

Regular and automatic picture of the blob

Principle

- A webcam, plugged on a Raspberry, take images every X mn (configured time in the job scheduler Crontab).
- A relay manage the lamp (220V in the example)
- A temperature sensor take a reading every X mn
- Datas (time stamping image name and temperature) are concatenate in a CSV file that will be opened by a spreadsheet (space is the field delimiter)

Hardware

Raspberry pi 4

Webcam (ex : Logitech c922)

Relay 5v

Lamp and its alimentation

Transistor 2N3904 to be associated with the relay

Temperature sensor DS18B20

Resistor : $1K\Omega$ (for the relay) and $4,7K\Omega$ (for the heating sensor)

Connections

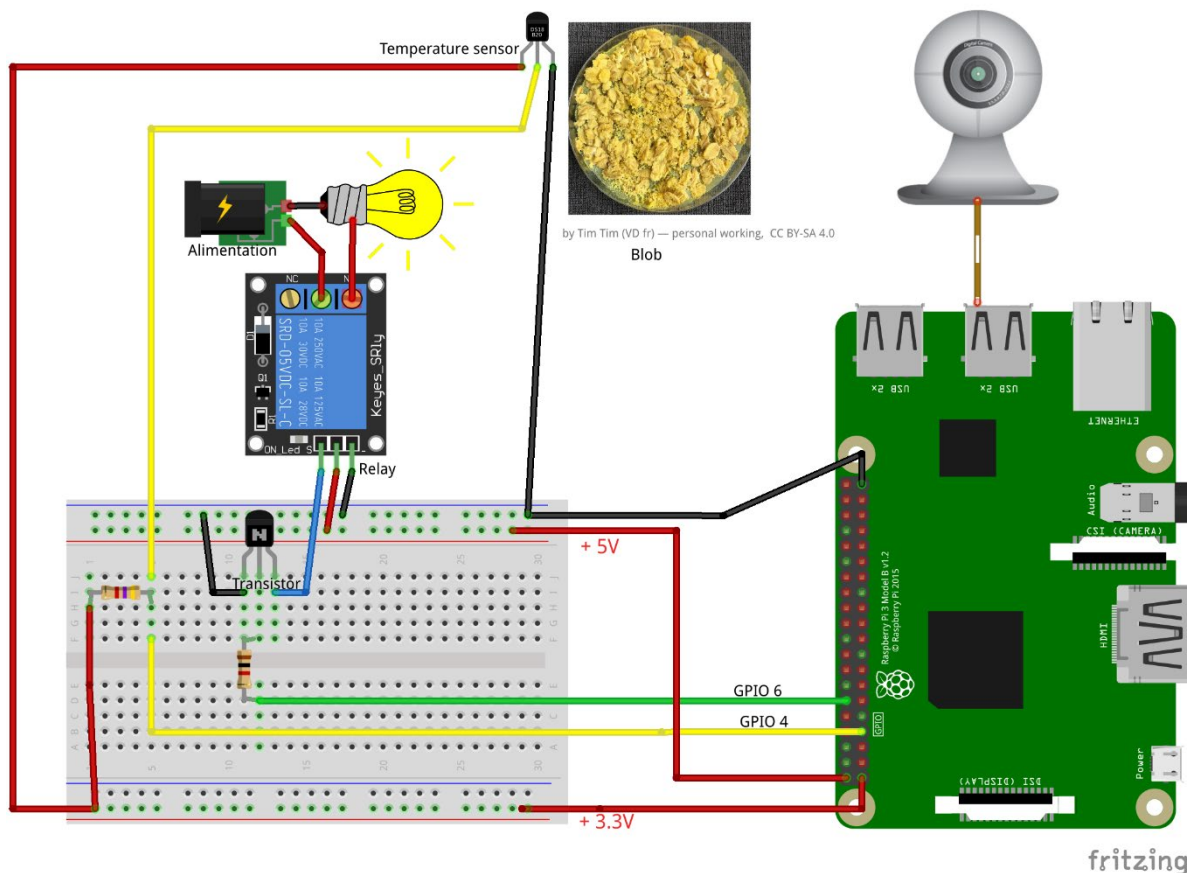
the blob !

Installation diagram

Resistances:

Temperature sensor: $4.7k\Omega$

Transistor : $1k\Omega$



Software

Raspberry Pi OS as operating system on the Raspberry

1-wire activated for the temperature sensor (Menu >> Preferences >> Raspberry Pi configuration >> tab Interfaces >> 1-Wire)

Python language (python 3.7.3 here)

yagmail python module for sending email (optional)

A Gmail account for sending email (optional)

fswebcam to get image from the webcam

Set up the blob.py file (cf the *variables definition* section of the file)

How to find the path of the webcam

Install v4l-utils and execute `v4l2-ctl -list-devices`

How to find the ID of the temperature sensor

Execute the command `ls /sys/bus/w1/devices/`

Create the folders of the storage path (images and CSV file (to be open with a spreadsheet)

`pathImage = /home/pi/Pictures/blob/images/` # storage path for images

`pathFile = /home/pi/Pictures/blob/files/` # storage path for files as CSV

Put the blob.py file

Save the blob.py programme in the `usr/sbin` folder and set it executable (`sudo chmod +x usr/sbin/blob.py`). A password inside should make it more protected (`sudo chmod 750 usr/sbin/blob.py`)

Setting time interval

Setting the crontab (`sudo crontab -e`) by adding the next line for an every 10mn execution of `usr/sbin/blob.py`

`*/10 * * * * /usr/bin/python /usr/sbin/blob.py >/dev/null 2>&1`