OpenCV Python

Command Line Application

e-con Systems

Think Camera. Think e-con.

Version 1.4

e-con Systems

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Disclaimer

The specifications of OpenCV Python command line application and instructions on how to run this with our e-con Systems camera are provided as reference only and e-con Systems reserves the right to edit/modify this document without any prior intimation of whatsoever.

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Introduction to Sample Application

e-con Systems provides a sample console application for OpenCV Python to demonstrate some of the features of e-con Systems cameras.

This document explains in detail about how to execute the OpenCV Python sample console application from command prompt on Windows and terminal on Linux platform.

Prerequisites

You must install OpenCV on a PC. Please refer to the Installation Manual (https://github.com/econsystems/opencv/tree/master/Documents) for more detailed installation steps and images.

Supported OpenCV version

Sample application supports for both OpenCV version 4.5.5 and 4.6.0.

Description

Using OpenCV Python application, you can perform the features as follows:

- Selecting the camera devices.
- Configuring UVC settings.
- Configuring camera formats or resolutions.
- Getting the firmware version number.
- Capturing still images.

Launching the Application

This section describes how to launch and use the sample console application.

Launching Windows Sample Application

Run the following command from the sample application folder using command prompt.

```
$ python main.py
```

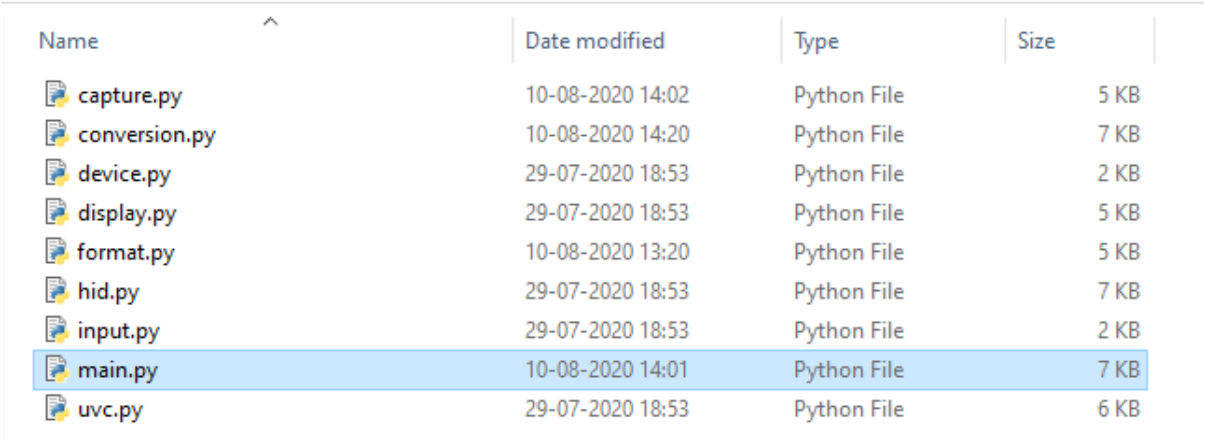

Figure 1: Sample Python Scripts

Launching Linux Sample Application

Run the following command from the sample application folder using terminal.

1. Keep the libopencv_world.so, libopencv_world.so.460, libopencv_world.so.4.6.0 in the same directory with the executable file and run this command.

```
$ sudo python3 main.py
```

The screen appears as shown below.

