**🔍 Overview of Use Cases**

This section presents a detailed overview of the primary use cases defined and analyzed for the **Real-Time Air Quality Monitoring System**. These use cases are the foundation of the system’s behavior and describe how different actors interact with the system to perform specific tasks.

Each use case corresponds to a specific feature or action that users, sensors, or administrators can perform. They are essential for understanding both the functional requirements of the system and the way the components communicate and respond to different inputs.

**👥 Actors Involved**

The main actors interacting with the system are:

* **Guest** – a visitor with limited access.
* **User** – a registered member with more access privileges.
* **Admin** – a system administrator with full control.
* **Sensor** – an IoT device submitting environmental data.

**📘 List of Key Use Cases**

Here are the main use cases that were documented and diagrammed:

1. **Submit Air Quality Data** – Performed by sensors to send real-time pollution data to the system.
2. **View Air Quality Data** – Users and guests can see current pollution levels.
3. **View Detailed Air Quality Data** – Registered users can explore more detailed readings.
4. **Search Information by Location** – Allows searching for air quality based on geographic input.
5. **View Air Quality Forecast** – Displays short-term predictions of air quality.
6. **Configure and Receive Alerts** – Users configure thresholds and receive alerts.
7. **Track Data History** – View historical trends and charts of air quality levels.
8. **Contact Support** – Users can submit questions or report issues.
9. **Forgot Password** – Enables password recovery via verification.
10. **Statistic Air Quality Report** – Generate statistical reports by selecting specific dates.

**🧭 How to Use and View the Use Cases**

Each use case has been modeled using **UML Sequence Diagrams** and **Activity Diagrams** to illustrate the flow of data and control between actors and system components.

* **Sequence Diagrams** show how each action unfolds step-by-step, including the messages exchanged between objects.
* **Activity Diagrams** represent the logic and decision flows within each task, useful for understanding the full lifecycle of a use case.

You can navigate to each specific use case diagram through this Wiki and view both the behavior (Activity) and interaction (Sequence) diagrams. These diagrams will help you understand:

* What triggers each function
* How the system responds
* Who is involved in the process
* How data flows through the system