e-Yantra Robotics Competition (eYRC 2017)

Task 0 – Planter Bot

Software Installation

This file contains instructions to install following three software/libraries:

1. Python
2. NumPy
3. OpenCV

Note: Installation of software is tested on Ubuntu 16.04 distribution of Linux.

Please follow the steps given below:

1. Python

- ✓ Python is already pre-installed in Ubuntu.
- ✓ In order to verify the installation of python
  - Open Terminal, type *python* and press Enter
  - You should see the prompt as shown in Figure 1 below:

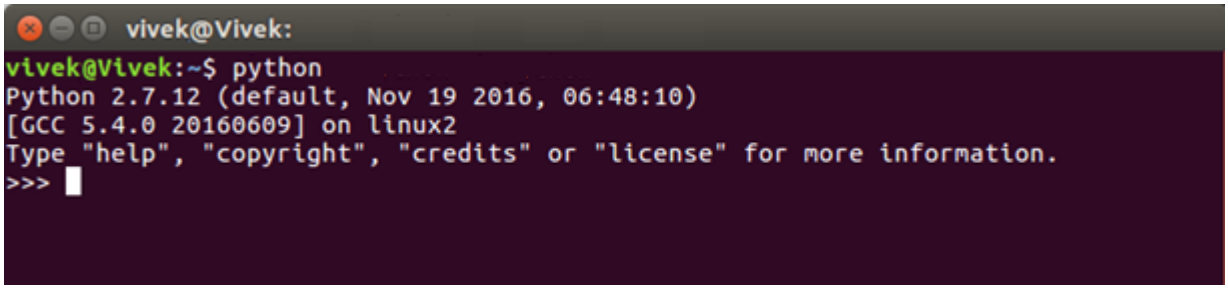

Figure 1: Terminal with Python running

2. NumPy

✓ Before installing Numpy, verify, installation of pip.

- Open Terminal and type *pip -V*.
- You should see the prompt as shown in Figure 2 below:

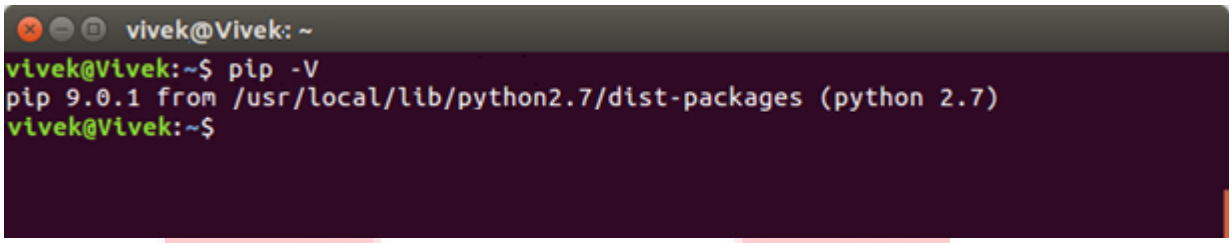

Figure 2: verify pip installation

✓ If pip is not already install, open Terminal and type *sudo apt-get install python-pip* and again verify using command in above step.

✓ To install NumPy, in Terminal, type *sudo pip install numpy==1.13.3*

✓ In order to verify your installation,

- Open Terminal, type *python* and press Enter. This will open python prompt
- Type *import numpy* and press Enter
- You should see the prompt as shown in Figure 3 below:

