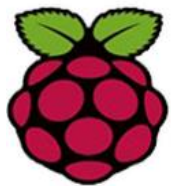


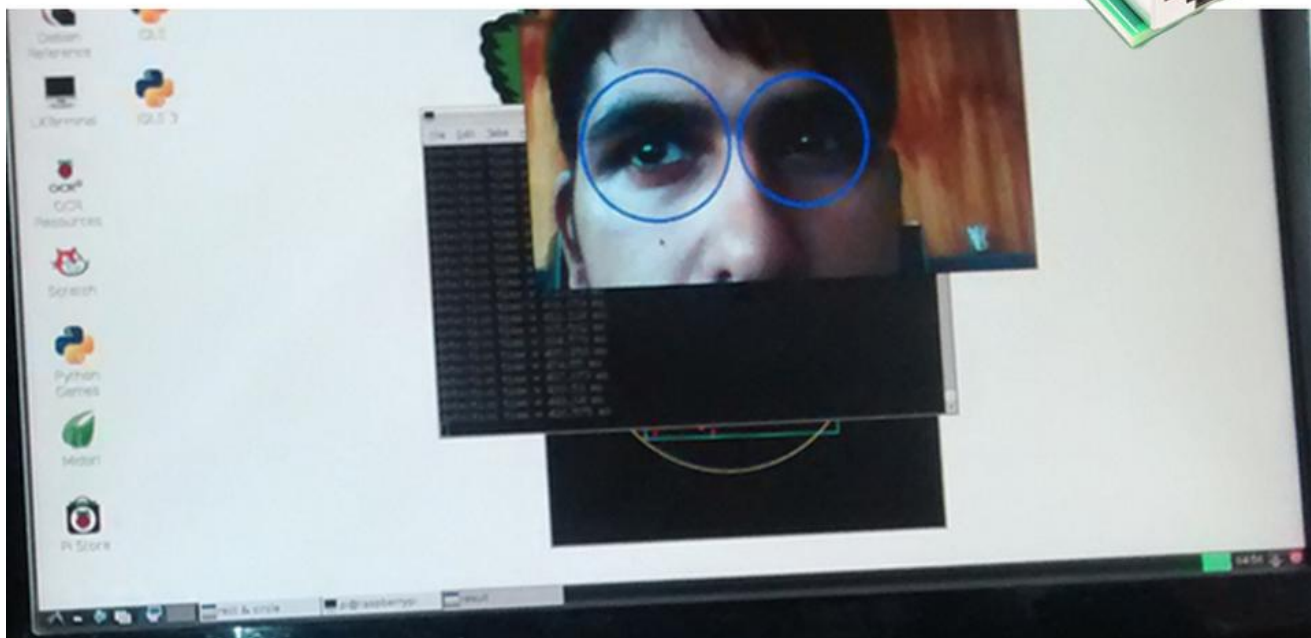
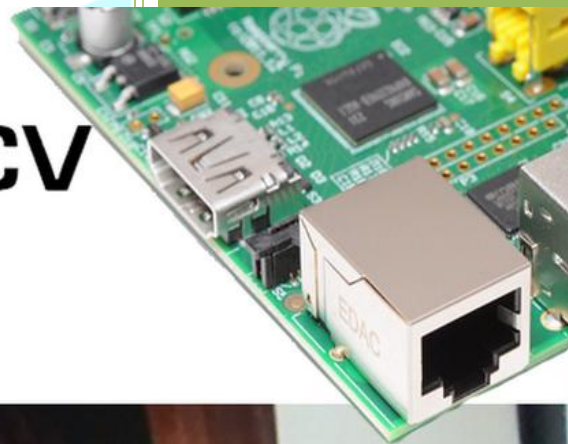


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Installing OpenCV on Raspberry Pi



OpenCV



Author: Praveen Kumar R
Email ID:praveen@tenettech.com

Introduction:

The Open Source Computer Vision Library (OpenCV) is a comprehensive computer vision library and machine learning (over 2500 functions) written in C++ and C with additional Python and Java interfaces. It officially supports Linux, Mac OS, Windows, Android and iOS. Now we are here to deploy OpenCV on Raspberry Pi to make it as portable image processing device. Here I have a quick view that how I installed OpenCV on Raspberry Pi. Before begin your process make sure that you have minimum Of [8GB SD card](#) with class 4.

Step 1:

Prerequisites

Run the following commands to install required packages: Nearly it takes around 15 mins to install the packages, again it depends on your internet speed ☺.

- ✓ `sudo apt-get update`
- ✓ `sudo apt-get -y install build-essential cmake cmake-qt-gui pkg-config libpng12-0 libpng12-dev libpng++-dev libpng3 libpnglite-dev zlib1g-dbg zlib1g-dev pngtools libtiff4-dev libtiff4 libtiffxx0c2 libtiff-tools`
- ✓ `sudo apt-get -y install libjpeg8 libjpeg8-dev libjpeg8-dbg libjpeg-progs ffmpeg libavcodec-dev libavcodec53 libavformat53 libavformat-dev libgstreamer0.10-0-dbg libgstreamer0.10-0 libgstreamer0.10-dev libxine1-ffmpeg libxine-dev libxine1-bin libunicap2 libunicap2-dev libdc1394-22-dev libdc1394-22 libdc1394-utils swig libv4l-0 libv4l-dev python-numpy libpython2.6 python-dev python2.6-dev libgtk2.0-dev pkg-config`

Source File:

Enter the following command in the terminal.

```
wget http://sourceforge.net/projects/opencvlibrary/files/opencv-unix/2.3.1/OpenCV-2.3.1a.tar.bz2
```

Step 2:

Once you had finished downloading the file, extract the zip file with the help of following command.

