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Course: Python

USN: 4AL18EC050

Topic: Build a webcam Motion detector.

Sem, Sec: IV, A

Github: Sneha - G19

Report:

Main logic:

Videos can be treated as stack of pictures called frames. Here comparing different pictures to the first frame which should be static. We compare two images by comparing the intensity value of each pixels. In python it can be done using the following code:

```
# Python program to implement
# Webcam Motion detector
# Importing OpenCV, time & Pandas library
Import cv2, time, pandas
# Importing datetime class from datetime library
from datetime Import datetime
static_back = None
# Assigning our static back to None
# list when any moving object appear
```

motion-list = [none, none]
# time of movement
time = []

# initializing data frame, one column is start
# time & other colum is end time
df = pandas. DataFrame (columns)
# capturing video
video = cv2. VideoCapture (0)
# Infinite while loop to treat stack of image
while true:
    # Reading freme (image) from video
    check, frame = video.read()
    # Initializing motion = 0 (no motion)
    motion = 0

# converting color image to gray-scale image
gray = cv2. cvt Color
# so that change can be found easily
# in first iteration we assign the value
# of static-back to our first time
if static. back is None:
    static - back = gray
    continue

Appending status of motion.
Destroying all the windows.
cv2. destroy All Windows ()

Analysis of all windows:

- **Gray frame:** The image is bit blur & in gray scale pictures is only one intensity value whereas in RGB it would be easy to calculate

- **Difference frame:** It shows difference of intensities of first frame to the current frame

- **Threshold frame:** If the intensity difference for a particular pixel is more than 30 then the pixel will be white

- **Color frame:** Color images in color frame along with green contour around the moving objects.