Raspberry Pi Mediocre monitoring system, (Pi.M.M.S) Logs temperatures from ds18b20 1 wire temperature sensors and displays the results in a jqplot graph. The goal of the Pi.M.M.S System is to control heating systems. Determining if a building is occupied by the prescence or absence of devices connected to the local network. For example any selected mobile (phone or other) device would indicate a building is occupied.

Pi.M.M.S is built using:

- python2.7 programming language,
- SQLite3 Transaction SQL Database,
- nginx HTTP Server,
- gunicorn WSGI HTTP Server,
- Flask web Framework,
- Jinja2 Templating engine,
- Jquery javascript library,
- Jquery Ploting plugin,

And is intended for use on raspberry pi hardware. The software should work on other hardware platforms(untested) but connection of the additional hardware required, sensors, buttons displays etc would need to be worked out by yourself.

Installation

SSH into your rPi or openstart up a console.

Install the required packages:

```
sudo apt-get install nginx python-rpi.gpio git sqlite3 python-pip
```

Create a minimal nginx configuration

```
sudo nano /etc/nginx/sites-available/pimms
```

Add the following to the configuration.

```
Server {
	listen 80 default;
	keepalive_timeout 5;
	server_name pimms;
	access_log /opt/pimms/logs/access.log;
	error_log /opt/pimms/logs/error.log;
	root /opt/pimms/PiMMS/www/static;

	location / {
		try_files $uri @proxy_to_app;
	}

	location @proxy_to_app {
		proxy_pass http://127.0.0.1:9001;
	}

	location /static {
		root /opt/pimms/PiMMS/www/static;
		index index.html index.htm;
	}
}
```

symlink into sites enabled and remove the default site.

```
Sudo ln -s /etc/nginx/sites-available/pimms /etc/nginx/sites-enabled/pimms
sudo rm /etc/nginx//sites-enabled/default
```

Create the log files

```
mkdir /opt/pimms/logs
touch /opt/pimms/logs/access.log
touch /opt/pimms/logs/error.log
```

DO NOT START NGINX

Create the application directory and a virtual environment with the necessary libraries

```
sudo mkdir -p /opt/pimms/PiMMS
cd /opt
sudo virtualenv --no-site-packages pimms
source pimms/bin/activate
pip install gunicorn flask sqlite3
```

Change the ownership to the pi user

```
sudo chown pi /opt/pimms/PiMMS
sudo chgrp pi /opt/pimms/PiMMS
```

Clone the git repository

```
cd /opt/pimms
git clone git://github.com/WillBickerstaff/PiMMS.git
```

Start nginx

```
sudo service start nginx
```

Start Pi.M.M.S

```
/opt/pimms/PiMMS/pimms
```

If all went well you should see the monitor and gunicorn start with no errors. To stop pimms you need to kill the process or keyboard interrupt with ctrl-c

Wiring

Wiring the DS18*20 sensors is relatively simple. For Pi.M.M.S to be able to identify erroneous readings we use 3 DS18*20 sensors connected:

Connect pin 1 (power) of the DS18*20 sensors to pin 2 (5v) on the rpi gpio header. Pin 2 is closest to the corner of the board when viewed from the component side. Pin 2 (data) of the DS18*20 sensors is connected to GPIO4 (pin 7) on the gpio header and the ground pins (3) od the sensors are connected to ground on the gpio header.