USB Logger & Unauthorized USB Detection Tool

Project Title: USB Logger & Unauthorized USB Detection Using Python

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1. Project Overview

This project is a Python-based security tool developed to monitor and detect unauthorized USB devices connected to a Windows system. The script continuously scans USB insertions, compares them against an authorized device list, and triggers real-time alerts if an unknown USB is detected.

2. Objectives

- Detect real-time USB insertions and removals
- Maintain a list of authorized USB devices
- Alert the user when an unauthorized USB is inserted
- Log all activities with timestamps

3. Technologies Used

- Python 3.10+
- pywin32
- WMI (Windows Management Instrumentation)
- pymsgbox
- playsound / winsound
- Windows Operating System

4. Features

- USB detection using WMI
- Real-time monitoring
- Audio and popup alert on unauthorized access
- Authorized device verification using authorized_devices.txt
- Activity logging in logs.txt

5. How It Works

1. The script continuously monitors USBControllerDevices using WMI.
2. All inserted USB devices are checked against authorized_devices.txt.
3. If a device is not listed, the system triggers:
    - A log entry
    - A beep sound or alert.wav
    - A popup window using pymsgbox

6. Setup Instructions

1. Install Python packages:

```
pip install pywin32 wmi pymsgbox playsound
```

2. Add trusted device IDs to authorized_devices.txt (format: USB_XXXX&PID_XXXX).

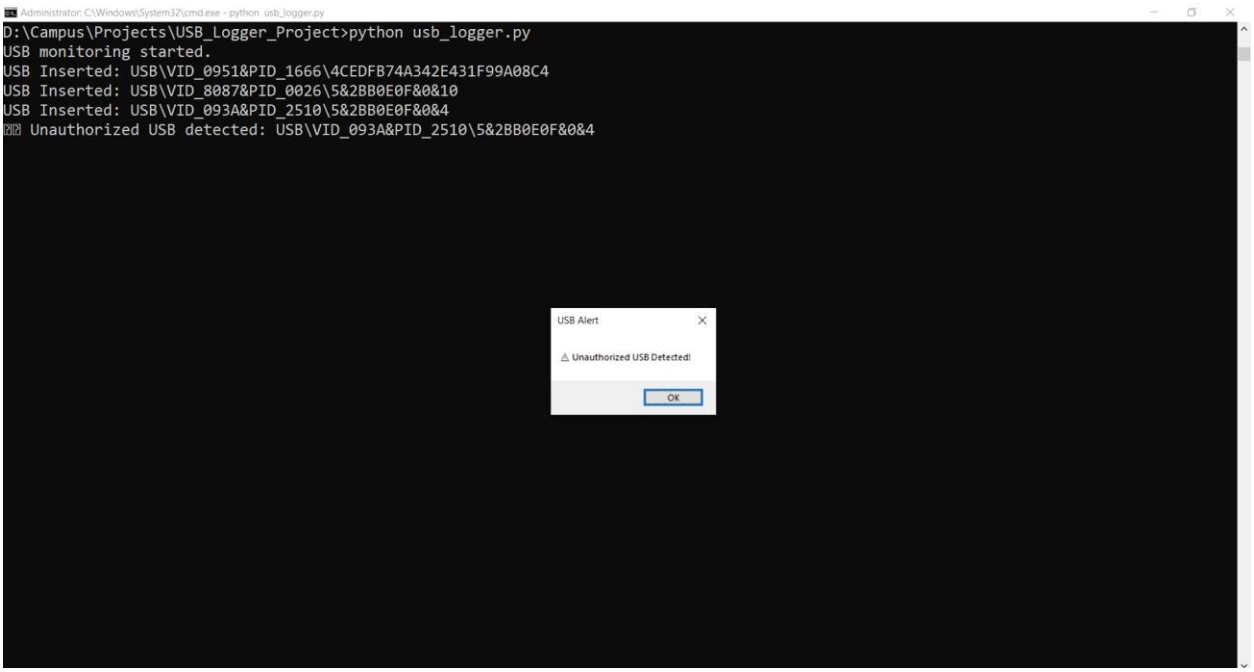
3. Run the script:

python usb_logger.py

4. Use find_usb_id.py to get the full device ID of your USB for authorization.

7. Screenshot

Below is a screenshot showing a detected unauthorized USB device and the alert popup:



8. File Structure

```
USB_Logger_Project/
├── usb_logger.py
├── find_usb_id.py
├── authorized_devices.txt
├── README.md
├── .gitignore
└── logs.txt (auto-generated)
```

9. GitHub Deployment Steps

1. Initialize Git repository:

```
git init
git add .
git commit -m "Initial commit"
```

2. Create GitHub repo and push:

```
git remote add origin https://github.com/yourusername/USB_Logger_Project
git branch -M main
git push -u origin main
```

10. Future Enhancements

- Email alert to admin
- GUI-based whitelist editor
- Export log file to CSV
- EXE packaging

11. Conclusion

This tool provides a low-cost, effective way to monitor USB usage on a personal or institutional system and alerts the user in real-time, helping to reduce the risk of data theft via USB devices.

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