**Second Draft and Example one & two**

**Quick Start & most friendly set up Jetson Nano**

**Dated: 22/02/2022**

By: A. Ghaffari

* This is a quick instruction which is running and is the basic start the Jetson Nano by end of the “**basic-motion**” and “**collision\_avoidance**” example in <github.com/NVIDIA-AI-IOT/jetbot>
* Here, it is tried to keep the minimum amount of configuration on both Jetsen Nano, and *Jupyter Notebook* requirement.
* **Step 1: Set up Jetson Nano**
* Go to the
  + <https://github.com/NVIDIA-AI-IOT/jetbot/releases/tag/v0.4.3>
* Download “JetBot SD card image **jetbot-043\_nano-4gb-jp45**” on your local system
* Format the micro-SD card and flash the downloaded file on you micro-SD card using Etcher
* Insert the micro-SD card in the Jetson Nano
* Connect the Jetson Nano (JN) to your monitor, Keyboard, and mouse
* Then power JN up either with the power wall, USB or built in batterie
* Let it to completely to power up
* **If the system comes up without GUI and in console/terminal format, then run the following command to turn on the GUI**
  + **ENABLING GUI**
    - sudo systemctl set-default graphical.target
  + Then restart
    - sudo reboot
  + **DISABLING GUI**
    - sudo systemctl set-default multi-user.target
  + Then restart
    - sudo reboot
* Open a terminal from its GUI (Click on the first icon on the left top corner of the monitor, and search for terminal)
* Give **name/username** and **password** to your system
* Type “*ls*” to found out about directories and files which are pre-loaded on the system
* Type “*cd notebooks*” and the “*ls*” to found out about directories and files which are pre-loaded on the system
* Type “*cd*” to back to the root
* Type “***free -m***” or “***free -h***” to see the available SWAP memory (by default must be about earthier one or two GB)
* However, as advised, you will need to expand it to 4 GB
* For this you need to follow another instruction that you can find in this link:
  + - < https://help.ubuntu.com/community/SwapFaq >
    - I do not advice to do it now.
    - If you decided to do it, you must remember to change 1g and 1GiB everywhere is your cods from this section “How do I add a swap file?**” to the 4g and 4GB**
    - I done this part and it is time consuming and so sensitive. Please take extra care
* If you complete the section reboot your system
* Type again “**free -m**” or “**free -h**” to make sure that SWAP memory changed to the about 4 GB
* **Step 2: Check the camera is connected**
* Type “nvgstcapture-1.0” in JN terminal and click enter
* New box must be opened displaying the camera looking to the object
* Type “Ctrl c” to exit the camera and close the box
* **Step 3: Connect to wi-fi**
* Click on the internet icon (wi-fi icon) to open the dialog box
* Choose the available and trustable internet in your home/office
* After connection to wi-fi, click on “internet information” in the same wi-fi icon and write down the IP address
* **At the same time, make sure “****PiOLED” screen on your JN is on and displaying the IP address**
* **Do not forget the username and password**
* Open the particularly useful search engine named “Cromium” internet browser from the main widow of the JN operating system
* This will need the JN password to be able to get into the browser
* If you need you can create an account or sign in
* Shutdown your JN from the top right coroner in your monitor and discount your JN from monitor, keyboard, and mouse
* **Step 4: Run your jetson from PuTTY**
* Now it would be better to disconnect your JN and run it **Headless**
  + All terminals such as cmd, Putty and ssh are fine to run and control your JN
  + However, I found out tht PuTTY is more compatible to run JN remotely
  + As soon as your system is ready to run headless, make sure that is connected to the wifi
    - That means the **PiOLED** must be on and shows the IP address.
    - If PiOLED does not show the IP address, you need to run the following command in PuTTY or other platforms like cmd, or ssh after connecting to JN
    - **Here is bit confused, you can connect to you JN through PuTTY using IP but not able to send orders to the JN until to make sure IP is presenting on PiOLED**
* Connect to wifi from PuTTY to Jetson
  + - sudo nmcli device wifi connect **your internet SSID** password **your wifi password**
* Step 5:JN software setup **(It is not essential to do this section)**
* Turn on JN using any kind of power and let it to boot completely till you can see the PiOLED is on and with IP address on it
* At the same time, you can start with the other pc or laptop
* Open an internet browser and go to the link as bellow:
  + < https://github.com/NVIDIA-AI-IOT/jetbot/wiki/ >
* In the page click on the “Software setup from the list in right side of the page.
* Go to step 5 section
  + Now you need to open Jupyter Notebooke as follow:
    - Remember the JN ip address and port “8888”
    - You need to type “**192.168.2.58:8888**” in the commend line you the browser and enter (this is the exact IP address of my NJ which is running in my home to not give it to anybody please for now
    - For the first time to login to “Jupyter Notebooks” you need to input JN password which is “jetbot”
      * Now open a terminal here. (To open a terminal no matter to use Jupyter terminal, SSh, ms-commend line). I used all different just is the matter of connection to JN
    - It is easier and quicker to use Jupyter Terminal
* Start running step 5 which you have already have it in your internet browser.
  + Type and run just following code and run them one by one in the terminal
    1. git clone <https://github.com/NVIDIA-AI-IOT/jetbot>
    2. cd jetbot
    3. sudo python3 setup.py install
* At this stage this all you need to start the firs example, no need to add any more code and run
* **Step 6: Run the first example “Basic-Motion”**
* Go to this link:
* < https://github.com/NVIDIA-AI-IOT/jetbot >
* Click “notebooks” directory
* Click “basic\_motion” directory
* Double click on “basic\_motion.ipynb” to be open
  + Make sure your Jetbot is in a safe area
* **Follow all the steps**
* **AND**
* **Run and enjoy moving you Jetbot**
* **Step 7: Run the 2nd example “collision\_avoidance”**

**Once more time:**

**This is the 2nd draft.**

**It must be worked with no issue.**

**If there is anything wrong or any issue pass it to me, please**

**Wait for the 3rd draft and running next example**

**Good luck and hope to find this are helpful**