Update Linux:

sudo apt-get update

sudo apt-get upgrade

Install Kismet:

wget -O - https://www.kismetwireless.net/repos/kismet-release.gpg.key | sudo apt-key add -

echo "deb https://www.kismetwireless.net/repos/apt/release/$(lsb_release -cs) $(lsb_release -cs) main" | sudo tee /etc/apt/sources.list.d/kismet.list

sudo apt-get update

sudo apt-get install kismet

Add the pi user to the kismet group:

sudo usermod -aG kismet pi

sudo reboot

groups **###(check to verify that the pi user is added to the kismet group)**

Add sources to kismet config file:

sudo nano /etc/kismet/kismet_site.conf

###Add in the next three lines (or modify if needed)

source=wlan0

source=wlan1

source=hci0

Create logging directory:

mkdir /home/pi/kismet_logs

Change default logging directory in kismet:

sudo nano /etc/kismet/kismet_logging.conf

###Modify the log_prefix entry to this to write the logs to the appropriate place

log_prefix=/home/pi/kismet_logs/

###Now let's install and configure the USB GPS receiver

We've used a: GlobalSat BU-353S4 USB (Chipset SIRF Star IV GPS)

Connect the USB antenna to the Raspberry Pi

Install GPS software (gpsd)

sudo apt install gpsd gpsd-tools gpsd-clients

Check that the USB GPS receiver is detected:

lusb

("Prolific Technology, Inc. PL2303 Serial Port" should appear)

Determine what port our gps receiver is connected to

*ls /dev/ttyUSB**

(/dev/ttyUSB0 should appear)

Configure GPS receiver

first disabling background processes which might interfere with our GPS receiver)

sudo systemctl stop gpsd.socket

sudo systemctl disable gpsd.socket

bind the USB GPS receiver to the gpsd client

sudo gpsd /dev/ttyUSB0 -F /var/run/gpsd.sock

now our USB GPS receiver should be communicating with gpsd

You can check the current GPS data received with these two programs (you need to locate your antenna close to an open area to receive the GPS satellites signal):

gpsmon

cgps

the command *"sudo gpsd /dev/ttyUSB0 -F /var/run/gpsd.sock"* will be set into run_gpsd.sh and it runs from a crontab expression every time the RBP is restarted. Notice that you might need to change the USB port number.

Configure gpsd in Kismet configuration

sudo nano /etc/kismet/kismet.conf

add the following line under # GPS configuration:

gps=gpsd:host=localhost,port=2947,reconnect=true

restart the RBP in order to restart kismet with the new configuration

sudo shutdown -r now

from that moment the geolocation data of the found devices will be saved in the Kismet sqlite database.

Install python packages to paint and open the map in the chromium browser full screen

pip3 install folium

pip3 install selenium

Install chromium driver to be used from selenium

sudo apt-get install chromium-chromedriver

Notice that in order to paint the map, the RBP needs access to the Internet to download the map and get the MAC addresses vendor. Outdoor, this can be easily resolved using your phone as a Mobile hotspot or using your car's Wi-Fi system.

###Now Let's Make the GUi autostart

sudo nano /etc/xdg/autostart/display.desktop

###Add in the next three lines

[Desktop Entry]

Name=cyt_gui

Exec=/home/pi/Desktop/cyt_gui.sh

Give execution permissions to the executables

chmod +x /home/pi/Desktop/cyt_gui.sh

chmod +x /home/pi/Desktop/ChasingYourTail.desktop

Notice that "display.desktop" in the autostart folder is to open the GUI automatically when you start your RBP. On the other side in the Desktop, you'll find "ChasingYourTail.desktop" with the icon  **in order to manually run the application by double clicking it. Besides cyt_gui.sh can be used to start the GUI.**

Enable monitor mode on our wifi card, set gpsd and start kismet at boot:

crontab -e

###Add in the next two lines

@reboot sleep 30 && /home/pi/Desktop/cyt/wlan1_to_mon.sh &

@reboot sleep 40 && /home/pi/Desktop/cyt/run_gpsd.sh &

@reboot sleep 60 && /usr/bin/kismet &