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Government College of Engineering, Erode

(Approved by AICTE, New Delhi and Affiliated to Anna University, Chennai)



Environmental Monitoring

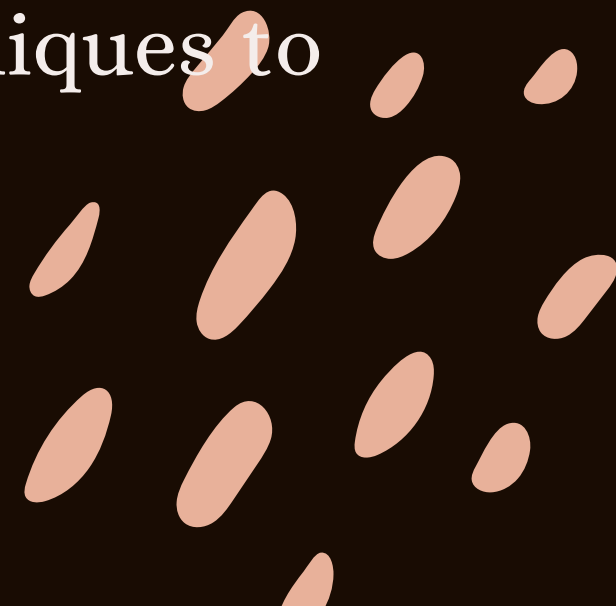
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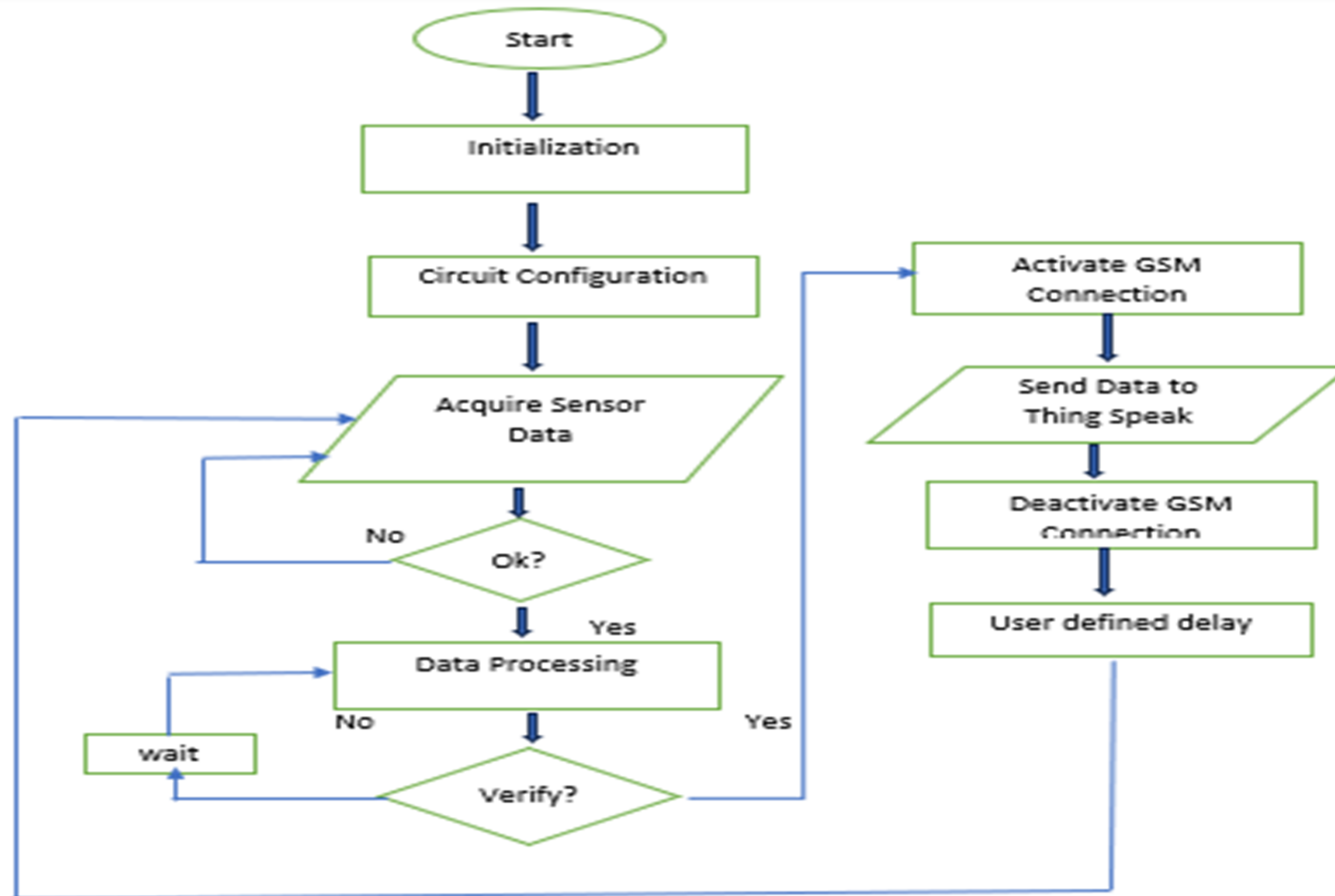
INTRODUCTION