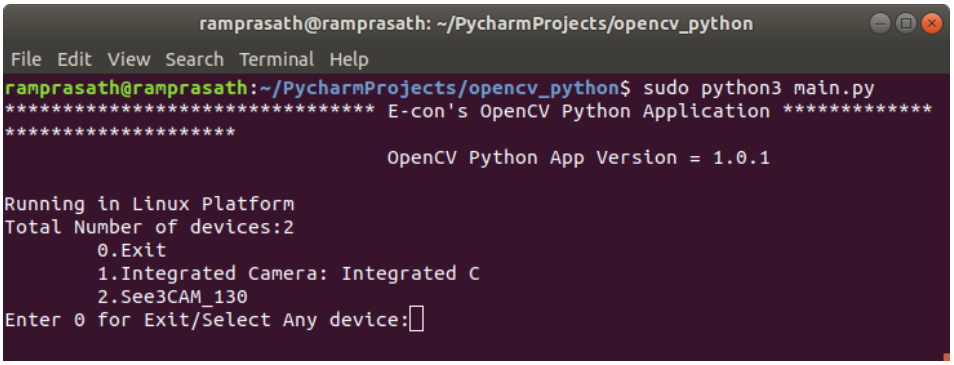

Figure 2: Linux Application Launch

This version of OpenCV Python sample application is used to communicate with certain functionality of e-con Systems cameras such as camera video formats, resolution, UVC controls, capturing still images and reading firmware version number. Initially, it will list the number of cameras connected to the pc.

Using Sample Application

This section describes the features supported in OpenCV Python application.

Selecting the Camera Devices

Initially, the command line application displays the number of cameras connected to the PC. The Camera Names will be displayed.

You must select the Camera Device to explore their features using this command line application and the preview will be displayed parallelly as shown below.

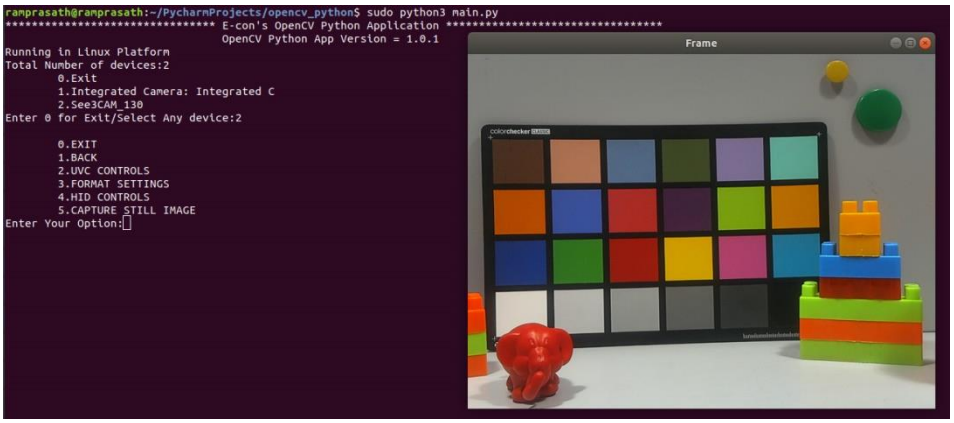

Figure 3: Camera Device Configuration

Application Main Menu

You can change the camera properties using the following options:

- Option **0** to exit from the application.
- Option **1** to go back to the previous menu.
- Option **2** to configure UVC settings.
- Option **3** to configure camera format or resolution.
- Option **4** to go to HID properties.
- Option **5** to capture still images.

Enter **any one of the options** to change the camera properties as shown below.

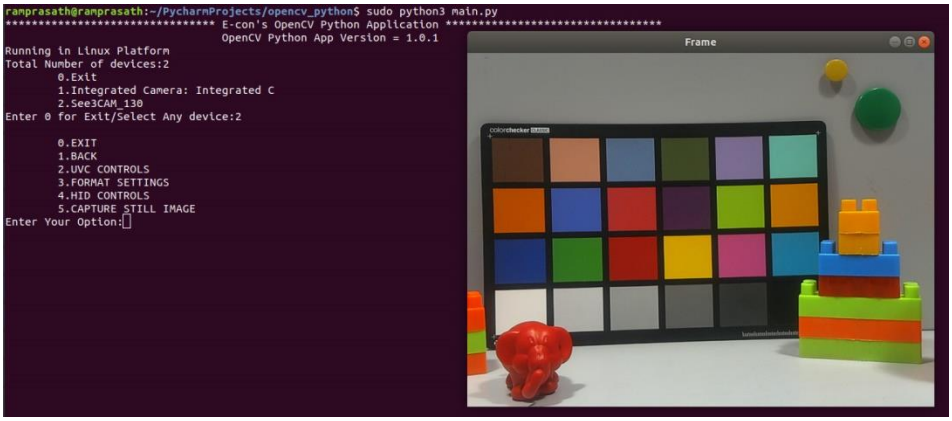

Figure 4: Changing camera properties

Configuring UVC Settings

The steps to configure UVC settings are as follows:

1. Enter **2** in **Enter your option:** to configure UVC Settings. The supported UVC Settings will be displayed as shown below.

