scope and Objectives:**
   * The scope of our project is to implement an IoT-based environmental monitoring system in public parks.
   * Objectives: Provide real-time temperature and humidity data to park visitors, enhancing their outdoor experience and safety.
2. **Data Collection and Parameters:**
   * Identify the key environmental parameters to monitor: Temperature and humidity.
   * Specify the need for continuous data collection to support informed decision-making by park visitors.
3. **Environmental Challenges:**
   * Acknowledge the environmental challenges faced by park visitors due to changing weather conditions.
   * Highlight the importance of real-time data to mitigate these challenges and promote outdoor engagement.

**Design Thinking:**

1. **IoT Device Selection and Deployment:**
   * Select appropriate sensors for temperature and humidity monitoring.

Temperature sensors: Thermistors or digital temperature sensors.

Humidity Sensors:: **Capacitive Humidity Sensors:** These sensors are widely used for humidity measurement due to their accuracy and reliability.

* + Plan the deployment of these sensors in strategic locations within the parks for accurate data collection.

1. **Platform Development:**
   * Design a user-friendly web-based platform accessible to park visitors.
   * Implement real-time data visualization and display for temperature and humidity data.
2. **Data Integration and Communication:**
   * Determine the communication protocol (e.g., Wi-Fi, LoRaWAN) for data transmission from IoT devices to the platform.
   * Develop a backend system for data processing and integration with the platform.
3. **Power Supply and Maintenance:**
   * Choose suitable power supply options (e.g., batteries or solar panels) for IoT sensors.
   * Outline maintenance procedures to ensure continuous operation.
4. **User Engagement and Safety:**
   * Implement an alert system to notify users of extreme weather conditions.
   * Focus on user training and support to ensure effective utilization of the monitoring platform.
5. **Documentation and Reporting:**
   * Maintain comprehensive project documentation, including system architecture and user guides.
   * Provide periodic reports on environmental data and system performance to park management and the public.

So through this project, we can monitor the environmental conditions like temperature and humidity in a park, through sensors and transfer the data with the help of IOT devices and keep the visitors noted about the conditions of the park, and also bring a sense of awareness when the condition gets worse and also act as alarming system as well.