

Home Security Projects for Raspberry Pi



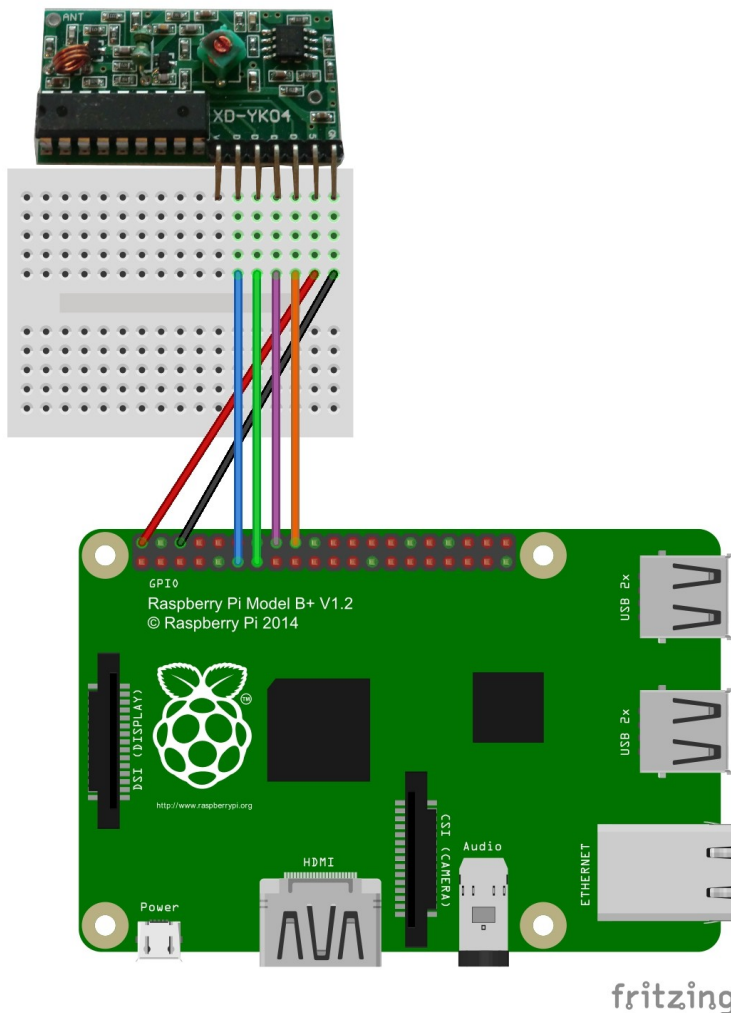
Tim Rustige

Here's how the 4 channel receiver attaches to a Raspberry Pi B+, A+ or Pi 2.

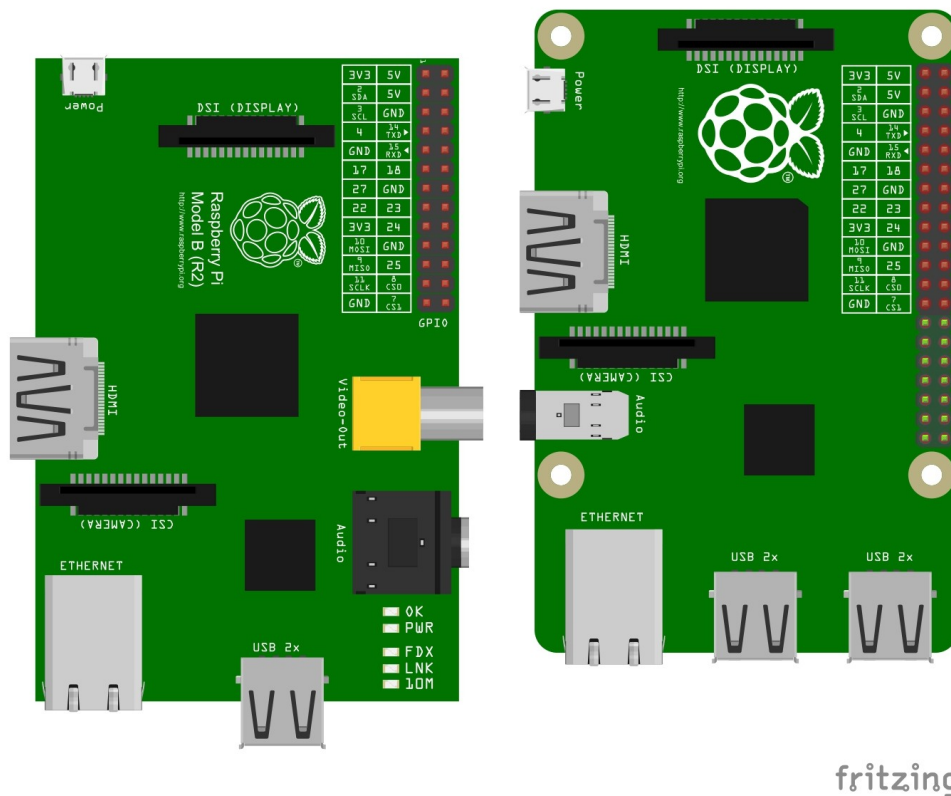
You can attach an optional antenna wire to the hole in the top left of the receiver board marked ANT. It can be soldered or twisted on & taped. The antenna wire should be 17.3cm long for 433MHz version (UK & Europe) or 23.8cm long for the 315MHz version (USA). The appropriate white antenna wire is included in the pack.