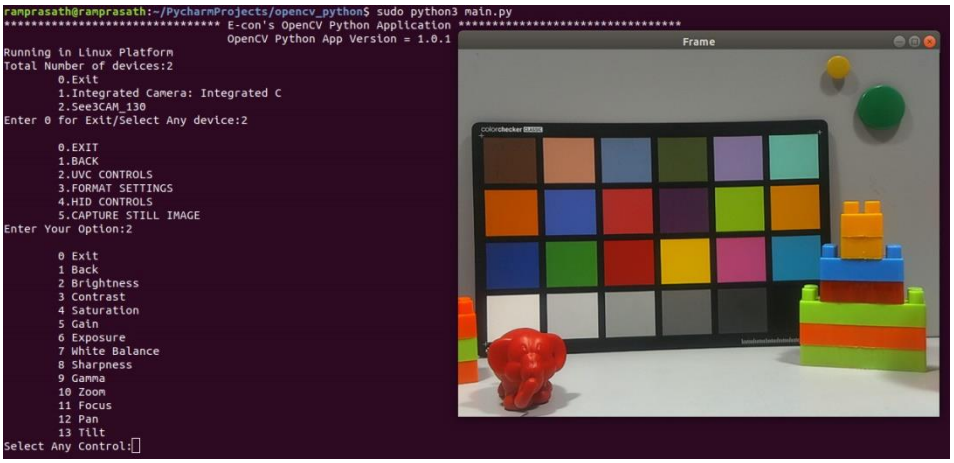

Figure 5: Configuring UVC Settings

2. Select a UVC Settings to modify the camera UVC property. For Brightness, you must enter **2** in **Enter your option:**. The modes supported in camera are as follows:

    - If the camera supports manual mode, it will display minimum value, maximum value, stepping delta, current value, default value, current mode as manual and supported mode as manual.
    - If the camera supports Auto mode, it will display supported mode as Auto and current mode as Auto.
    - If the camera supports both auto and manual mode, it will display minimum value, maximum value, current value, default value, stepping delta, current mode and supported mode as Auto or Manual as shown below.

