Family Monitor

A device to give warning of a lack of activity in family members

This document describes the purpose, basic operation and usage of the family monitor.

The purpose of the family monitor is to provide a degree of reassurance that a family member is active and going about their daily routines. It is intended not to be intrusive or to provide a clandestine surveillance facility.

The fundamental operation of the monitor is to detect regular activity in a location of the family members home, such as a kitchen, where such activity is expected, and when activity isn't detected, to quietly raise awareness of this with other family members via email.

The device is mains powered, communicates over Wi-Fi, and requires both internet connectivity and an internet based email account.

Appearance
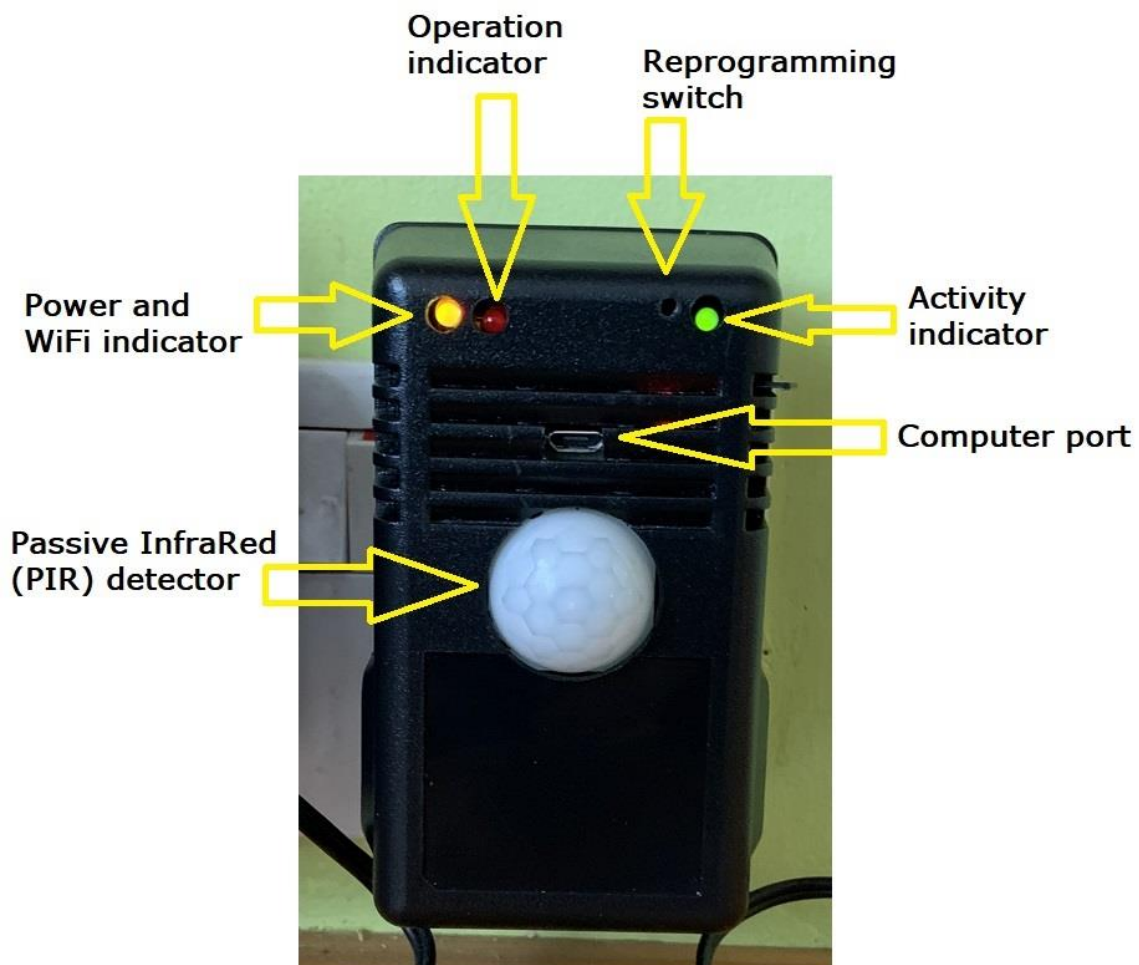
Power and WiFi Indicator

This lights up red when the unit if first powered on and turns yellow when connected to the WiFi.

Operation Indicator

This red light only illuminates to indicate that the unit is doing something.

