**Maintenance Guide for FireEye Application**

**Regular Updates**

• **Dependencies**: Regularly check and update the dependencies listed in requirements.txt to their latest versions to ensure compatibility, performance enhancements, and security patches.

• This includes libraries such as PyQt5, OpenCV, Torch, and other key components used in the application.

• **Frameworks and Libraries**: Keep Python, YOLOv5, and any other critical libraries up-to-date to take advantage of bug fixes, performance improvements, and security updates.

• Make sure to update your YOLOv5 model and weights to ensure optimal fire detection performance.

**Model Updates (YOLOv5)**

• If you wish to update the YOLOv5 model or if a newer version of the model is released, follow these steps:

1. Visit the official [YOLOv5 GitHub repository](https://github.com/ultralytics/yolov5).

2. Download the latest trained model (best.pt) or train a new model on your own dataset.

3. Replace the existing best.pt file located in the /weights directory of your project with the new model.

4. Test the updated model with sample videos or images to ensure the fire detection performance is satisfactory.

**Database Maintenance (SQLite)**

• **Backup**: Regularly back up the SQLite database to prevent data loss, especially before applying updates or making structural changes.

• **Optimization**: Use the following SQL command to optimize the database and improve performance:

SQL:

VACUUM;

• **Integrity Check**: Run the following command to ensure the database is functioning correctly:

SQL:

PRAGMA integrity\_check;

**Fire Spread Simulation**

• **Update Parameters**: Periodically update the environmental parameters such as wind speed, wind direction, temperature, and humidity to ensure accurate simulations based on the latest real-world data.

• **Model Performance**: Monitor the performance of the fire spread simulation to ensure that the grid size and other parameters are properly optimized for faster simulations without sacrificing accuracy.

**Installation**

• To install the **FireEye** application, follow the detailed instructions provided in the User Guide. This guide includes step-by-step instructions to help you set up the application on your system.

• The **User Guide** is located in the /docs directory of the project’s repository.

**API Key Management**

• If any external API services are integrated, ensure that the API keys remain valid. If an API key expires, follow these steps:

1. Visit the official website of the service provider to request a new API key.

2. Replace the expired API key in the application’s configuration file with the new key.

3. Test the application to confirm the API is functioning properly.

**Contact Us**

For further assistance or additional information about the **FireEye Application**, please feel free to reach out to our team:

• Email: [support\_rani\_majd@gmail.com](mailto:support_rani_majd@gmail.com)

This guide now reflects the details of your fire detection and simulation application while maintaining the structure and clarity of the original example.