Part1:
Operating system for HackRF:

After testing out hackRF with windows and virtual ubuntu we ran into many issues. We were unable to find solutions for those issues. However, hackRF works great with ubuntu.

Installation of ubuntu 20.10:

Following is the video I used to get the operating system ubuntu installed on my computer alongside windows:

https://www.youtube.com/watch?v=u5QyjHIYwTQ

Part2:
Open terminal and install the following packets: (you are able to copy paste the commands on the terminal)

1. sudo apt-get install git
2. sudo apt-get install build-essentials
3. sudo apt-get install cmake
4. sudo apt-get install libusb-1.0-0 dev
5. sudo apt-get install libboost-dev
6. sudo apt-get install libblog4cpp5-dev
7. sudo apt-get install libboost-system-dev
8. sudo apt-get install libboost-thread-dev
9. sudo apt-get install libboost-program-options-dev
10. sudo apt-get install swing

Part3:
Getting hackRF software; Type the following in the terminal:

1. git clone https://github.com/mossmann/hackrf.git
2. cd hackrf
3. cd host
4. mkdir build
5. cd build
6. cmake ../ -DINSTALL_UDEV_RULES=ON
7. make
8. sudo make install
9. sudo ldconfig

Connect the Hackrf and type in "hackrf_Info" in the terminal. You will be able to view your hackrf info like it is shown in the picture:

```
sdr@ubuntu:~/hackrf/host/build$ hackrf_info
Found HackRF board 0:
Board ID Number: 2 (HackRF One)
Firmware Version: 2014.08.1
Part ID Number: 0xa000cb3c 0x00644f56
Serial Number: 0x00000000 0x00000000 0x321864c8 0x382e621d
sdr@ubuntu:~/hackrf/host/build$
```

Part4:
Installing Gnu radio.
 warning
installing gnu radio by "sudo apt-get install gnuradio" get you the latest version-19 which is incompatible with Osmosdr. Osmosdr hold the blocks which allows gnu radio to be used with hackrf.

Thus, We install gnuradio version -18 first. (you are able to copy paste the commands on the terminal)

1. sudo add-apt-repository ppa:gnuradio/gnuradio-releases
2. sudo apt-get update
3. sudo apt install git cmake g++ libboost-all-dev libgmp-dev swig python3-numpy python3-mako python3-sphinx python3-lxml doxygen libfftw3-dev libsdl1.2-dev libgsl-dev libqwt-qt5-dev libqt5opengl5-dev python3-pyqt5 liblog4cpp5-dev libzmq3-dev python3-yaml python3-click python3-click-plugins python3-zmq python3-scipy python3-pip python3-gi-cairo
4. pip3 install git+https://github.com/pyqtgraph/pyqtgraph@develop
5. pip3 install numpy scipy
6. echo 'export PYTHONPATH=/usr/local/lib/python3/dist-packages:usr/local/lib/python2.7/site-packages:$PYTHONPATH' >> ~/.bashrc
7. echo 'export LD_LIBRARY_PATH=/user/local/lib:$LD_LIBRARY_PATH' >> ~/.bashrc
8. echo 'export PYTHONPATH=/usr/local/lib/python3/dist-packages:usr/local/lib/python2.7/site-packages:$PYTHONPATH' >> ~/.profile
9. echo 'export LD_LIBRARY_PATH=/user/local/lib:$LD_LIBRARY_PATH' >> ~/.profile
10. cd ~/
11. git clone --recursive https://github.com/gnuradio/gnuradio
12. cd gnuradio
13. git checkout maint-3.8
14. mkdir build
15. cd build
16. git pull --recurse-submodules=on
17. git submodule update --init
18. cmake -DENABLE_GR_UHD=OFF ..