Environmental monitoring is crucial for ensuring the health and safety of park visitors. IoT-based environmental monitoring systems can provide real-time data on various environmental parameters, such as temperature, humidity. This data can then be used to make informed decisions about park management and visitor safety.

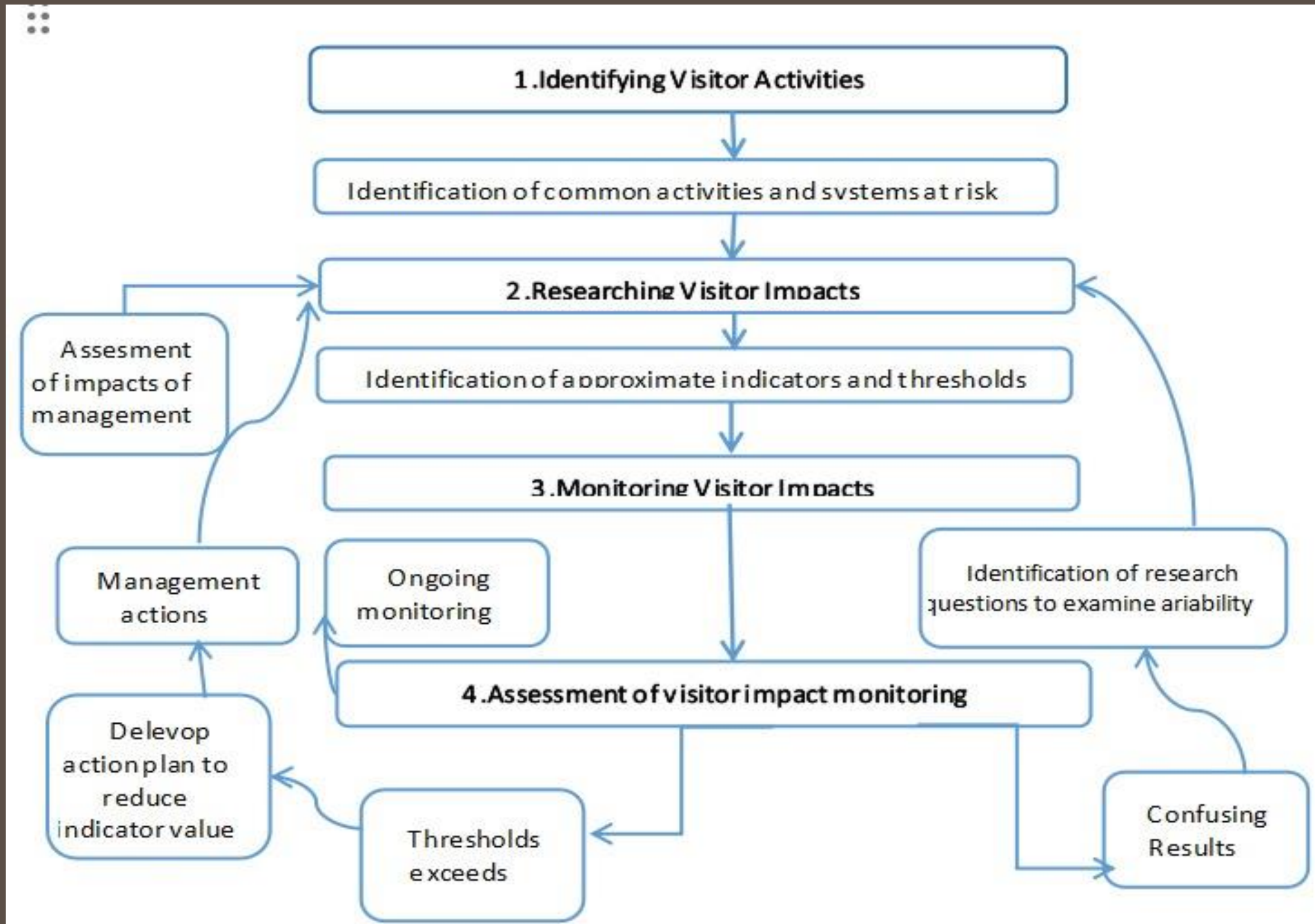
In this project, we will develop an IoT-based environmental monitoring system for a park using Arduino Uno, sensors, and Thingspeak cloud platform. The system will collect data on temperature, humidity and transmit it to the Thingspeak platform. We will also incorporate data visualization techniques to showcase historical temperature, humidity, and air quality trends.



