OpenCV (Python)

Display live full resolution video from USB camera

OpenCV can grab video frames directly from USB camera. However it can be tricky to get full resolution and MJPEG compression. Example below unlocks full capabilities and captures 1080p@30fps from C1 family cameras.

More detailed bog post about OpenCV tricks to get full resolution from USB camera.

Code #1

```
import cv2

camera = cv2.VideoCapture(0, cv2.CAP_DSHOW)

camera.set(cv2.CAP_PROP_FRAME_WIDTH, 1920)
camera.set(cv2.CAP_PROP_FRAME_HEIGHT, 1080)
camera.set(cv2.CAP_PROP_FPS, 30.0)
camera.set(cv2.CAP_PROP_FOURCC, cv2.VideoWriter.fourcc('m','j','p','g'))
camera.set(cv2.CAP_PROP_FOURCC, cv2.VideoWriter.fourcc('M','J','P','G'))

while (1):
    retval, im = camera.read()
    cv2.imshow("image", im)

    k = cv2.waitKey(1) & 0xff
    if k == 27:
        break

camera.release()
cv2.destroyAllWindows()
```

Versions

Python (Windows)	3.8.4rc1
OpenCV	4.3.0

Code #2

```
import cv2

print("Initializing camera")

camera = cv2.VideoCapture(0, cv2.CAP_DSHOW)

print("Setting camera mode")

camera.set(cv2.CAP_PROP_FPS, 30.0)
camera.set(cv2.CAP_PROP_FOURCC, cv2.VideoWriter.fourcc('m','j','p','g'))
camera.set(cv2.CAP_PROP_FOURCC, cv2.VideoWriter.fourcc('M','J','P','G'))
camera.set(cv2.CAP_PROP_FRAME_WIDTH, 1920)
camera.set(cv2.CAP_PROP_FRAME_HEIGHT, 1080)

print("Starting capture")
while(1):
    retval, im = camera.read()
    scale = 0.5
    im = cv2.resize(im, None, fx=scale, fy=scale, interpolation=cv2.INTER_CUBIC)
    cv2.imshow("image", im)

    camera.set(cv2.CAP_PROP_EXPOSURE, -10)
    camera.set(cv2.CAP_PROP_GAIN, 30)

    k = cv2.waitKey(1) & 0xff
    if k == 27:
        print("exit")
        break

camera.release()
cv2.destroyAllWindows()
```

Versions

Python (Windows)	3.10.0
OpenCV	4.9.0

Revision #11
Created 29 July 2020 05:38:40 by Saulius
Updated 24 July 2024 08:46:10 by Saulius