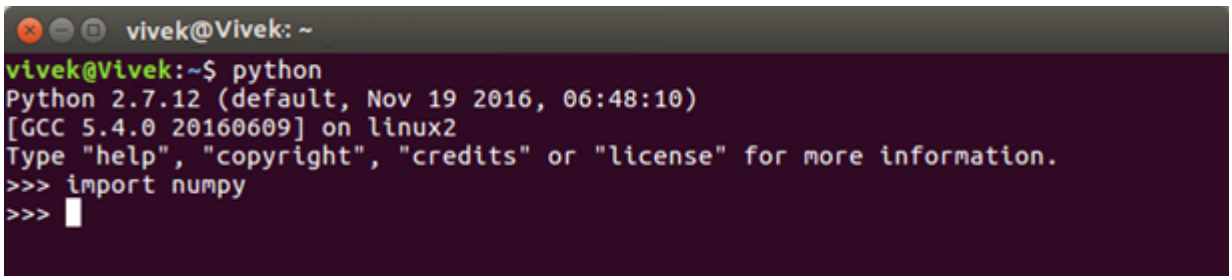

Figure 3: NumPy imported in Python prompt

3. OpenCV

- ✓ Open Terminal
- ✓ Type *sudo apt-get update*
- ✓ Type following command to install required packages

sudo apt-get install build-essential libgtk2.0-dev libjpeg-dev libtiff5-dev:i386 libjasper-dev libopenexr-dev cmake python-dev python-numpy python-tk libtbb-dev libeigen3-dev yasm libfaac-dev libopencore-amrnb-dev libopencore-amrwb-dev libtheora-dev libvorbis-dev libxvidcore-dev libx264-dev libqt4-dev libqt4-opengl-dev sphinx-common texlive-latex-extra libv4l-dev libdc1394-22-dev libavcodec-dev libavformat-dev libswscale-dev default-jdk ant libvtk5-qt4-dev

- ✓ Download OpenCV 3.1.0 from here
- ✓ Make sure you download *opencv-3.1.0.zip* file only.
- ✓ From Terminal, cd to folder where OpenCV is downloaded.
- ✓ In Terminal, type *unzip opencv-3.1.0.zip*
- ✓ In Terminal, type cd opencv-3.1.0
- ✓ In Terminal, type *mkdir build && cd build*
- ✓ We will Configure additional options for building opencv. Copy and Paste following command in terminal

cmake -D WITH_TBB=ON -D BUILD_NEW_PYTHON_SUPPORT=ON -D WITH_V4L=ON -D INSTALL_C_EXAMPLES=OFF -D INSTALL_PYTHON_EXAMPLES=OFF -D BUILD_EXAMPLES=ON -D WITH_IPP=OFF -D CMAKE_INSTALL_PREFIX=/usr ..

- ✓ Note: If above command return any error, try disable some options. For example BUILD_EXAMPLES=OFF

- ✓ In Terminal, type *make*
- ✓ In Terminal, type *sudo make install*
- ✓ In order to verify your installation,
    - Open Terminal, type *python* and press Enter. This will open python prompt.
    - Type *import cv2* and press Enter.
    - You should see the prompt as shown in figure 4 below:

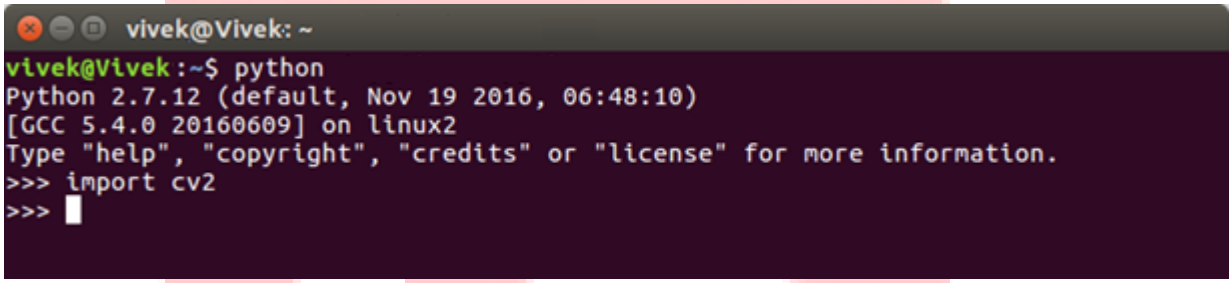

Figure 4: OpenCV imported in Python prompt