Set up a new install for Raspberry Pi

Instructions on how to set up a new install for Raspberry Pi. These are mainly reminder notes for Ciaran Beggan on how to correctly set up each RPi's software, assuming the ADC+ board has been installed on it.
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Initial

- Connect HDMI cable to monitor
- Attach USB keyboard and mouse
- Attach Wifi dongle
- Insert 8Gb SD card with NOOBS
- Plug in power cable

Install OS

Raspberry Pi boots to a graphical screen with a selection of options for a new Operating System.

- Choose Raspbian using the mouse and click 'Install'

This takes about 15 minutes to install ~2Gb for the OS. Once Raspbian is installed, the RPi reboots and takes you to a text screen with options 1 – 8. The only option required is to choose

- Boot to Desktop (Option 3, then 2)

Setup OS

The RPi reboots and takes you to the standard GUI desktop with the RPi logo in the background. Now we have to setup the Wi-Fi then update the system.

- Click on the *Wifi Config* icon and set up the Wi-Fi access by scanning for the correct network and giving the correct password.

The system time should update itself within a few moments, as it checks the time from the Internet.

Next, click on the *lxterminal* icon to bring up a Linux terminal. Type the following commands:

```
>> sudo apt-get update
>> sudo apt-get -y upgrade
```

The first command collects the list of modules required to update the OS software, the second downloads and applies them. This takes around 20-30 minutes.

Install i2c

The i2c components required for the ADC board are not installed, so there are a couple of things to install first. We need some tools (*i2c-tools* and *python-smbus*). While we are at it, let's install *gedit* too for nice editing of code later on.

```
>> sudo apt-get -y install i2c-tools python-smbus gedit
```

This takes about 5 minutes or so. Next add in the hardware modules to be loaded on booting into this file called /etc/modules. It already has a sound chip added:

```
>> sudo nano /etc/modules
```

Add in the lines:

```
i2c-snd2708
i2c-dev
```

Finally, update the raspi-config file using the handy pre-set interface available:

```
>> sudo raspi-config
```

Choose Advanced options, then I2C and set the i2c modules to load at boot time. Reboot the Rpi. Open a new lxterminal and check the ADC+ board is connected to Rpi by typing:

```
>> sudo i2cdetect -y 1
```

You should see a series of lines of text with mostly -- shown. Along the bottom will be the numbers : -- -- -- 68 69 -- -

This indicates that the board has been detected at those hex addresses in memory.

Screensaver/Wi-Fi power

There's an issue (I think) with the screen saver or Wi-Fi powering off and causing the logging software or system to hang. The partial remedy to this appears to be to disable a few of these power saving settings.

Wifi power – add a line disabling the power down in the *interfaces* file.

```
>> sudo nano /etc/network/interfaces
```

At the bottom of this file add: `wireless-power off`

Screensaver – in two parts. Turn off the kbd and the xdg power and screensaver settings

```
>> sudo nano /kbd/config
```

Scroll through this file setting various POWERDOWN_TIME=30 and BLANK_TIME=30 lines to =0 to disable a screensaver

```
>> sudo nano /xdg/lxsession/LXDE/autostart
```

Disable the screensaver line (with a #). Add the following lines:

```
#@xset screensaver ...
@xset s off
@xset -dpms
@xset s noblank
```

Python drivers

Finally reboot and copy over the python code from ABElectronics to drive the ADC and do the logging to the root directory (e.g. /users/pi)

To run the logger for the ADC, have a look at the examples in the ABElectronics/ADCPi directory.