

## Kurian Georly Kunnathushery

### Explanation for the code:

For this assignment I am building a python code for motion detection. I started my code with two methods. The first one is directly reading a video file for motion detection and the second is by capturing the live feed from the camera. The reading and then diction work at the same time when the code is running by the help of function. Then in order to make the code work, I started the code by reading the first frame and the second frame. Then I created a while loop which works when the video capturing is on. In while loop I created code for finding the difference of frames, converting to gray, blurring, finding threshold, dilated the threshold and finding contours. Inside the while loop the for loop consist of finding the contour area, avoiding small motion areas by adjusting the value  $< 2000$ , making the rectangle over the motion area, tracking the motion and shows the status while a motion detects, blurring the motion area, shows the frame, then changing frame one to frame two, reading the new frame to Frame two and if pressed 'q' it breaks from the while loop. Then using the command 'cv2.destroyAllWindows()' and 'cap.release()', it destroys all opened window and stops the camera. The detection algorithm in my code is the Background Subtraction method. In my project, the background image frame is changed frame by frame. It avoids the drawbacks of the Background Subtraction method, such as camera position doesn't change and is sensitive to differences in lighting, room/area conditions, etc. I use the Gaussian Mixture Method or Mixture of Gaussians Method as a Clustering Algorithm. And my foreground detection method is the threshold method. My assumption in the code is that changing the background frame continuously is a pretty good idea to overcome the drawbacks of the Background Subtraction method. So, I can make the code detect the motion even if the background changes and can also change the motion area size by adjusting the values and avoiding small motions.

**For extra credit**, I have done the project by blurring the motion area. First I found the motion area and then I used the cv.GaussianBlur() method to blur the area.

