Notes

* **SSH to connect to Raspi terminal**

1. Connect to local network => Wifi/ Ethernet
2. $ifconfig => to take IP address (inet if connected with Wifi)
3. Install ssh and activate it (if necessary)

sudo apt install openssh-server

sudo ufw allow ssh (if necessary)

sudo systemctl disable --now ssh

sudo systemctl enable --now ssh

1. Connect to the terminal:

$ ssh user@ip\_address

* **Remote desktop Control to access the Raspi desktop**

1. Install xrdp on raspi terminal:

$sudo apt update

$ sudo apt install xrdp

1. Activate the xrdp server

$ sudo systemctl enable --now xrdp

1. Change parameters of server

$ sudo ufw allow from any to any port 3389 proto tcp

1. Access the desktop remotely with REMOTE DESKTOP CONTROL on Windows (you need to shut down the controlled desktop)

* **Camera module :**

1. Install the picamera module

$ sudo apt install python3-pip

$ sudo pip3 install picamera

$ sudo apt install libraspberrypi-bin => for raspistill/raspivid command

$ sudo usermod -a -G video andi\_raspi => have access to video

$ sudo reboot

1. Enable the Camera xith start\_x=1, gpu\_mem = 128 in config.txt (in Ubuntu is /boot/firmware/config.txt
2. Try:

vcgencmd version

vcgencmd get\_camera => check if camera is detected

raspistill -o pic.jpg => take a picture

raspivid -o vid.h264 => take a video

MP4Box -add video.h264 video.mp4 => convert the .h264 in mp4 video

* **ROS CAMERA PACKAGE**

1. <https://github.com/ros-drivers/libuvc_ros.git> => into the src folder

**Commands**

$ sudo find / -name libmmal.so => to find a file called libmmal.so

$ locate file.txt

$ ldconfig -p | grep libmmal

$ ls /dev/video\* => check cameras

$ ip a => list the conncetions to internet

$ sudo us => enter root

$ gnome-session-quit => logout session

$ sudo apt-get remove ros-\* => remove all ros in the pc

**INSTALL ROS KINETIC DESKTOP On UBUNTU 20.4**

echo "deb http://packages.ros.org/ros/ubuntu focal main" | sudo tee /etc/apt/sources.list.d/ros-focal.list

sudo apt-key adv --keyserver 'hkp://keyserver.ubuntu.com:80' --recv-key C1CF6E31E6BADE8868B172B4F42ED6FBAB17C654

curl -sSL 'http://keyserver.ubuntu.com/pks/lookup?op=get&search=0xC1CF6E31E6BADE8868B172B4F42ED6FBAB17C654' | sudo apt-key add -

sudo apt install ros-noetic-desktop

source /opt/ros/noetic/setup.bash

echo "source /opt/ros/noetic/setup.bash" >> ~/.bashrc

roscd