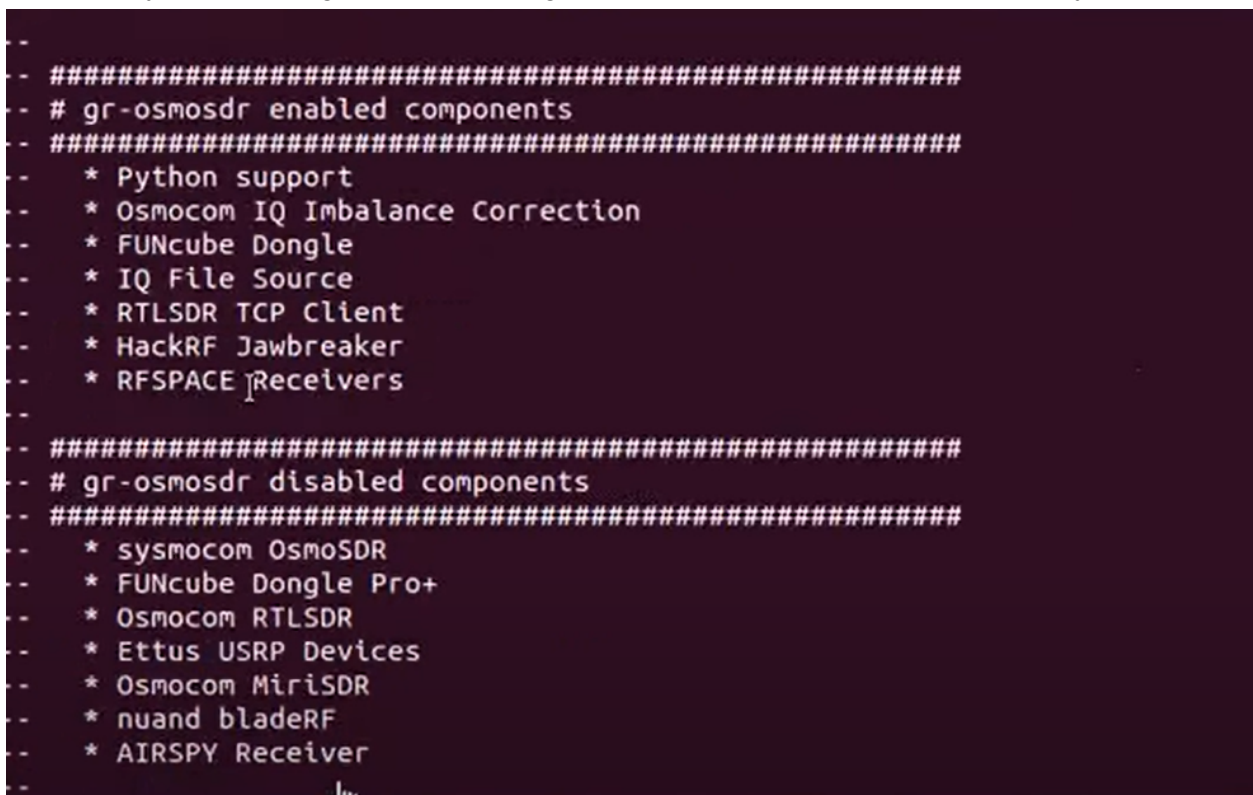19. make -j $(nproc --all)
20. sudo make install
21. sudo ldconfig

Once this is done, reboot your computer and GNU Radio should be all set for you.

Part5
Installing Osmosdr

sudo apt-get install gr-iqbal
git clone git://git.osmocom.org/gr-osmosdr
cd gr-osmosdr
mkdri build
cd build
cmake ../