FLOW CHART



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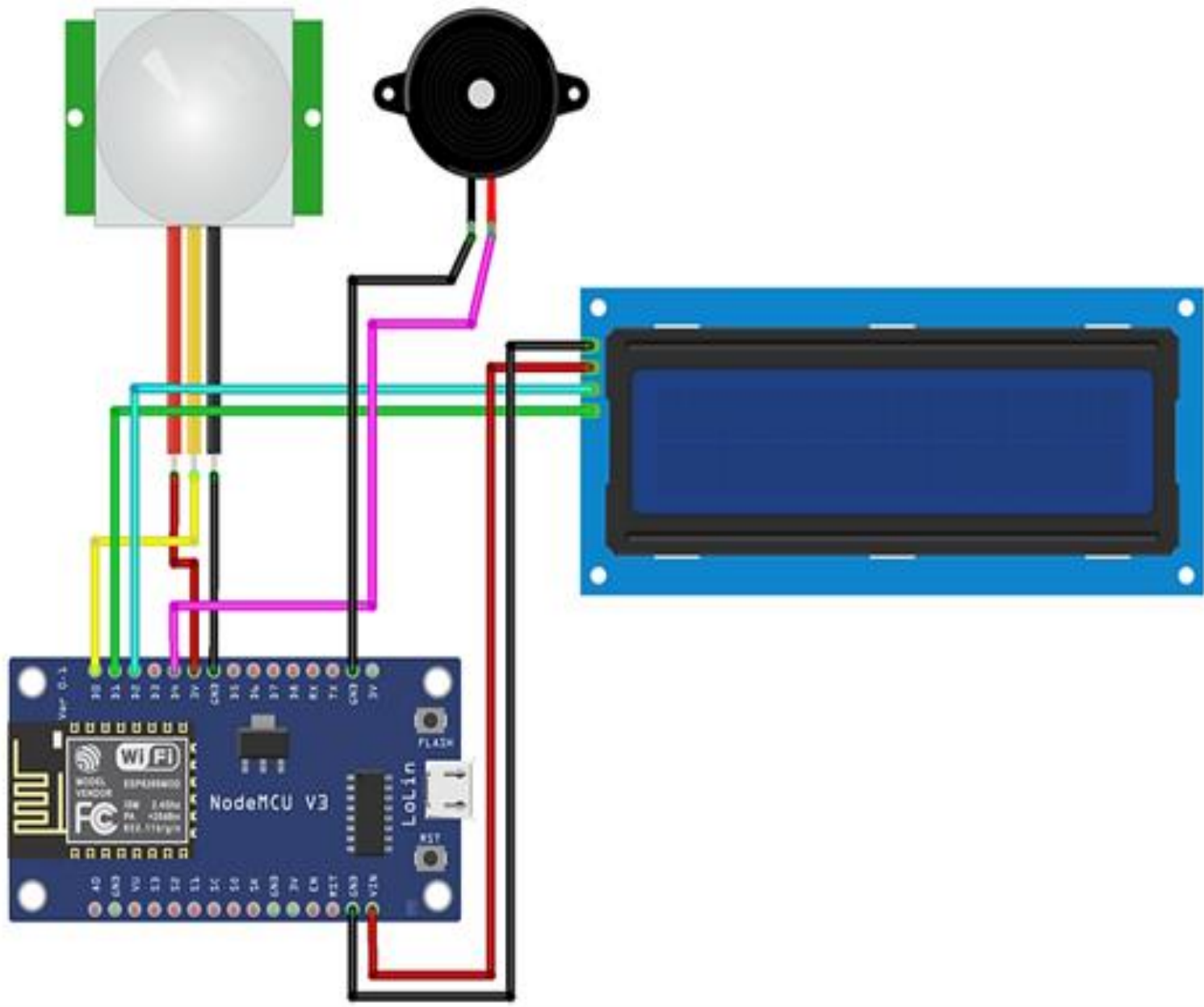


