Project Name:- **Automated Surveillance and Alert Generation System**

Roll No’s:- **1601-14-733-091 , 1601-14-733-092**

System Flow and Architecture:-

* Step 1:- (Initial Setup)
  + - Install Python
    - Create virtual environment
    - Install OpenCV
    - Install ffmpeg codec (to read avi and mp4 videos)
* Step 2:- (Reading Video Dataset)
  + - Use OpenCV
    - Convert video file into avi
    - Repeat below steps for each Video
* Step 3:- (Preprocessing)
  + - Convert coloured video to grayscale
    - Read video frame by frame
    - Calculate the pixel values using OpenCV
* Step 4:- (Optical Flow)
  + - Read each pixel’s intensity
    - Compare with next frame
    - Detect Motion
    - Calculate Velocities of different pixels
* Step 5:- (Violent Flow Descriptors)
  + - Calculate flow vector magnitudes
    - Obtain binary indicator for each pixel
    - Obtain mean of binary indicators (Violent Flow Descriptors)
* Step 6:- (Training Data)
  + - Install Sci-Kit Learn
    - Use Linear SVM Classifier
    - Train Violent or Non-Violent Clips against Violent Flow Descriptors