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

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

<u>System Flow and Architecture</u>:-

- 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