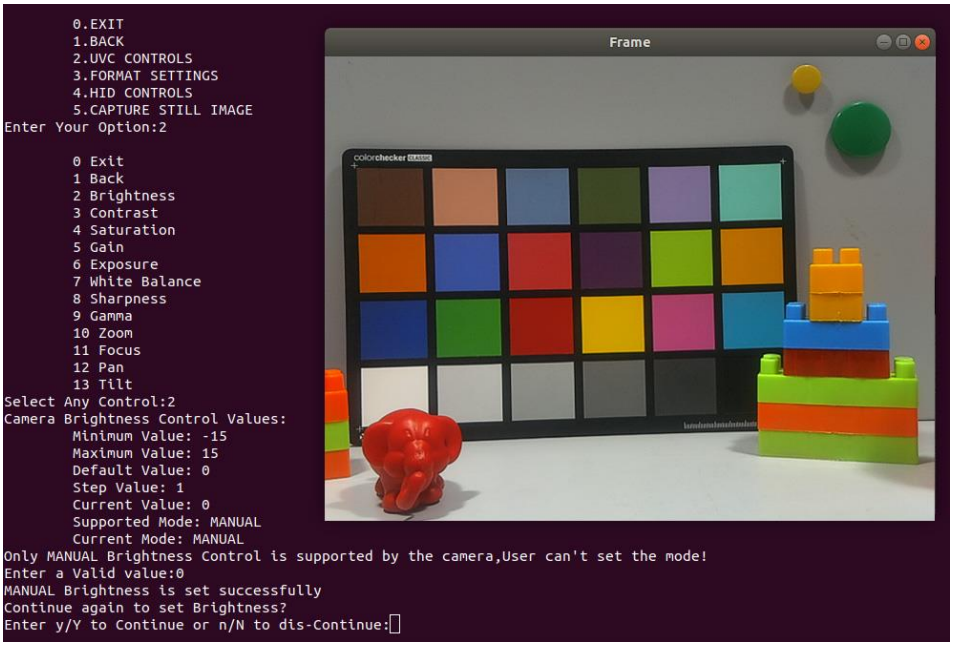

Figure 6: Setting Camera Brightness Values

To set Brightness, the value should satisfy the following conditions.

- Value must be greater than or equal to minimum value.
- Value must be lesser than or equal to maximum value.
- Value must be divided by the stepping delta, (i.e) the stepping delta value must be equal to 0.

3. You can enter **y/Y** to continue with changing the same property or **n** to go back to display the UVC settings supported by the camera and can change other camera UVC Properties.

Configuring Camera Formats or Resolutions

The steps to explore camera format or resolution are as follows:

1. Enter **3** in **Enter your option** to configure camera format or resolution. The format or resolution supported by the camera will be listed as shown below.

