# ENVIRONMENTAL MONITORING USING IOT

**PHASE 4 PROJECT DOCUMENT**

**TITLE:CREATING A WEB PAGE FOR ENVIRONMENTAL MONITORING USING INTERNET OF THINGS**

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**Creating a webpage for environmental monitoring using IoT involves several steps:**

* **Hardware Setup:**

**First, you need IoT devices and sensors to collect environmental data, such as temperature, humidity, air quality, etc. Set up and connect these devices to the internet.**

* **Data Collection:**

**Gather data from the IoT devices and sensors. This data can be transmitted using various communication protocols, such as MQTT, HTTP, or WebSockets.**

* **Server Backend:**

**Create a server or use a cloud service to receive, store, and process the data. This server can be hosted on a platform like AWS, Azure, or a Raspberry Pi.**

* **Database:**

**Set up a database to store the collected environmental data. Common choices include MySQL, PostgreSQL, or NoSQL databases like MongoDB.**

* **Web Application:**

**Develop a web application for data visualization. You can use HTML, CSS, and JavaScript, and frameworks like React, Angular, or Vue.js for the front-end.**

* **Real-time Data Display:**

**Implement real-time data updates on the webpage using technologies like WebSockets or Server-Sent Events (SSE) for live monitoring.**

* **Data Visualization:**

**Create interactive charts and graphs to display the environmental data in a user-friendly format. Libraries like D3.js, Chart.js, Or Plotly can help with this.**

* **User Authentication:**

**If needed, implement user authentication and authorization to control access to the monitoring system.**

* **Notifications:**

**Set up alerts and notifications based on specific environmental conditions using email, SMS, or push notifications.**

* **Security:**

**Pay close attention to security to protect your IoT devices and the data they collect. Use encryption, authentication, and access controls.**

* **Testing:**

**Thoroughly test your system to ensure data accuracy and reliability. Consider edge cases and failure scenarios.**

* **Deployment:**

**Deploy your webpage and server to a reliable hosting environment.**

* **Maintenance:**

**Regularly update and maintain both hardware and software components, as IoT devices and web technologies evolve.**

* **Documentation:**

**Create user and developer documentation to help users and future developers understand your system.**

# Thankyou