SPi-BOX MANUAL

Motion Activated Security Camera

Motion

Alarm

Camera

Components
We Make Things Intelligent

WWW.SB-COMPONENTS.CO.UK

Welcome

Congratulations on buying an **SB Components SPi-Box.** We hope you find it to be the perfect complement to your Raspberry Pi PIR and camera projects.

The case is designed to mount the Raspberry Pi 2&3 along with a Raspberry Pi camera module and a PIR module; all the elements you need to set up a PIR-based security camera system.

As a starting point for your project the accompanying SPi-Box microSD card comes pre-loaded with some Python scripts for configuring and running a simple motion-capture security camera which will email the captured images to an email address of your choice.

Safety Information

- To reduce the risk of damage make sure your Raspberry Pi is switched off when attaching components to the non-consumer ports (i.e. GPIO or camera connectors).
- Do not operate near water
- Do not block any case ventilation openings

- Do not install near any heat sources such as radiators
- Protect the power cord from damage
- Unplug during thunder storms or when switched off for extended periods

What's in the Box

Depending on the kit you purchased the contents will vary (check the label on the box for what is included in your kit). The standard starter kit includes:

1 x SPi-Box case

1 x PIR

3 x GPIO/PIR leads

1 x microSD card pre-loaded with SPi-Box scripts

Putting the SPi-Box Together

Install your Raspberry Pi

Both B+ and Pi 2/3/3B+ boards will fit the SPi-Box case. Please be aware that the bottom half of the case of the SPi-Box is shallower than other SB Components' cases making the mounting procedure slightly different:

- Line up the hdmi side of the Pi with the lower half of the case and ease it into place at a slight angle pressing down gently but firmly until the mounting posts (highlighted in red) click into place in the Pi's screw-mounting holes.

- Press the other side of the board down into place gently but firmly until the mounting posts on the GPIO side of the board click into place in the board's screw-mounting holes.

Mounting Camera & PIR

- Attach the camera module to the top half of the case using the screws provided to secure it into place (note: the camera ribbon cable should point toward the USB holes in the case).

- Attach the PIR module to the top half of the case using the screws provided to secure it into place (note: the pins should be closest to the camera with the orange trimming controls aligned with the two holes in the side of the case).

- Connect the camera module ribbon to the Pi. For the correct method of connection please see this guide from the Raspberry Pi Foundation

- Connect the PIR to the Raspberry Pi using the included GPIO leads:

    a. PIR VCC pin connects to Pi pin 2 (5v)

    b. PIR OUT pin connects to Pi pin 7 (GPIO4)

    c. PIR GND pin connects to Pi pin 6 (Ground)

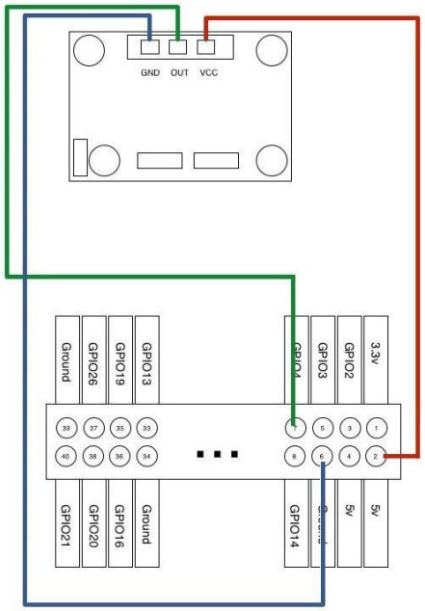


Illustration of the rear of the PIR module connected to the Pi GPI

- Snap the two case sections together

Getting the SPi-Box Started

To get up and running with the SPi-Box scripts (pre-installed on the microSD card) you will first need to connect your Pi to a monitor, keyboard and mouse. Additionally you will need to connect the Pi to your local network

Things you need to know:

1. If the Pi does not boot to the desktop how to start the GUI
2. How to open a command window from the Raspbian desktop
3. How to edit files using nano (for a quick tutorial see: How-To-Geek)
4. The default username and password for the basic Raspbian install:

Login = pi
Password = raspberry

Note: After the initial configuration you should be able to run the SPi-Box "headless" without connecting to a monitor, keyboard and mouse

Spi Box Software:

The SPi-Box software has been installed under /home/pi/spibox:

