

# ENVIRONMENTAL MONITORING

## Phase-2 Project

### TEAM MEMBERS:

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## Overview:

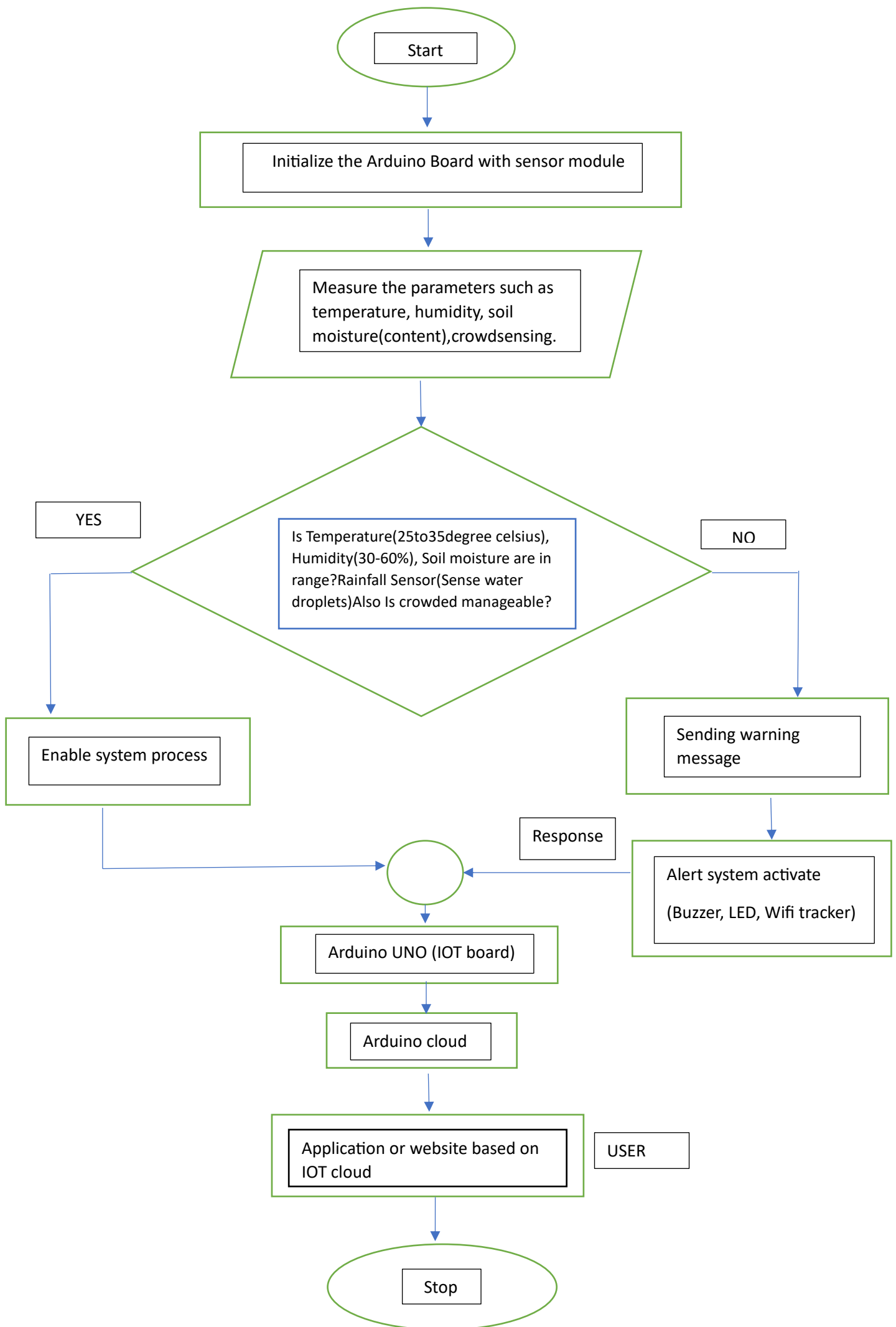
Create a park solution using a network of environmental sensors to collect real-time data. This information is fed into a user-friendly website for visitors, which provides information such as air quality and weather. A web-based dashboard provides information to park administration, allowing for faster action and improved decision-making.

## Components required:

- 1) Ultrasonic Sensor:** Ultrasonic sensors use sound waves to detect the presence of people. They can be employed to measure crowd density in specific areas of the park.
  - 2) Soil Moisture Sensor:** In parks and green spaces, soil moisture sensors are used to monitor the moisture content of the soil. This data helps in plant care and wetness, dryness of soil.
  - 3) Temperature sensor:** These sensors measure the air temperature in the surrounding environment. They are essential for weather monitoring and climate control in indoor public spaces.
  - 4) Rainfall sensor:** Rainfall sensors measure the amount of precipitation. They are valuable in urban planning, drainage systems, and flood monitoring, helping authorities manage water flow in public areas during heavy rains.
  - 5) Humidity sensor:** Humidity sensors measure the moisture content in the air. High humidity levels can lead to discomfort, and these sensors help regulate indoor humidity in places like museums, libraries, and public transportation hubs.
- Some other components are** Lightning sensor, Buzzer, LED, Jumper wires, Arduino UNO, Power Supply, bread board and application based Arduino IoT cloud.