- ✓ `tar -xvjp OpenCV-2.3.1a.tar.bz2`

Change the directory to the OpenCV

- ✓ `cd OpenCV-2.3.1/`

Create a directory named build under the OpenCV directory.

- ✓ `mkdir build`

Again change the directory to build.

- ✓ `cd build`

Next we have to configure the build using `cmake` command. If you are not sure about the configuration go ahead with the default configuration.

- ✓ `cmake -D CMAKE_BUILD_TYPE=RELEASE -D CMAKE_INSTALL_PREFIX=/usr/local -D BUILD_PYTHON_SUPPORT=ON -D BUILD_EXAMPLES=ON ..`

Step 3:

Now we are in the stage to build the files with the help of `make` and `make install` command. (It takes nearly 4 or 5 hours to finish the following task)

- ✓ `sudo make`
- ✓ `sudo make install`

Step 4:

Now we have to make few configurations with `Opencv.conf` file. Enter the following command to open the configuration file.

- ✓ `sudo nano /etc/ld.so.conf.d/opencv.conf`

Add the following lines to the configuration file even though the configuration file is empty.

- ✓ `/usr/local/lib`

Step 5:

Then we have to edit the system-wide `bashrc` file:

- ✓ `sudo nano /etc/bash.bashrc`

Add the following lines to the end of the file.

- ✓ `PKG_CONFIG_PATH=$PKG_CONFIG_PATH:/usr/local/lib/pkgconfig export
PKG_CONFIG_PATH`

Step 6:

Finally everything is installed and configured properly. Lets we can go for the demos which don't require camera.

C and Python demos are available here:

- ✓ `cd ~/OpenCV-2.3.1/build/bin`

You can run a python demo like this.

- ✓ `sudo python ./minarea.py`

Eye Detection:

Let's run the eye detection program which comes by default along with entire source code. Eye detection program has been written using C++ program. First change in to the OpenCV bin directory which has an executable format.

✓ `cd ~/OpenCV-2.3.1/build/bin`

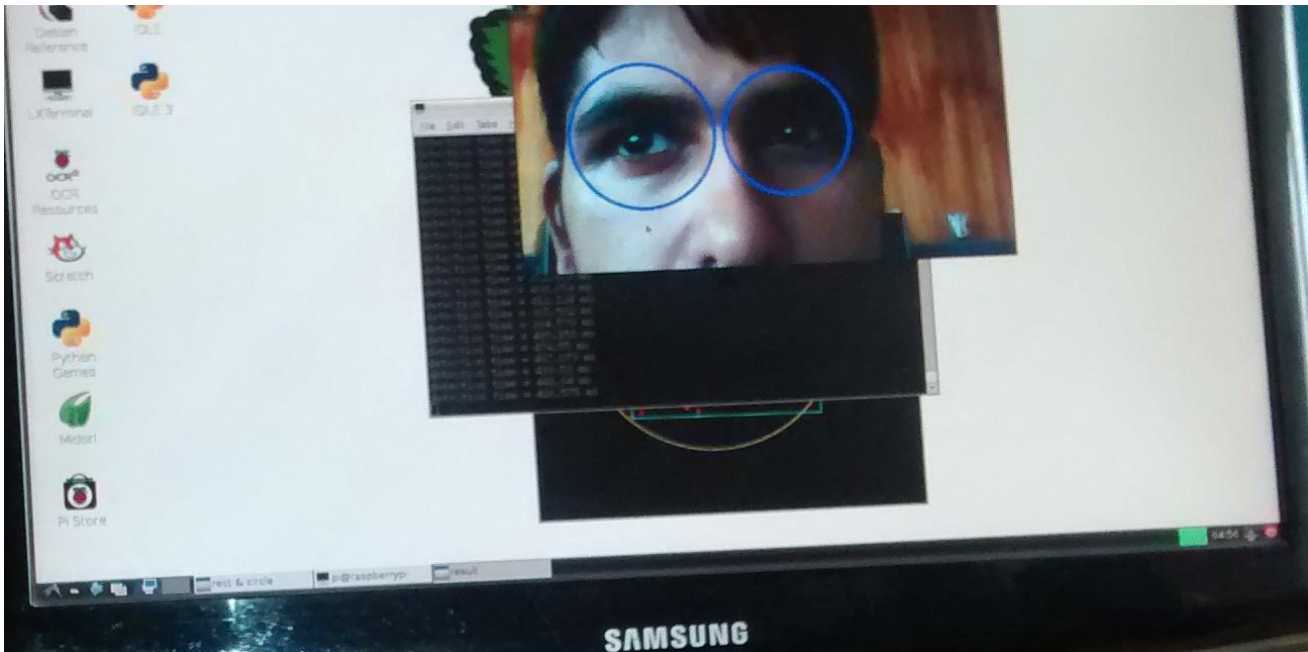
Then run the following command for execution.

`./facedetect -cascade="/home/pi/ OpenCV-2.3.1/data/haarcascades/haarcascade_eye.xml"`



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Eye Detection



Trouble Shooting:

If you are facing any problem in the compilation section (sudo make) run the following command to fix the error.

- ✓ sudo make clean
- ✓ sudo make
- ✓ sudo make install

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For queries: info@tenettech.com

Contact: 080-26722726