CÁC BƯỚC CẤU HÌNH RASPBERRY

* **Cập nhật các pagkage raspbian:**

+ sudo apt update && sudo apt upgrade && sudo rpi-update

* **Set python3 mặc định:**

+ nano ~/.bashrc

+ kéo xuống cuối cùng, thêm dòng alias python='/usr/bin/python3', save lại

+ source ~/.bashrc

+ Kiểm tra: python --version

* **Cài các pagkage hỗ trợ opencv**:

+ sudo apt-get install build-essential cmake pkg-config

+ sudo apt-get install libjpeg-dev libtiff5-dev libjasper-dev libpng12-dev

+ sudo apt-get install libavcodec-dev libavformat-dev libswscale-dev libv4l-dev

+ sudo apt-get install libxvidcore-dev libx264-dev

+ sudo apt-get install libgtk2.0-dev libgtk-3-dev

+ sudo apt-get install libatlas-base-dev gfortran

* **Cài opencv:**

+ sudo pip3 install opencv-python

* **Cài tkinter:**

+ sudo apt-get install python-tk

* **Cài pyserial:**

+ sudo apt-get install python-serial

* **Cài awesometkinter:**

+ sudo pip3 install awesometkinter

* **Cài openyxl:**

+ sudo pip3 install openpyxl

* **Cài florence keyboard:**

+ sudo apt install florence

* **Cài spi2 core hỗ trợ florence:**

+ sudo apt-get install at-spi2-core

* **Tăng swap-size:**

**+** sudo nano /etc/dphys-swapfile

=> chỉnh sửa CONF\_SWAPSIZE=2048

* **Cài đặt pyinstaller:**

+ Download pyinstaller: <https://github.com/pyinstaller/pyinstaller/releases>

+ Giải nén, cd đến thư mục và chạy lệnh: sudo python3 setup.py install

+ git clone https://github.com/pyinstaller/pyinstaller

+ cd pyinstaller/bootloader

+ python ./waf distclean all

+ cd ../PyInstaller/bootloader/

+ ls

+ sudo rm -r /usr/local/lib/python3.7/dist-package/pyinstaller…/Pyinstaller/bootloader/Linux-32bit

+ sudo cp -r path-to- Linux-32bit-arm /usr/local/lib/python3.7/dist-pagkage/pyinstaller…/Pyinstaller/bootloader/

* **Tạo file exe với pyinstaller:**

+ Tạo spec file: pyi-makespec --noconsole main.py

=> Chỉnh sửa spec file: hiddenimports = [‘PIL’, ‘PIL.\_imagingtk’, ‘PIL.\_tkinter\_finder’]

+ pyinstaller --noconsole main.spec

* **Cài Chromium:**

+ sudo apt install chromium-browser

* **Cài** [***evdev-right-click-emulation***](https://github.com/PeterCxy/evdev-right-click-emulation)**:**

+ sudo apt install build-essential libevdev2 libevdev-dev

+ git clone 'https://github.com/PeterCxy/evdev-right-click-emulation.git'

+ cd 'evdev-right-click-emulation'

+ make all

+ sudo cp 'out/evdev-rce' '/usr/local/bin/'

+ sudo chmod +x '/usr/local/bin/evdev-rce'

+ sudo nano /etc/rc.local

+ Thêm vào cuối (**trước exit 0**): sudo /usr/local/bin/evdev-rce &

* **Cau hinh DS1307:**

+ sudo nano /etc/modules

+ Them 3 dong:

i2c-bcm2708  
i2c-dev  
rtc-ds1307

+ sudo apt-get install i2c-tools

+ sudo bash

+ i2cdetect -y 1

+ ds1307 0x68 > /sys/class/i2c-adapter/i2c-1/new\_device

+ hwclock --systohc -D --noadjfile –utc

+ sudo hwclock -w

+ sudo hwclock -r

+ nano /etc/rc.local

+ Them vao truoc exit0: echo ds1307 0x68 > /sys/class/i2c-adapter/i2c-1/new\_device

+ sudo hwclock -s

* **Cai Numpy:**

+ pip3 install -U numpy

* **Enable camera và serial:**

**+** sudo raspi-config