**Student-Surveillance**

**ScholarWatch: AI-Powered Student Surveillance System**

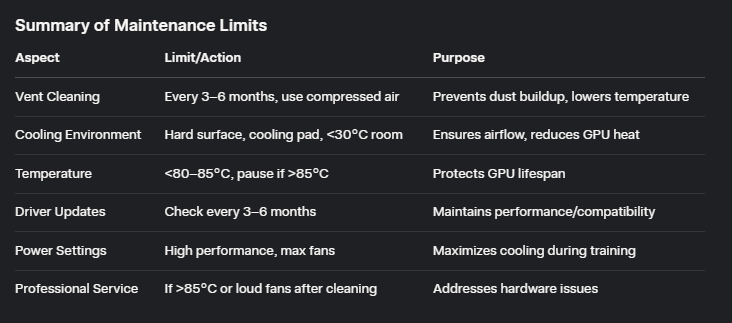
* Plan:- Create 3 models Smartphone detection, Face recognition, Head pose estimation and merge all three into one to monitor students from a cctv feed. It will monitor students and see if a particular student is using mobile phone or if he is peeking left right etc.
* Jupyer notebook will be my work environment with python 3,10 and tensorflow pytorch for gpu
* TensorFlow version: 2.10.0
* Torch version: 2.7.0+cu118

Setup

1. Created a venv student-surveillance-venv and activated it

student-surveillance-venv\Scripts\activate

1. Installed juptyter notebook and ipykernel
2. Register the venv as new jupyter kernel
3. Create jupyter notebook and test it
4. Limitations



1. Initialize git

**Face Detection & Recognition**

1. Verify Dependencies
2. Loading and Preparing the Custom Dataset

* Load the labels.csv file to map IDs to names.
* Read images from the train, test, and validate folders.
* Use MTCNN to detect and crop faces from the images.
* Preprocess the images (resize to 160x160, normalize, etc.) for compatibility with a face recognition model (e.g., a model based on FaceNet or a custom CNN).
* Organize the data into a format suitable for training (e.g., PyTorch Dataset for easy batching).

1. Step 3: Defining the Face Recognition Model

**IMP Links**

1. [yakhyo/head-pose-estimation: 👤 | Real Time Head Pose Estimation: Accurate head pose estimation using ResNet 18/34/50 and MobileNet V2/V3 models. Evaluate yaw, pitch, and roll with pre-trained weights for quick integration.](https://github.com/yakhyo/head-pose-estimation)

2. [Real-time 6DoF full-range markerless head pose estimation](https://repository.hanyang.ac.kr/bitstream/20.500.11754/187508/1/110298_%EC%9D%B4%EC%84%B1%EC%98%A8.pdf)

3. [Mobile phone detection Dataset > Overview](https://universe.roboflow.com/exam-detection-a9bsf/mobile-phone-detection-mtsje)