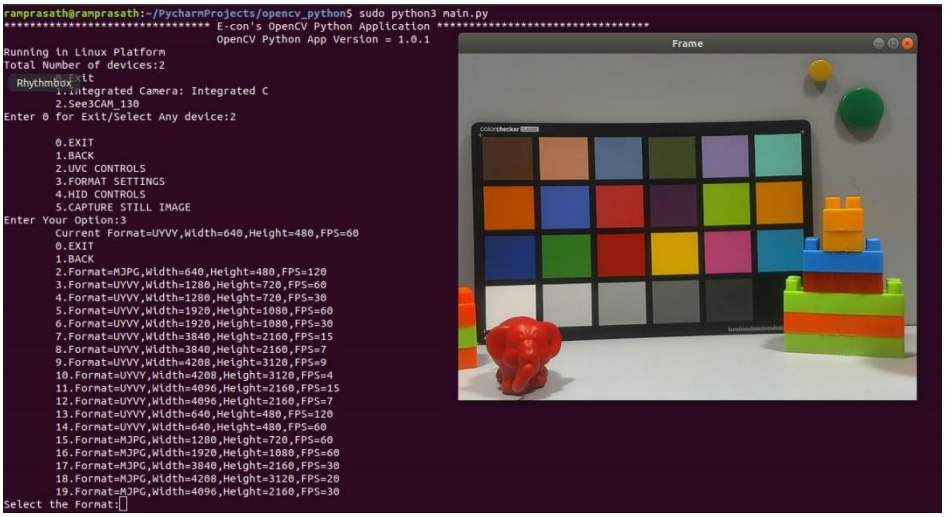

Figure 7: Camera Formats or Resolution

2. Select the format or resolution type and the preview will be changed as shown below.

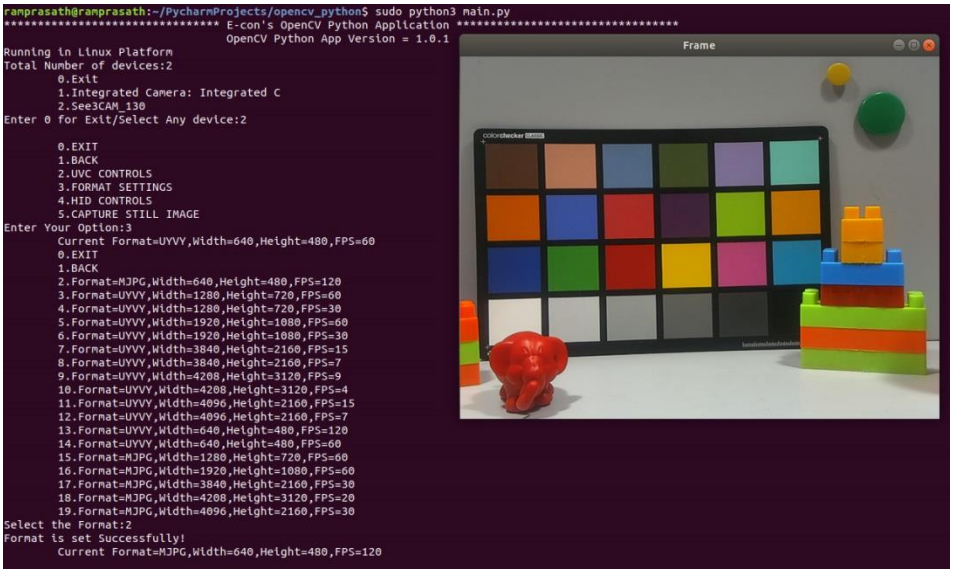

Figure 8: Formats or Resolution Configuration

Getting Firmware Version Number

You must enter **4** in **Enter your option** to configure camera properties and enter **3** to get the firmware version number. The firmware version number will be displayed as shown below.

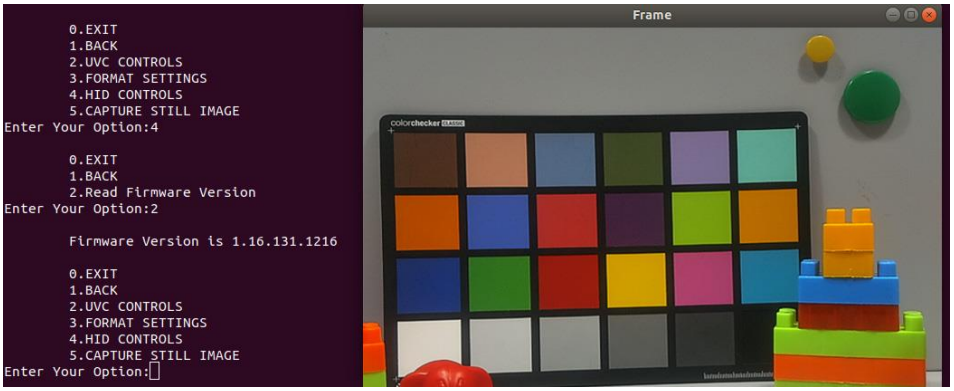

Figure 9: Getting Firmware Version Number

Capturing Still Image

To capture the still image, you must enter **4** in **Pick a Relevant Choice to Configure Particular Camera Properties**.

If the streaming format is UYVY, YUY2, Y8, YUYV, Y16, Y12, then you can choose the RAW format or RGB format.

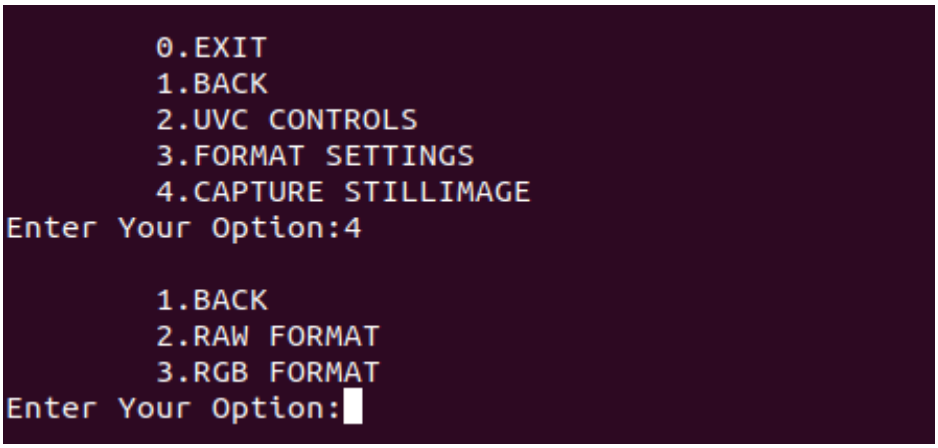

Figure 10: Capturing Still Image sub menu

The image will be saved in the application root folder with the application name, system current date and time extensions as shown below.