ARDUINO UNO



- Arduino UNO is a low-cost, flexible, and easy-to-use programmable open-source microcontroller board that can be integrated into a variety of electronic projects.
- Arduino is the complete board that comes with GPIO pins, analogue pins, and a microcontroller as the heart of the board. Arduino boards can perform some functions that a single microcontroller is capable of doing.
- Arduino IoT is a combination of the Arduino board and wireless connectivity, allowing devices to communicate with each other and the internet.

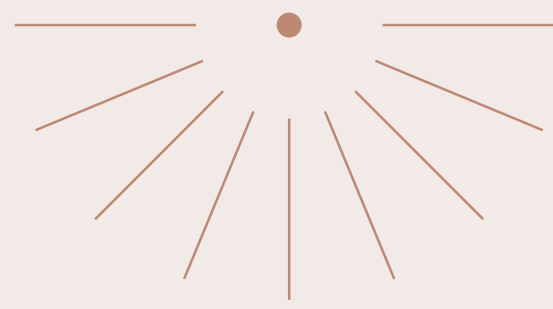
Motion Sensor



- The Motion Sensor detects movement, light, and temperature. Motion sensors are small, connected devices that are used to detect and measure movement within a specific area.
- Motion sensors are an important component of any security system. When a sensor detects motion, it will send an alert to your security system, and with newer systems, right to your mobile phone.

Key features:

- Separate occupancy and alarm output (no false triggering)
- Tamper protection
- Light and temperature sensor
- Wall, corner or ceiling mounting
- 3 years+ battery life
- Zigbee certified