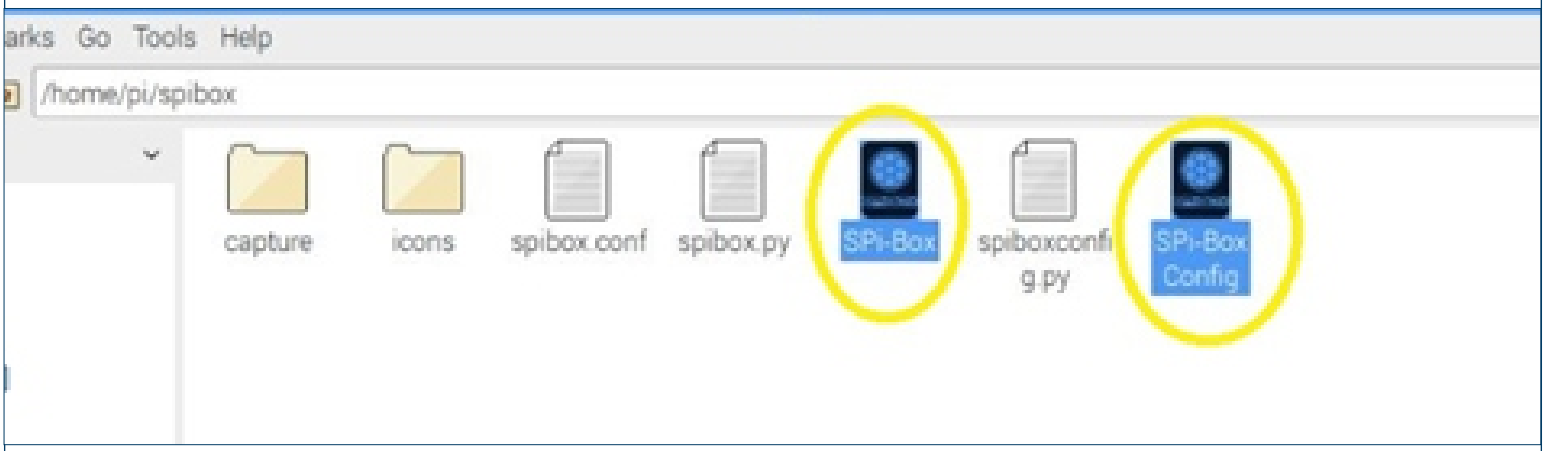
File Name	Description
spibox.conf	**This is a config file that stores:** 1. The subject line of your email alerts 2. The email address to which your email alerts should be sent 3. Whether the email routine should be sending emails or not (by default this is set to NO)
spibox.py	When executed, this python script will start waiting for the PIR to detect motion and then when motion is detected will take a picture with the camera. All images get saved to /home/pi/spibox/capture

File Name	Description
spiboxmessenger.py	This python script runs at startup (via cron: enter crontab –l in a command prompt to see the details) and if the spibox.conf file has the send email flag set to YES it will attempt to email all jpg files sitting in the capture directory to the email address specified in the spibox.conf file (see above). It then moves those files to the capture/archive folder.
spiboxconfig.py	This python script will open a simple GUI allowing you to: 1. Change the contents of the spibox.conf file without using a text editor. 2. Test that you have correctly configured your ssmtp settings (see below)

Spi-box Setup

1. Firstly, download the 'spibox.tar.gz' file and extract to '/home/pi' directory

2. Cut 'SPi-Box' and 'SPi-Box Config' icon from Spi-Box folder and paste it on desktop



3. If **'SSMTP'** and **'MPACK'** is not installed (SSMTP is for mail configuration and MPACK is used for sending attachments), follow the commands

```
sudo apt-get install ssmtp
sudo apt-get install mpack
```

4. Edit **SSMTP** configuration file

```
sudo nano /etc/ssmtp/ssmtp.conf
```

5. Add the following configuration & save it

```
root=postmaster
mailhub=smtp.gmail.com:465
hostname=raspberrypi
AuthUser=user_name@gmail.com
AuthPass=user_password
FromLineOverride=YES
UseTLS=YES
```