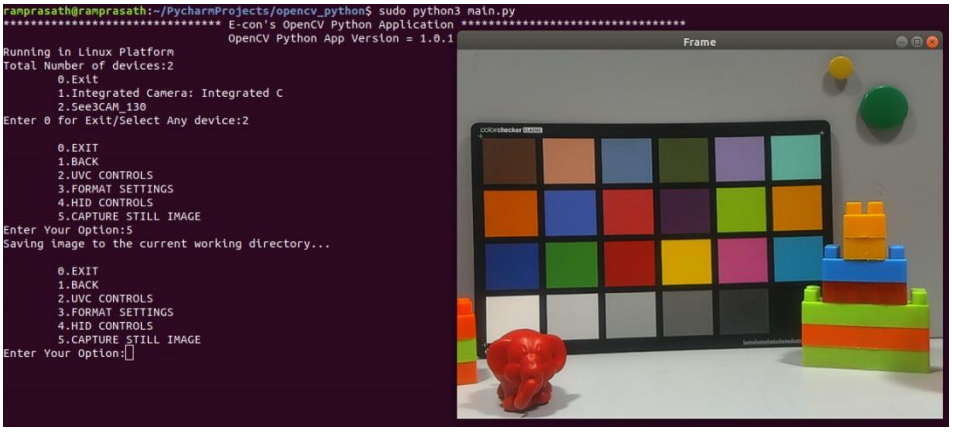

Figure 11: Capturing Still Image

Exiting the Application

To exit the application, you must enter **0** in **Enter your option** as shown below.

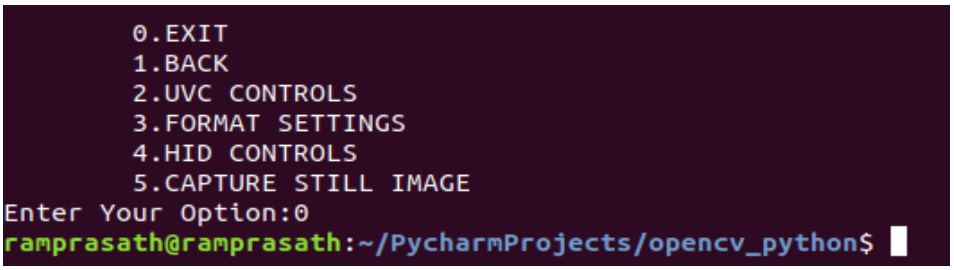

Figure 12: Exiting the Application

Troubleshooting

In this section, you can view the list of commonly occurring issues and their troubleshooting steps.

Linux Issues

Camera device connected, but the application does not displayed.

It seems like the camera is not properly detected by Linux, so check with the path **cd /sys/class/video4linux/** to detect the device.

Camera device displays in the command line but selecting the index does not end up with the preview.

Make sure the camera connected to the port starts with video0 **/sys/class/video4linux**.

Windows Issues

Linker issues relating to setupdi* while building.

Add **setupapi.lib** in the modules/opencv_world properties tab under **Linker > input > Additional dependencies.**

There is no install folder present in the opencv<version>/build/

Build the CMakeTargets or Install project in both Debug and Release configurations.

Support

Contact Us

If you need any support on OpenCV Python Sample application, please contact us using the Live Chat option available on our website - https://www.e-consystems.com/

Creating a Ticket

If you need to create a ticket for any type of issue, please visit the ticketing page on our website - https://www.e-consystems.com/create-ticket.asp

RMA

To know about our Return Material Authorization (RMA) policy, please visit the RMA Policy page on our website - https://www.e-consystems.com/RMA-Policy.asp

General Product Warranty Terms

To know about our General Product Warranty Terms, please visit the General Warranty Terms page on our website - https://www.e-consystems.com/warranty.asp

Revision History

Rev	Date	Description	Author
1.0	19-May-2020	Initial Draft	Ramson Jehu K
1.1	15-May-2020	Added capture sub menu. Removed non relevant FAQs.	Vishnu Murali M
1.2	15-August-2020	Added Changes	Murali Mohan M
1.3	26-July-2022	Added openCV 4.5.5 support	Application Team
1.4	14-September-2023	Added OpenCV 4.6.0 support	Application Team