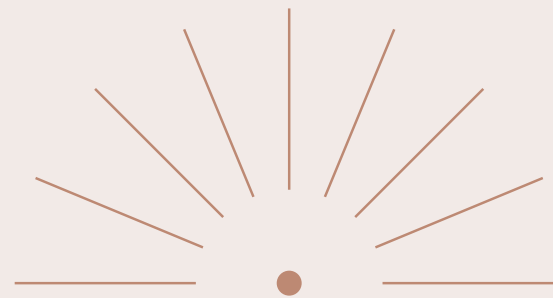


Temperature Sensor

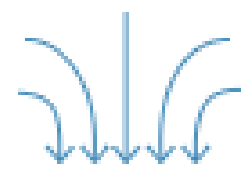
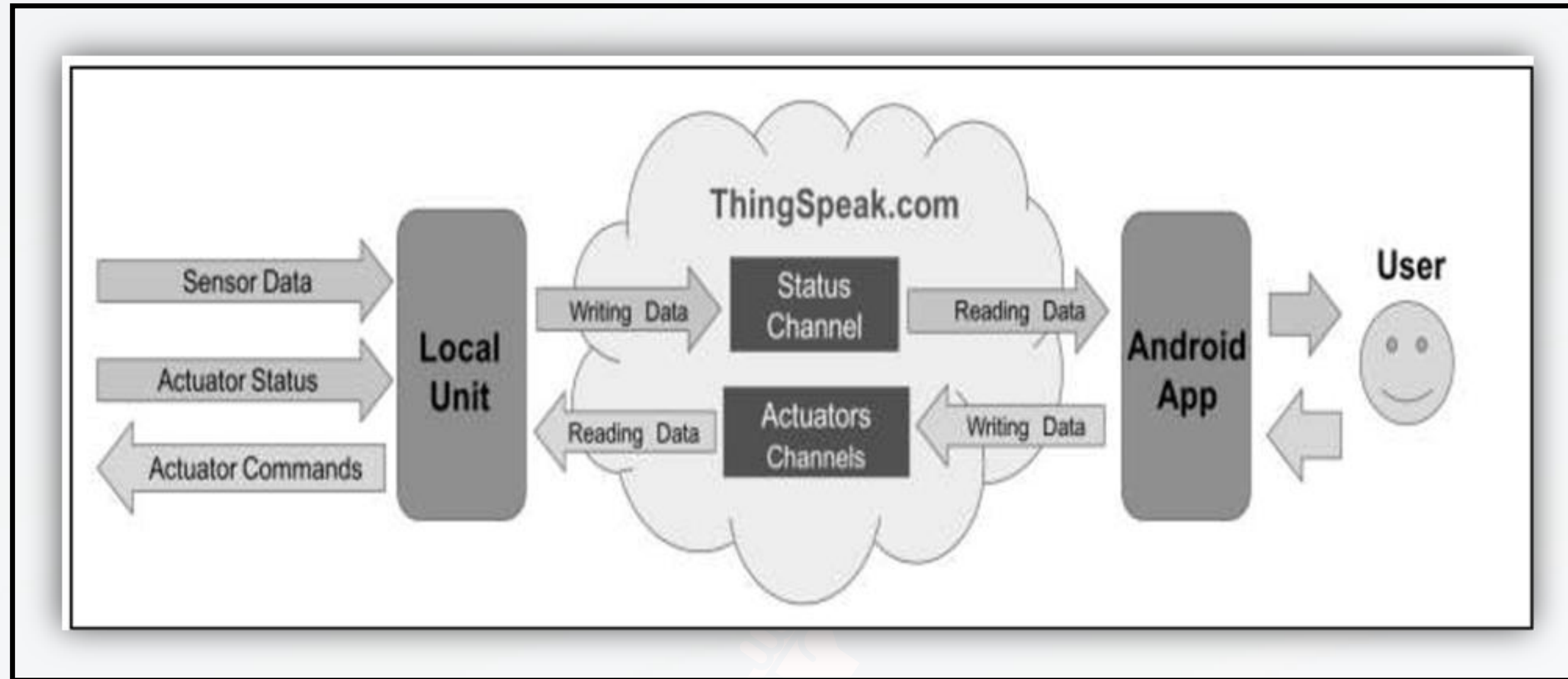
- Temperature sensors work by providing readings via electrical signals. Sensors are composed of two metals that generate an electrical voltage or resistance when a temperature change occurs by measuring the voltage across the diode terminals. When the voltage increases, the temperature also increases

Humidity Sensor

- Humidity sensors work by detecting changes that alter electrical currents or temperature in the air. There are three basic types of humidity sensors: capacitive, resistive and thermal. All three types will monitor minute changes in the atmosphere in order to calculate the humidity in the air.

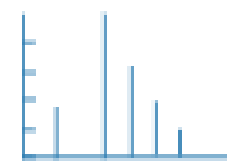


THINGSPEAK



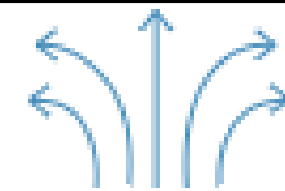
Collect

Send sensor data privately to the cloud.



Analyze

Analyze and visualize your data with MATLAB.



Act

Trigger a reaction.

HTTP PROTOCOL

The role of the HTTP protocol in park visitors for environmental monitoring is significant. The HTTP protocol is the foundation of data communication on the World Wide Web, allowing users to access and share information over the internet.