Continuous – the unit has just sent an email and it will illuminate for 1 minute

Short Flashes – waiting to connect to the WiFi

Long Flashes – there is an SD card fault, either remove and reinsert or replace

Continuous Short/Long Flashes – configuration on the SD card is faulty

Intermittent Short/Long Flashes – Waiting to connect to the internet
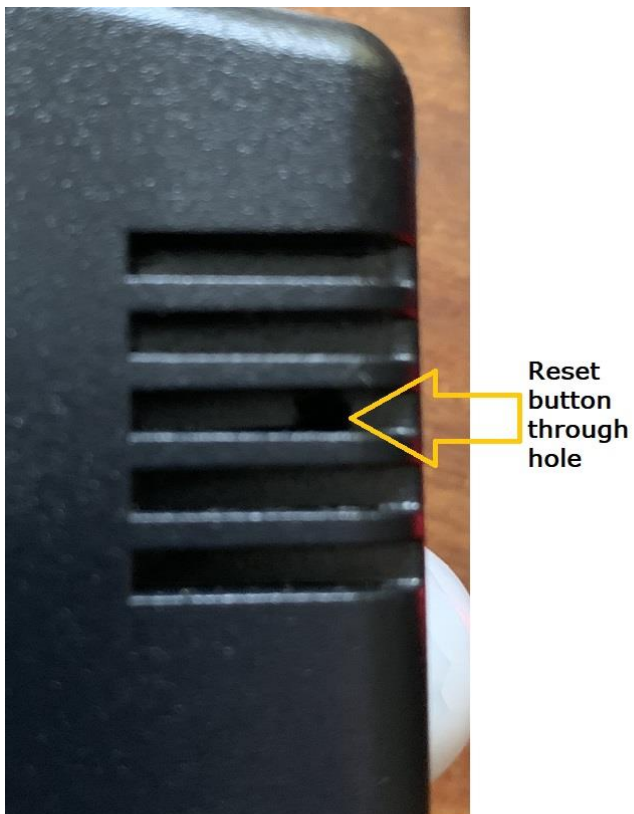
Passive InfraRed (PIR) detector

This detects a large moving body, usually a person.

Activity Indicator

This illuminates when the PIR detector is activated
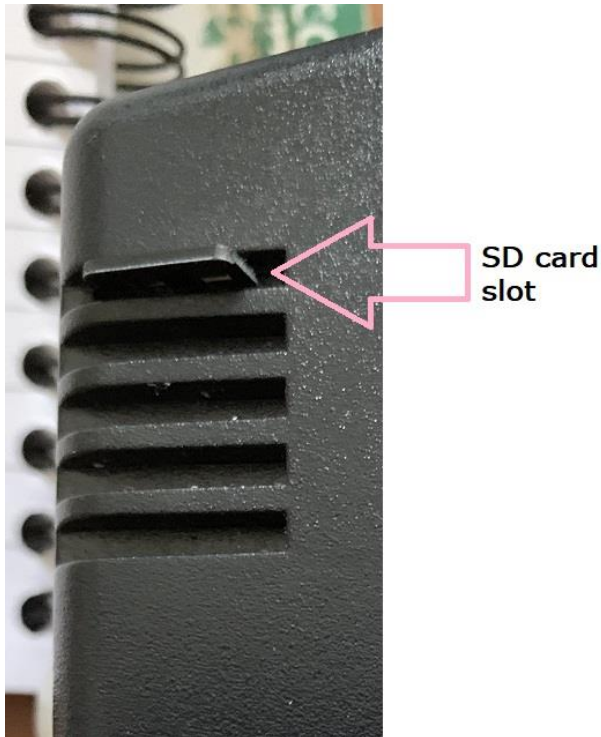
Computer Port

Gives access to allow reprogramming of the unit

Reset button through hole

Reset Button

Available if required but switching off/on has the same effect

Test Button

When depressed for ten seconds, the unit will send a test email as configured on the SD card. Afterwards, the red Operation indicator will light for one minute.

SD card slot

The unit is controlled by the configuration stored on an SD card inserted at the side of the unit. This needs to be in the unit at all times for full functionality.

SD Card and configuration

The files on the SD card are not protected in anyway, protection will be implemented along with the website feature.