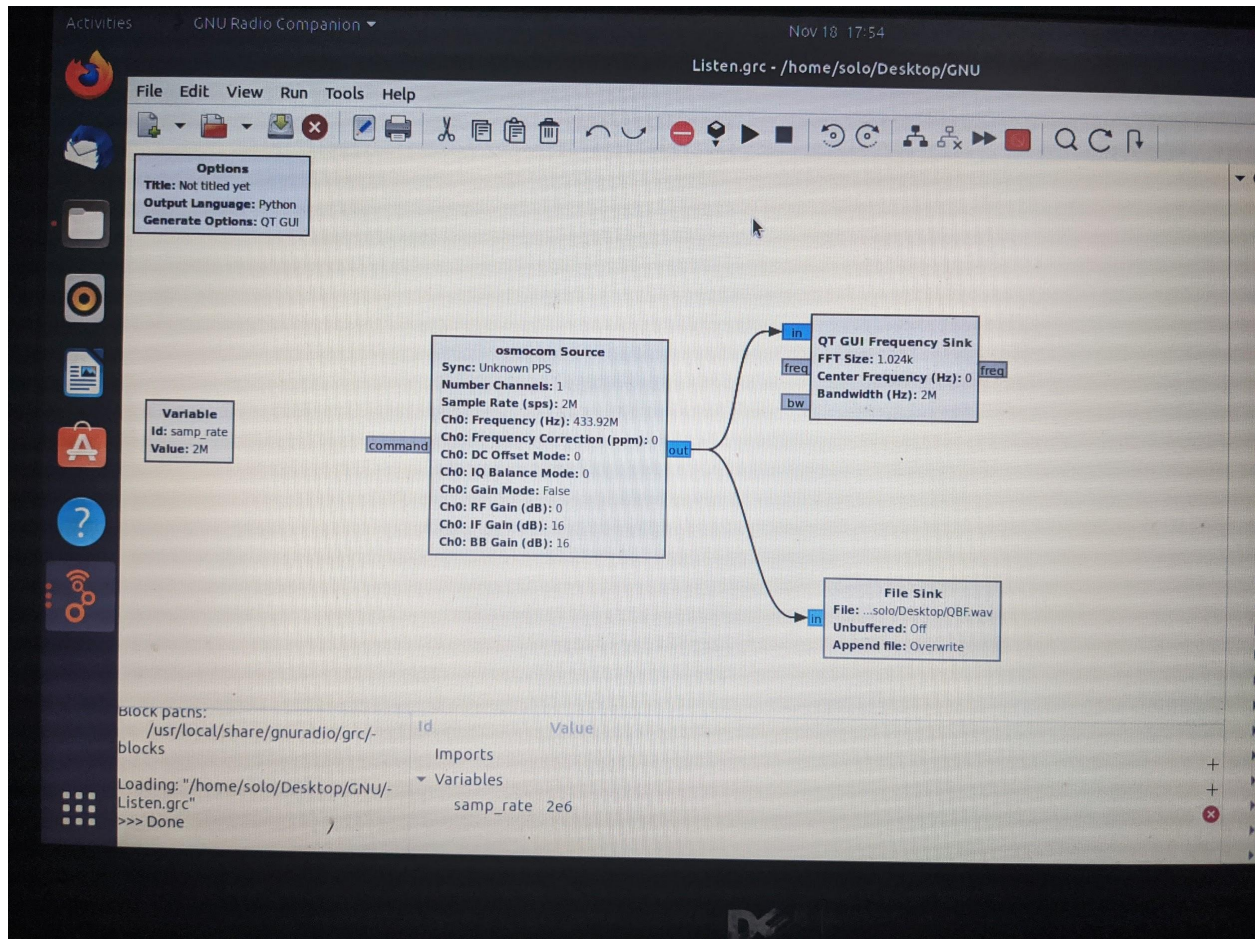If it'll show you something like the following picture it has been installed successfully:

