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- If you wish to update the YOLOv5 model or if a newer version of the model is released, follow these steps: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

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