On the SD card the file config.txt holds the control information for the unit. It references other files on the SD card for information. An example format of the config.txt file is


```
FamilyMonitor          <---Hostname
/website               <---directory holding website
/wifi.txt              <---wifi connection information
/email.txt             <---email connection information
/verifyemail.txt       <---text and contact details of verification email
/testemail.txt         <---text and contact details of weekly test email
/alertemail.txt        <---text and contact details of alert email
/returnemail.txt       <---text and contact details of return email
24                     <---hours after last contact alert email sent
6                      <---power cut timer, time after which switch off assumed
15                     <---last contact logging timer
2                      <---Logging level, 0-Off, 1-Admin, 2-complete
7                      <---morning timer, start of morning period, 0 indicates do not use
7                      <---morning timer, end specified, time before which contact must be triggered
1234567                <---days of week to send log files in test emails, 7 characters long, 0 indicates do not send log, Sunday-Saturday
```

The first entry is the name that the unit will appear as on the local wifi network.

The next entry is the name of the folder on the SD card where the control website for the unit is stored. This is for a future feature to allow the unit to be inspected and configured from a browser.

The next entry, wifi.txt, is the name of the file on the SD card holding the wifi signon information

The next entry, email.txt, is the name of the file containing the signon information to the email service

The next four entries define the names of the files holding the contents of the email to be sent in the event that that email needs to be sent. This is described in the email contents section later.

The next seven numbers define operational parameters.

The first defines the number of hours the unit will wait to send an alert email in the event that no movement is detected by the PIR. In the example it is 24 hours.

The next parameter defines how long the unit will consider being powered off to be a power cut as opposed to being switched off. In the example, if the power is off for more than six hours, the unit will consider it a power cut and will begin the alert timer again when the power is returned. If the power is off for less than six hours, the alert counter will continue where it left off.

The next parameter defines how often the unit will write the last seen time to the SD card, in the example every 15 minutes. This is the last seen time value is used when power is returned to the unit.

The next parameter defines the logging level. The unit write messages to a log file of events that have happened to it. There are three levels of logging.

0 – The unit doesn't log anything

1 – The unit will log administrative messages only

2 - The unit will log all events, this includes each PIR activation

In the example it is set to 2 and is the test setting. Whenever an email is sent, a copy of the log file is attached.

The next two parameters define the morning timer. This sets an window of time in the day which if specified, the PIR must be triggered within otherwise an alert email is sent. In the example, the window is from 2am to 7am, so that if the PIR isn't activated in that time period, an alert email is sent. **(This has not been implemented yet)**

The last parameter indicates when to send test emails which verify the operation of the unit. This can be set to not at all or to specific days of the week. In the example, this is set to 1234567 which tells the unit to send a test email every day.

WiFI.txt file

This contains two plaintext lines, the SSID of the WiFi to be used and password.

Email.txt

This contains four plaintext lines

The first contains the name of the email account to used to send emails

The second contains the password to that email account

The third contains the name of the email server on the internet to be used

The last contains the port number on the internet email server the unit has to signon to.

Email Text Files

There are four email text files active at any one time. They can have any name but it must be the ones specified in the config file. They are entered in the config file on separate lines in the order verify email, test email, alert email and return email.

The verify email is sent when the test button is pressed for more than ten seconds and is intended to verify operation of the unit, wifi and email account.

The test email is sent regularly at intervals defined by the last parameter of the config file and is to verify that the unit is working correctly.

The alert email is sent whenever the last seen timer expires, either based on an elapsed time basis or on a time window.

The return email is sent after an alert email has been successfully sent and the PIR detector has been triggered again, indicating that someone is there.

Example contents of the four email definitions are shown below.

The first plaintext lines list the recipients of the email. The '<' character indicates the end of the recipient section.

The next line contains the subject line for the email being sent and would appear on the list screen of the email client used.

The last lines contain the contents of the email.

*alertemail.txt - Notepad

File   Edit   View

```
tekyinblack2@gmail.com
tekyinblack@gmail.com
tekyinblack@yahoo.co.uk
<
OwenFamilyAlert no daily contact
<
The family alert system has not been triggered during the last 24 hours.
Please check, and verify that all is ok.
```

*returnemail.txt - Notepad

File   Edit   View

```
tekyinblack2@gmail.com
tekyinblack@gmail.com
tekyinblack@yahoo.co.uk
<
OwenFamilyAlert Return contact
<
The family alert system issued a no-contact email earlier
and since then the system has been triggered again.
```