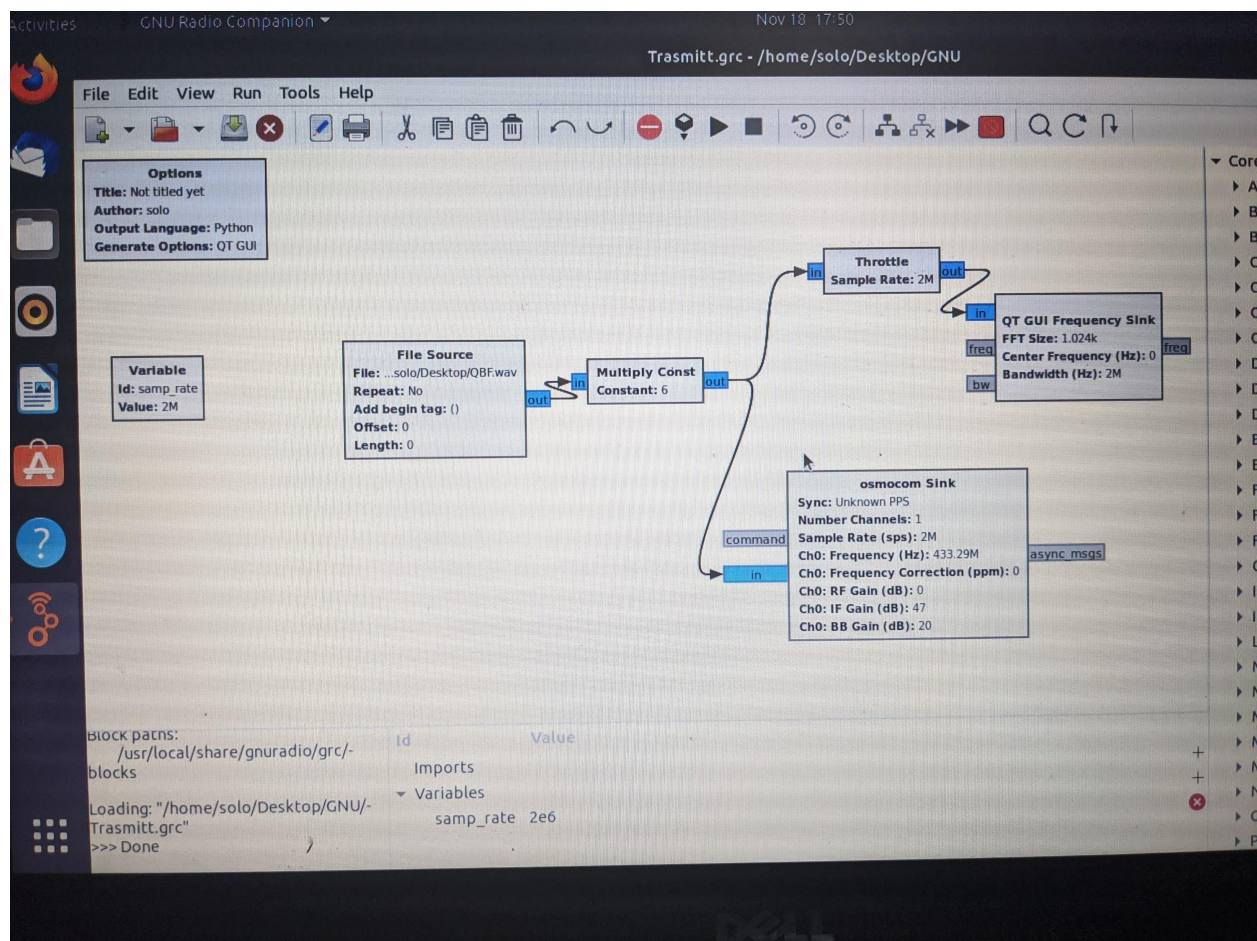
Make
sudo make install
sudo ldconfig
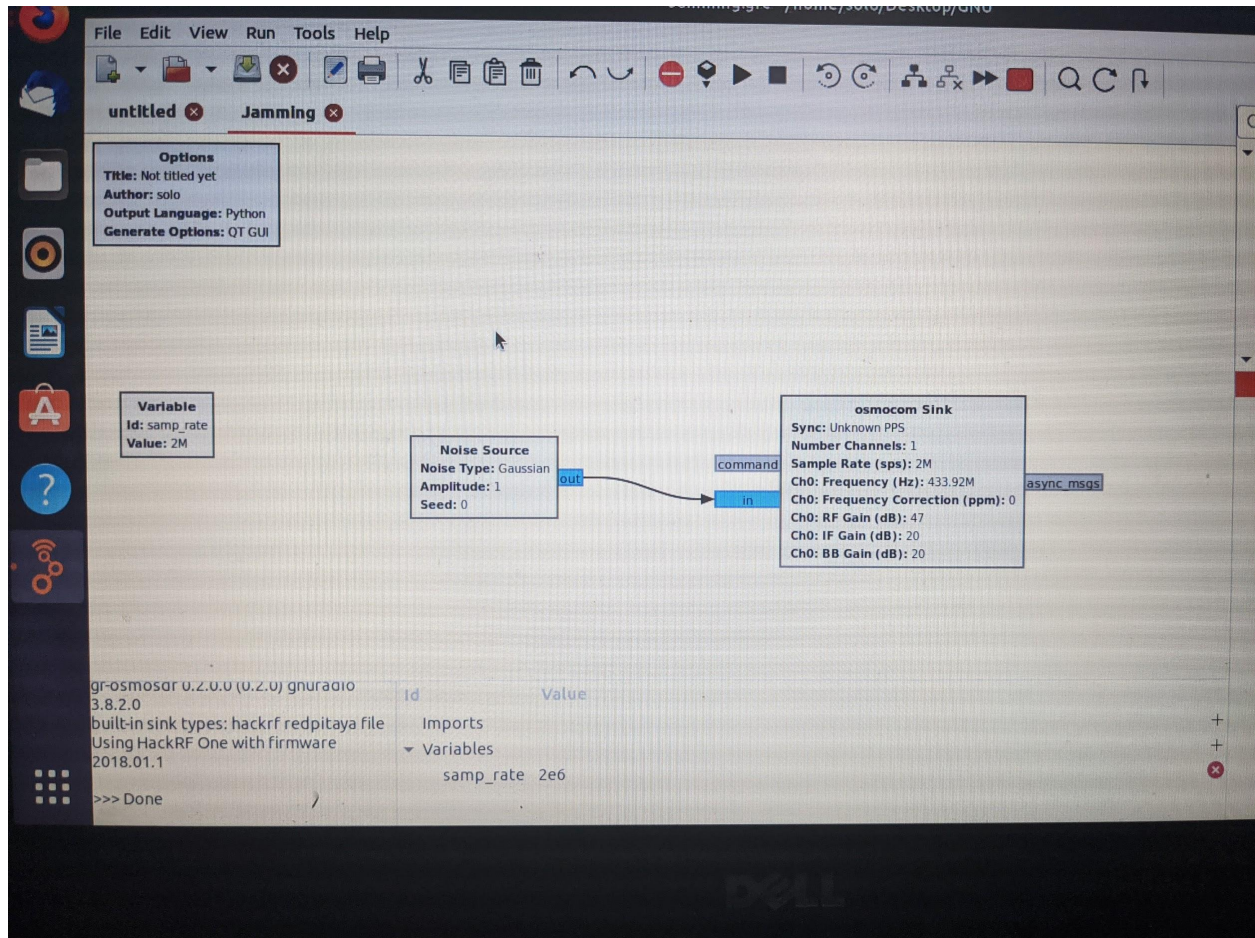Open gnu radio and search for osmocom source if it finds it then you are ready to proceed