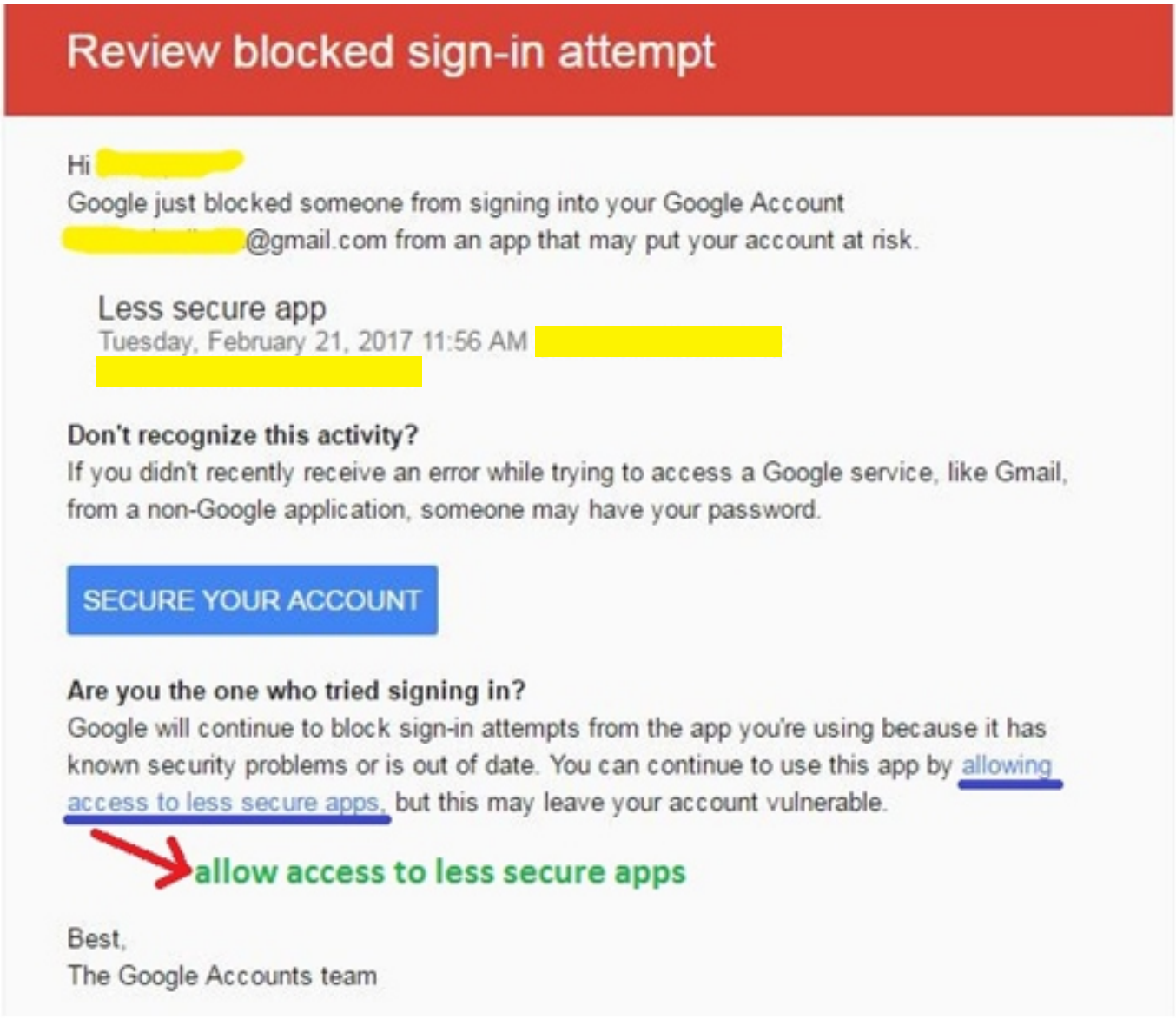
6. Send a test mail

```
mpack –s “subject” file_path recipient@gmail.com
```

For Example :

```
mpack –s “test mail” /home/pi/image.png abc@gmail.com
```

7. Google will block your sign-in attempts. Check your **Mail Inbox** and allow to less securing apps so that Raspberry Pi can send emails



8. Repeat process 6 for sending a test mail

9. Click **'SPi-Box Config'** icon placed on desktop and configure it

- Tick on “turn on email”
- Enter the subject
- Enter the email recipient address
- Click on “Test Email” for checking configuration is correct
- Press “save and quit”

10. Connect the Camera with connector and PIR sensor output to **'GPIO 4'** of Raspberry Pi

11. Enable Camera in raspberry pi configuration and restart the Pi.

12. Click on “SPi-Box” icon placed on Desktop, to run the script and if motion is detected it will click an image and mail it.

Spi-box Video

1. For capturing video, download the 'spibox_v.tar.gz' file and extract to '/home/pi' directory and follow the same instructions as above. Default it will record 5 sec video only, user can change it

2. Install **'MP4Box'** for converting h264 to mp4 file format using command

```
sudo apt-get install -y gpac
```

3. After installation, reboot your Raspberry Pi

Warranty

This SB Components product is warranted for the period of twelve (12) months from the original date of purchase, against defective materials and workmanship.

In the event that warranty service is required you should return the product to the retailer from whom it was purchased

About Us

SB Components is a specialist manufacturer of protective cases for **single board computers** and **microcontroller boards.** Our designers are experts in producing robust, functional and elegant cases that protect and augment technology platforms.

In addition to the standard products listed in this catalogue SB Components will undertake bespoke case projects. These can range from the addition of logos, or changes in **colour/material** of existing cases to the creation of completely bespoke engineered-from scratch projects

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