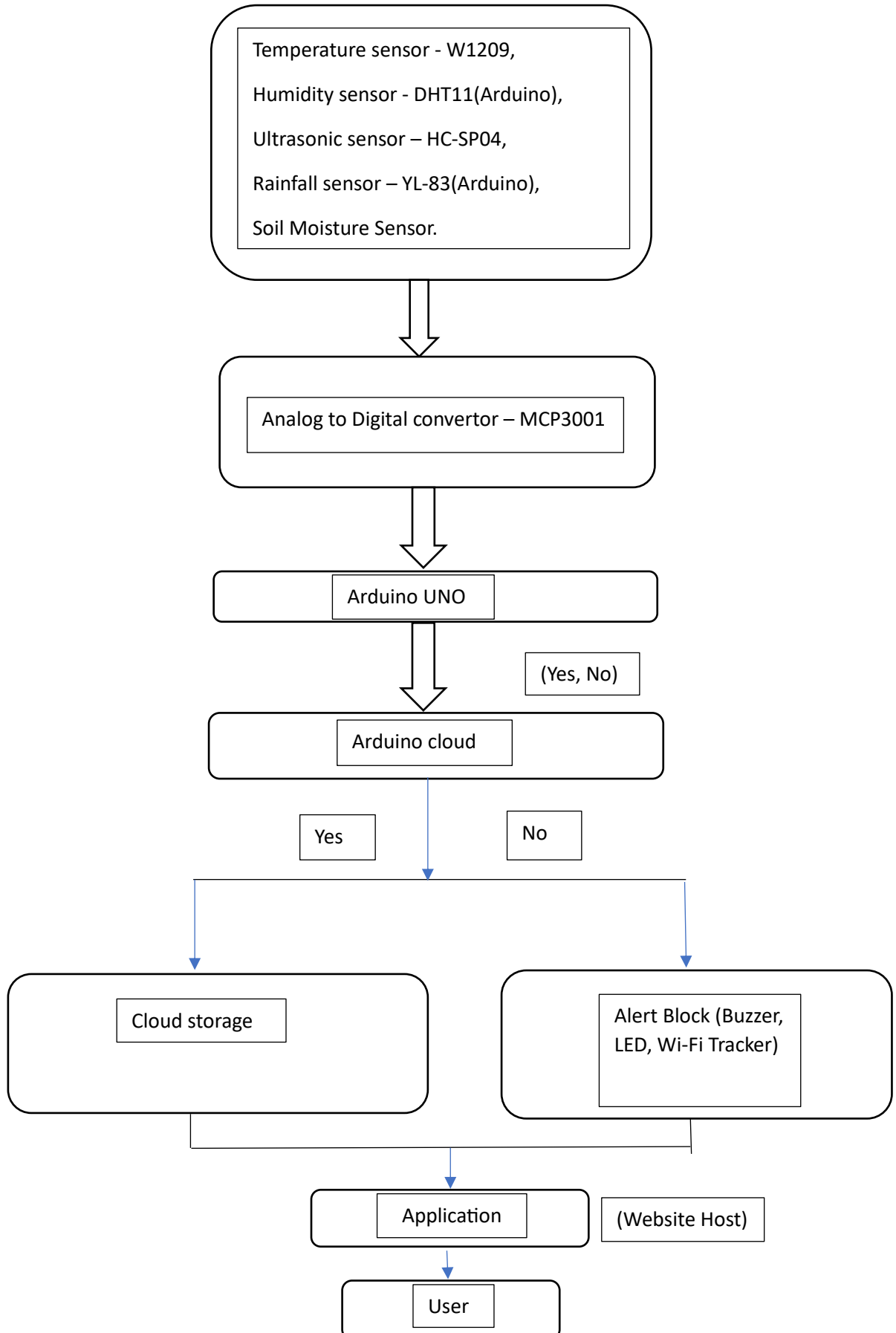
## Procedure:

Initialize the sensors and the Arduino Uno microcontroller. Read the temperature, pressure, humidity, and soil moisture data from the sensors. Analyse the data to determine if any environmental parameters are outside of acceptable ranges. If any parameters are outside of acceptable ranges, take appropriate action to correct them. For example, if the soil moisture is too low, activate an irrigation system to water the plants. If all parameters are within acceptable ranges, continue monitoring the environment. FLOWCHART IS MENTIONED BELOW



# Block diagram:

ENVIRONMENT AIR QUALITY, HUMIDITY,  
CROWD SENSING SYSTEM



## Benefits:

- Visitors can receive immediate alerts about adverse weather conditions or air quality, ensuring their safety during their park visit.
- **Improved Visitor Experience:** Access to real-time data allows visitors to plan their activities better, enhancing their overall experience.
- **Environmental Conservation:** Park management can respond quickly to environmental issues, minimizing damage and preserving the natural ecosystem.
- **Monitoring environmental conditions helps optimize energy and resource usage, reducing operational costs.**