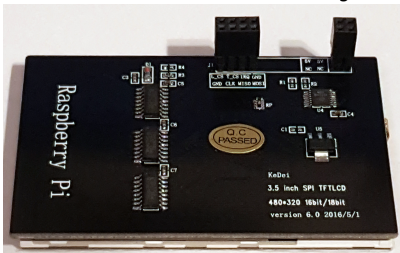# 3.5" SPI LCD Display

At around £8, adding a full function LCD display to a Raspberry Pi that is running without any attached monitor is a great way to add a bit of simple monitoring, or if required a more complex control system for stand alone projects.

The main issue with many displays is drivers (libraries) as these can be impossible to find, and even then sometime they are unreliable. If support is the most important thing, then buy the official Raspberry Pi display (Circa £50). But if you don't mind a small amount of fiddling, then here is a guide to a cheap LCD I bought from eBay.

The main reason I bought this display was that the header only uses 12 pins, and leaves access to the remaining header pins. The drivers are available online, although they are a bit fiddly, mainly its easy to lose the display if you do an apt-upgrade. However, once a stand alone project is complete, it is unlikely that you will update it (why would you if it still works?)
Follow these steps to install the LCD (assuming you have the same model)

Here is the model of LCD I am using:


```
1. Download the library:
   The most up to date driver will be here:
   https://drive.google.com/folderview?id=0B0DYHppEJ9cHbnRzSk9oUVAyMkk&usp=sharing
```

Or you can use:

i2c_lcd.zip

from here, this worked with Raspbian Jesse.

```
2. Unzip the files: tar -xzvf LCD_show_v6_0_2.tar.gz
3. Change the the new directory: cd LCD_show_v6_0_2
4. Update System: sudo apt-get update
5. Install Driver: sudo ./LCD35_v (Pi will auto reboot)
6. If you want to use HDMI then: sudo ./LCD_hdmi
7. Run this before Pi Update: sudo apt-mark hold raspberrypi-bootloader
8. sudo apt-get update
9. sudo apt-get upgrade
```

Note

Everytime I update the system with sudo apt-get upgrade, my LCD stops working and I have to do steps 2-6 again (actually, I don't do step 6 because I have nothing on the HDMI port)

Now you should have a working LCD
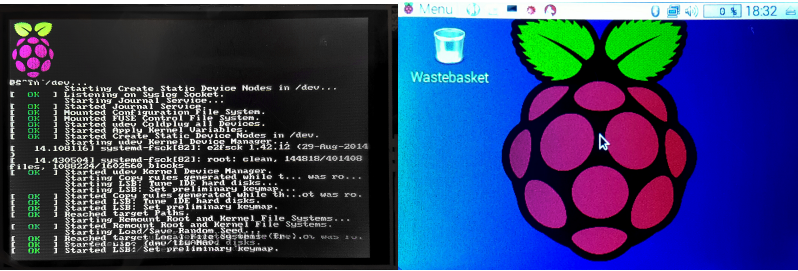
LCD Specs

```
TFT features:
 1.LCD Type              : TFT Transmissive  ---
 2.interface             : spi(32MHZ)
 3.Number of Dots        : 320*(RGB)*480  Dots
 4.size                  : 86.0*56.2mm
 5.Approx. Weight        : TBD  g
 6.Back Light            : 6 White LED
 7.Touch chip            : xpt2046
PIN_NO      SYMBOL        DESCRIPTION
 1          3.3v          power output 3.3v
 2,4        5v            power output  5v
 3          NC            no connect
 19         SPI_MISO      SPI Bus Master Input/Slave Output
 20,25      GND           Ground
 21         SPI_MOSI      SPI Bus Master Output/Slave Input
 22         TP_IRQ        The interruption of touch screem,Low  active
 23         SPI_CLK       SPI Bus clock
 24         TP_CS         The chip selection  for touch  screem,low  active
 26         LCD_CS        The chip selection  for LCD  screem,low active
```