Part6:
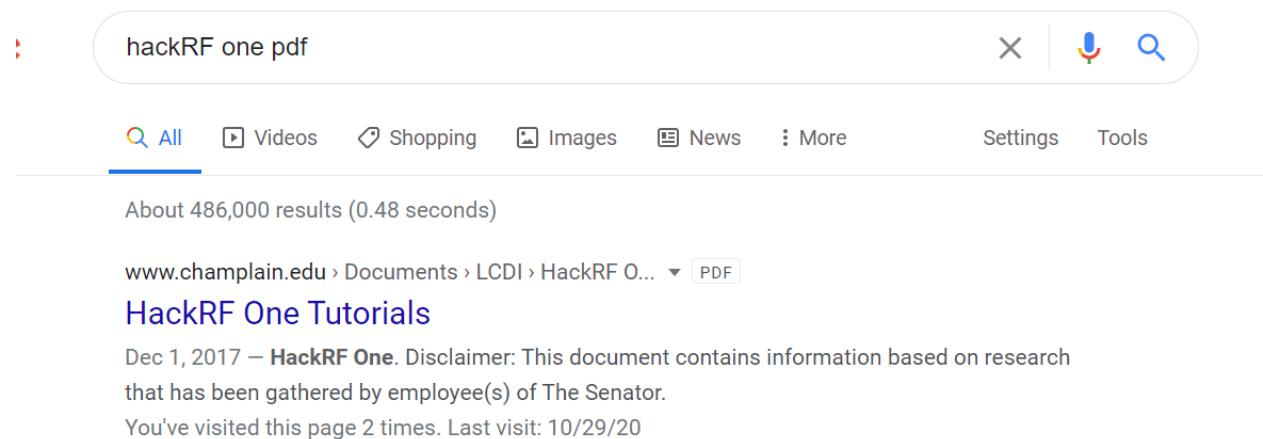The following is what you can use to capture signals:

The following is what you can use to transmit signals:

The following is what you can use to jam signals:

General knowledge about hackrf:

hackRF one pdf

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Once clicked it'll open a pdf which has all the info.

If you have any questions feel free to contact me on: solomonabnir@gmail.com