Introduction

Below you will find steps on how to setup your Raspberry Pi touch screen on your Raspberry Pi running Raspbian. These steps have been tested on Raspberry Pi 2b & Raspberry Pi 3b.

You will need to have some basic knowledge the complete these steps as it will require you to SSH to the Raspberry Pi from another computer on the network. To SSH to your Pi you can use a windows program called Putty which can be downloaded from www.putty.org

Open up putty.exe, select Session from the left column.

In the field: Host Name (or IP address) you will need to put in the IP Address / Hostname of Raspberry Pi and select Open. You will be prompted with a black command line screen asking you to login. The default logins for Raspbian are:

Username: pi

Password: raspberry

Once you are connected, we can proceed.

Alternatively, these steps can be completed from the Command Line inside Raspbian aswell.

** An Internet connection is required on the Pi for complete some of the steps outlined **

Setup & Install Raspberry Pi Touch Screen.

1. Attach your screen to the Raspberry Pi

2. Enable Screen Drivers in the boot/config.txt file using the following line:
   - `sudo nano /boot/config.txt`
   - scroll down the bottom of the screen using the arrow keys and add the following line:
     `dtoverlay=piscreen,speed=16000000,rotate=90`
     Then press Ctrl+X to Exit, Press Y for yes & followed by Enter
   - You will then be returned to the command screen, type: `sudo reboot` and enter
     Once the Raspberry Pi reboots your screen should change from White to Black

3. By default Jessie (Raspbian post October 2015) will automatically load the display out the HDMI port which will then blank out the screen, making it look like it's not working. If you want the display to automatically load to the screen on startup you will need modify the framebuffer config file, to do this:
   - `sudo nano /usr/share/X11/xorg.conf.d/99-fbturbo.conf` and change the following line:
     `Option "fbdev" "/dev/fb0"`
     TO
     `Option "fbdev" "/dev/fb1"`
     Press Ctrl+x to exit, press y for yes & enter. Followed by:
     `sudo reboot`

     Your screen will load up automatically now, instead of going to the HDMI output.

Calibrate Raspberry Pi Touchscreen

As you would of noticed though the screen is displaying, the calibration is out of whack. To calibrate the screen we will need to SSH to the Raspberry Pi again and login.

1. Install all the prerequisites for calibration
    - `sudo apt-get install libtool libx11-dev xinput autoconf libx11-dev libxi-dev x11proto-input-dev –y`

2. Download and install xinput_calibrator. (Press Enter After Each Bullet Point)
    - `git clone https://phippselectronics.com/support/piscreen/xinput_calibrator`
    - `cd xinput_calibrator/`
    - `./autogen.sh`
    - `make`
    - `sudo make install`

3. Download and setup the calibration script. (Press Enter After Each Bullet Point)
    - `cd ~`
    - `wget https://phippselectronics.com/support/piscreen/xinput_calibrator_pointercal.sh`
    - `sudo cp ~/xinput_calibrator_pointercal.sh /etc/X11/Xsession.d/xinput_calibrator_pointercal.sh`
    - `sudo chmod +x /etc/X11/Xsession.d/xinput_calibrator_pointercal.sh`

4. We now want the script to run everytime the Pi starts. This can be done by opening the autostart file for the screen. (Press Enter After Each Bullet Point)
    - `nano /home/pi/.config/lxsession/LXDE-pi/autostart`

      Add the following line to the bottom of the file
    - `sudo /bin/sh /etc/X11/Xsession.d/xinput_calibrator_pointercal.sh`
    - `sudo reboot`

Now when the Pi boots up, you will get a calibration screen.

The calibration program will create a file which it stores the calibration data in which is located (/etc/pointercal.xinput).

If you want to perform the calibration again, just delete /etc/pointercal.xinput and restart the Pi, you will then get the calibration screen again when it starts back up.

Stop the screen going to sleep

By default the screen will go to sleep after 10 minutes of no activity. To stop it going to sleep or increase the time it goes to sleep we will need to create a small script to disable power saving and disable screensaver which then gets loaded at startup.

Disable the screen going to sleep

1. Install server utilities, these will most likely already be installed
    - `sudo apt-get install x11-xserver-utils`

2. Create a script while is used to change the screen saver settings
    - `sudo nano /etc/X11/Xsession.d/disableblank.sh`
      Add these 3 lines

```
xset s off        # don't activate screensaver.
xset -dpms              # disable DPMS (Energy Star) features.
xset s noblank    # don't blank the video device.
```

    - Press Ctrl+x to exit, press y for yes and press enter

3. Change the permission on the file
    - `sudo chmod +x /etc/X11/Xsession.d/disableblank.sh`

4. Force the script to run when the Pi starts
    - `sudo nano /etc/xdg/lxsession/LXDE-pi/autostart`
      Add this line to the bottom:
    - `/etc/X11/Xsession.d/disableblank.sh`
    - Press Ctrl+x to exit, press y for yes and press enter

Setup & Install Stroke & Gesture Recognition

Gesture recognition is the perfect tool to help you get more out of your touchscreen.

Gesture recognition allows you to draw "strokes" on your touchscreen, which gets interpreted as commands or text. Gestures can be entered anywhere on the screen, in some cases it can be used instead of a keyboard.

1. Installation. Installing Stroke & Gesture Recognition is very easy, we just need to install some prerequisites, download the software & compile. (Press Enter After Each Bullet Point)
    - `sudo apt-get –y install libxft-dev libxpm-dev libxtst-dev`
    - `wget https://phippselectronics.com/support/piscreen/xstroke-0.6.tar.gz`
    - `tar xfv xstroke-0.6.tar.gz`
    - `cd xstroke-0.6/`
    - `./configure`
      We need to make an edit to the Makefile or it will fail:
    - `sed -i '/^X_LIBS = / s/$/ -lXrender -lX11 -lXext -ldl/' Makefile`
    - `make`
    - `sudo make install`

2. Create Menu Shortcuts – This will install menu items so you can start and stop the application. (Press Enter After Each Bullet Point)
    - `wget https://phippselectronics.com/support/piscreen/xstrokekill.desktop`
    - `wget https://phippselectronics.com/support/piscreen/xstroke.desktop`
      We will now copy them to the appropriate location
    - `sudo cp xstrokekill.desktop xstroke.desktop /usr/share/applications/`

You will now notice 2 new icons under Accessories in Raspbian GUI menu (XStroke & XStroke Kill) one will start the application, the other will end it.

When you open XStroke, you will notice a pen icon appear in the task bar, if you click on the icon it will change colour, indicating the gesture recognition is active.

Default Gesture Set