e-Yantra Robotics Competition (eYRC 2018)

Task 0 – Ant Bot

Software Installation

This file contains instructions to install following software/libraries:

1. Python
2. NumPy
3. OpenCV
4. pySerial

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.
- ✓ We will be using Python 3 for Ant Bot.
- ✓ In order to verify the installation of python
  - Open Terminal, type *python3* and press Enter
  - You should see the prompt as shown in Figure 1 below:

```
:~$ python3
Python 3.5.2 (default, Nov 23 2017, 16:37:01)
[GCC 5.4.0 20160609] on linux
Type "help", "copyright", "credits" or "license" for more information.
>>>
```

Figure 1: Terminal with Python running

2. NumPy

✓ Before Numpy, install pip for Python 3 as below:

- Open Terminal and type *sudo apt-get update && sudo apt-get install python3-pip*

Note: If at any further stage, you get message as below to upgrade pip version, please do **NOT** upgrade pip version.

```
You are using pip version 8.1.1, however version 18.1 is available.
You should consider upgrading via the 'pip install --upgrade pip' command.
:~$
```

Figure 2: Message to upgrade pip

- Then open a new terminal and type *pip3 -V*
- You should see the prompt as shown in Figure 2 below:

```
:~$ pip3 -V
pip 8.1.1 from /usr/lib/python3/dist-packages (python 3.5)
:~$
```

Figure 3: verify pip3 installation

If pip3 is of a higher version, then in Terminal type *sudo apt purge python3-pip* to uninstall pip3. Then install pip3 again using above instructions.

✓ To install NumPy, in Terminal, type *sudo pip3 install numpy==1.15.2*

✓ In order to verify your installation,

- Open Terminal, type *python3* and press Enter. This will open python prompt
- Type *import numpy* and press Enter
- You should see the prompt as shown in Figure 4 below:

```
:~$ python3
Python 3.5.2 (default, Nov 23 2017, 16:37:01)
[GCC 5.4.0 20160609] on linux
Type "help", "copyright", "credits" or "license" for more information.
>>> import numpy
>>>
```

Figure 4: NumPy imported in Python prompt

3. OpenCV

✓ To install OpenCv, in Terminal, type *sudo pip3 install opencv-contrib-python==3.4.2.17*

✓ In order to verify your installation,

- Open Terminal, type *python3* and press Enter. This will open python prompt.
- Type *import cv2* and press Enter.
- You should see the prompt as shown in figure 5 below:

```
:~$ python3
Python 3.5.2 (default, Nov 23 2017, 16:37:01)
[GCC 5.4.0 20160609] on linux
Type "help", "copyright", "credits" or "license" for more information.
>>> import cv2
>>>
```

Figure 5: OpenCV imported in Python prompt

4. pySerial

- ✓ Open Command Prompt and type *sudo pip3 install pyserial==3.4*
- ✓ In order to verify your installation,
  - Open Command Prompt, type *python3* and press Enter. This will open python prompt
  - Type *import serial* and press Enter
  - You should see the prompt as shown in Figure 6 below:

```
:~$ python3
Python 3.5.2 (default, Nov 23 2017, 16:37:01)
[GCC 5.4.0 20160609] on linux
Type "help", "copyright", "credits" or "license" for more information.
>>> import serial
>>>
```

Figure 6: Serial imported in Python prompt