The colours of all the wires we've sent you will be different, just make sure connect the correct points together.

If you're using an older Pi model B or A, the wiring is just the same, you just won't have the last 7 columns of unused pins shown in the right of the photo below. (photo on next page shows the differences)



Differences between an older Pi B and a newer B+ or Pi 2.



fritzing

The older Pi model B is on the left in the above photo. It has a total of 26 GPIO pins, arranged 2x13.

The newer Model B+ / Pi 2 is on the right in the photo. It has 40 GPIO pins, arranged 2x20.

The top 13 rows of pins on the older A and B models (left), and newer A+, B+ & Pi 2 models (right) are identical.

Our kits don't use any of the newer 7 rows of pins on the A+/B+/Pi 2 models, so they are compatible with all Pi models.

How to make an executable script.

We've assumed you're running the latest version of the Raspbian OS for the Raspberry Pi.

When you see us change font to `courier`, we are indicating a command you type into the command line. For example:

```
nano test2.sh
```

Will open a basic text editor & allow you to enter a series of commands, that form the basis of all our scripts. Enter the following text:

```
echo "hello world"
```

Then save the file & exit. To make the command executable type:

```
chmod u+x test2.sh
```

and then to run the script

```
./test2.sh
```

Some scripts will need to be run as root (the highest security level). To do that type:

```
sudo ./test2.sh
```

To see a list of files in the current folder type

```
ls -al
```

If you have any problem running a script, then you've either made a typo, forgotten to make it executable with `chmod`, or need to put a `sudo` in front of it.

If you get bored of entering `sudo` before each command, you can switch to root by entering:

```
sudo su
```

You'll notice the prompt then changes from `$` to `#`. You can exit root by pressing `Ctrl-D`. While you're in root mode it's a good idea to change the default passwords for root & user `pi`, like this:

```
passwd  
passwd pi
```

Script to use with the 4 channel receiver/transmitter.

```
echo "17" > /sys/class/gpio/export
echo "in" > /sys/class/gpio/gpio17/direction

echo "23" > /sys/class/gpio/export
echo "in" > /sys/class/gpio/gpio23/direction

echo "24" > /sys/class/gpio/export
echo "in" > /sys/class/gpio/gpio24/direction

echo "27" > /sys/class/gpio/export
echo "in" > /sys/class/gpio/gpio27/direction

while true; do
    trap 'echo "17" > /sys/class/gpio/unexport && echo "23" >
/sys/class/gpio/unexport && echo "24" > /sys/class/gpio/unexport && echo "27"
> /sys/class/gpio/unexport' 0
    c=`cat /sys/class/gpio/gpio17/value`
    d=`cat /sys/class/gpio/gpio23/value`
    b=`cat /sys/class/gpio/gpio24/value`
    a=`cat /sys/class/gpio/gpio27/value`

    if [ "$a" = 1 ]; then
        echo "You pressed button A"
        sleep 1
    elif [ "$b" = 1 ]; then
        echo "You pressed button B"
        sleep 1
    elif [ "$c" = 1 ]; then
        echo "You pressed button C"
        sleep 1
    elif [ "$d" = 1 ]; then
        echo "You pressed button D"
        sleep 1
    fi
done
exit 0
```

You can pull this script down from our server with

```
wget http://www.securipi.co.uk/4chan.sh
```

make it executable with

```
chmod a+x 4chan.sh
```

run the script with

```
sudo ./4chan.sh
```

then press the buttons. When you want to exit press CTRL-C.

Python version 4chan.py

```
nano 4chan.py
```

```
#!/usr/bin/python
import RPi.GPIO as GPIO
from time import sleep
import os

buttonA = 17
buttonB = 24
buttonC = 23
buttonD = 27

GPIO.setmode(GPIO.BCM)
GPIO.setup(buttonA,GPIO.IN)
GPIO.setup(buttonB,GPIO.IN)
GPIO.setup(buttonC,GPIO.IN)
GPIO.setup(buttonD,GPIO.IN)

while True:
    if (GPIO.input(buttonA)):
        print('Button A was pressed')
        #uncomment os.system line to launch another program
        #os.system("python /home/pi/start.py")
        sleep(0.5)

    if (GPIO.input(buttonB)):
        print('Button B was pressed')
        sleep(0.5)

    if (GPIO.input(buttonC)):
        print('Button C was pressed')
        sleep(0.5)

    if (GPIO.input(buttonD)):
        print('Button D was pressed')
        sleep(0.5)
```

```
chmod a+x 4chan.py
```

```
python 4chan.py
```

This script is for the 433Mhz version where the buttons are labelled C,A,D,B