Data Collection and Submission: Park visitors can use mobile devices or computers to collect data on the park's ecosystem

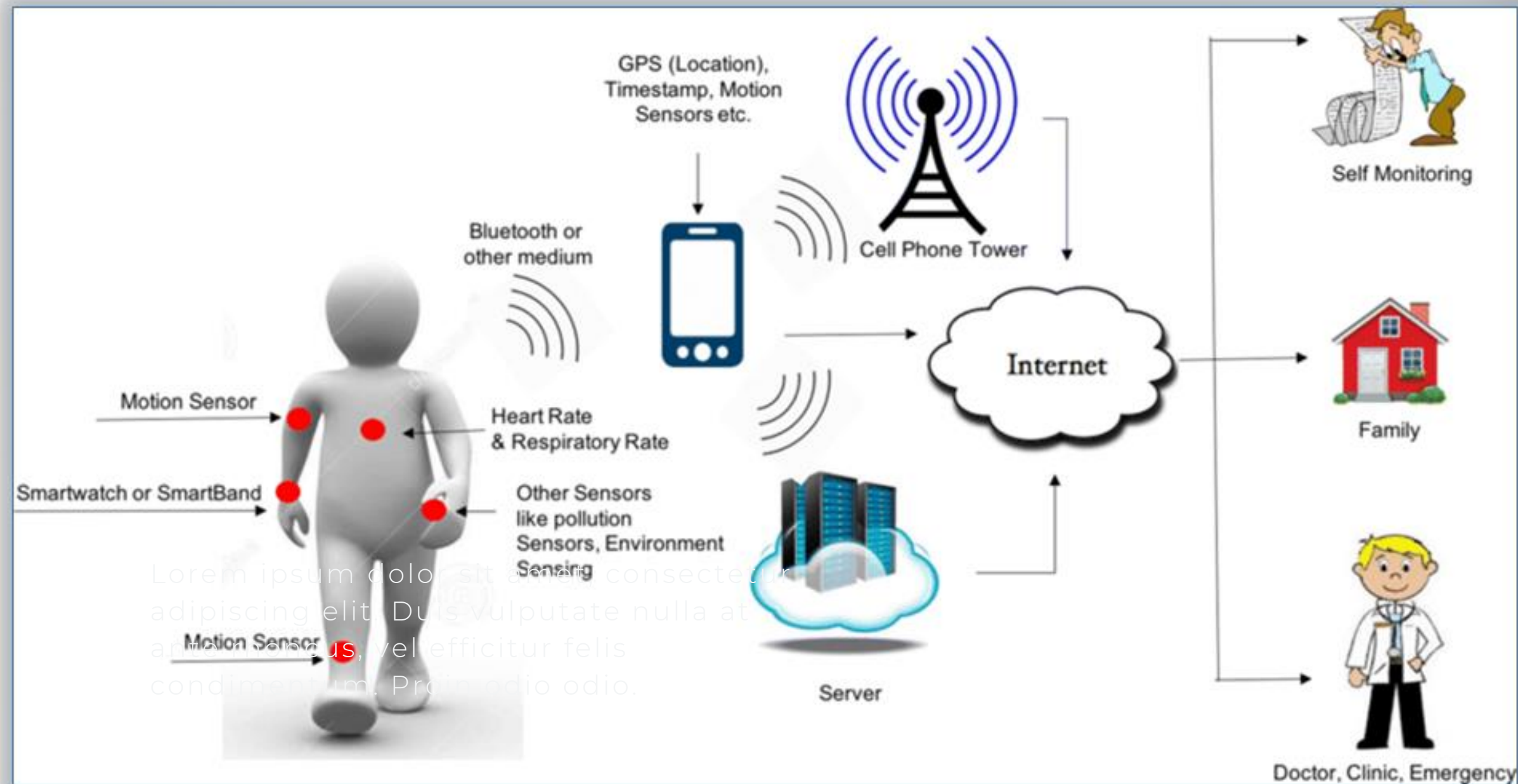


Collaboration and Knowledge Sharing: The HTTP protocol can enable collaboration and knowledge sharing among park visitors, staff, and researchers.



Real-time Monitoring and Visualization:
The HTTP protocol can also be used to enable real-time monitoring and visualization of the park's ecosystem.

WIFI- CONNECTIVITY





THANK YOU