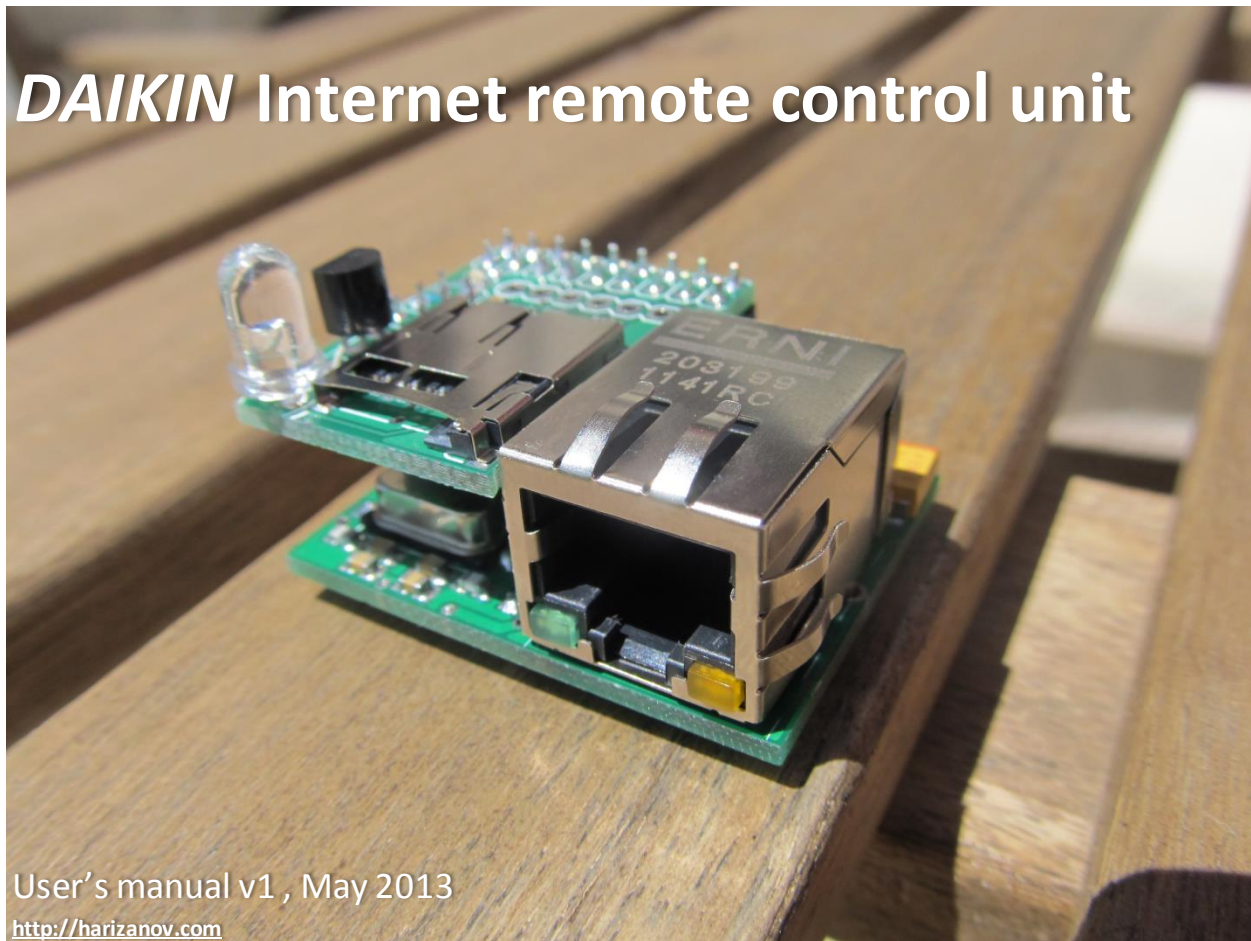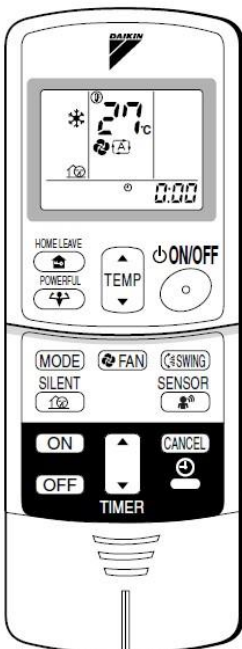# *DAIKIN* Internet remote control unit

User's manual v1 , May 2013

http://harizanov.com

This is a part of an open source project that I have worked on and documented here. The Daikin Internet remote control unit emulates the ARC433** remote control (pictured to the left) that many modern Daikin split air conditioners use. It allows the user to remotely control the AC over the Internet, using the in-built web server, which you can access using your mobile phone, tablet or laptop from anywhere in the world.

The unit includes a microSD card slot for firmware updates. Should there be newer firmware version, the user can save it to a SD card and the unit will automatically be re-flashed with it. No SD card is included, it is entirely optional to use this feature. A card of capacity 2GB or less is required as only FAT16 is supported.

On-board is a TMP36 temperature sensor that can be used to check the room temperature. The temperature may be mounted on the PCB itself, but note that there may be heat transfer and hence false readings. In your setup, you

may wire the temperature sensor at a farther position from the board or calibrate the readings.

Board dimensions are width 38mm depth 20mm and height 16mm.

For the advanced users, JSON status string is available if the unit is queried at the default IP address, http://192.168.1.55/json it will return:

{"state":"0","mode":"4","temp":"21","fan":"176","aux":"0","roomt":"22.9"}

State has values 0 or 1 meaning off/on

Mode has meaning

>   3 = Cool
>   4 = Heat
>   0 = AUTO
>   2 = DRY

Temp shows the set temperature

Fan shows the fan speed and has the following meanings:
>   176=Night mode
>   160=Auto
>   48=Speed 1
>   80=Speed 2
>   112=Speed 3

Aux shows the aux mode i.e.
>   0=Normal
>   1=Powerful
>   16=Silent

Roomt is the room temperature in degrees Celsius detected by the on-board TMP36 temperature sensor

JSON can be used for automation scripts, for example I use a PHP script to check outside temperature and decide on weather I need heating/cooling. Also, based on other criteria I may increase/decrease the set temperature during nights for better efficiency.

The unit can take remote commands using query string, for example http://192.168.1.55/r?d=4&t=21&f=176&a=0&s=1 will set the AC in heat mode (see above for details), temperature 21, fan speed to 'night mode', normal mode and state ON.

Note: Please do not use force when plugging in the microUSB power plug: the jack is soldered on the board, not thru it and is fragile. To power-cycle the unit, rather disconnect from the mains and not from the microUSB plug.

Note: To access the Daikin Internet remote control from outside your local area network, you will need to set up your firewall accordingly. This brief document cannot elaborate on the possible firewall

configurations, please check how you can configure your firewall to allow incoming connections to be forwarded to the unit prior to purchasing.

The unit supports only static IP address. The default IP configuration is:

IP address: 192.168.1.55
Gateway: 192.168.1.1
DNS: 8.8.8.8 (Google's DNS, do not change unless you know what you are doing)

Plug the unit to Ethernet connection and power up the unit. The unit check for firmware on the microSD card, and if it is not present will resume booting in few seconds. Upon starting, the on-board LED will go solid for about 20 seconds.

Note: If for some reason you need to reset the settings to their default, you may briefly short using metal clip the jumper on the bottom of the IR board during the 20 seconds of solid LED at startup. If you do so, the LED will flash several times to indicate the board is reset. Power-cycle for the changes to apply.
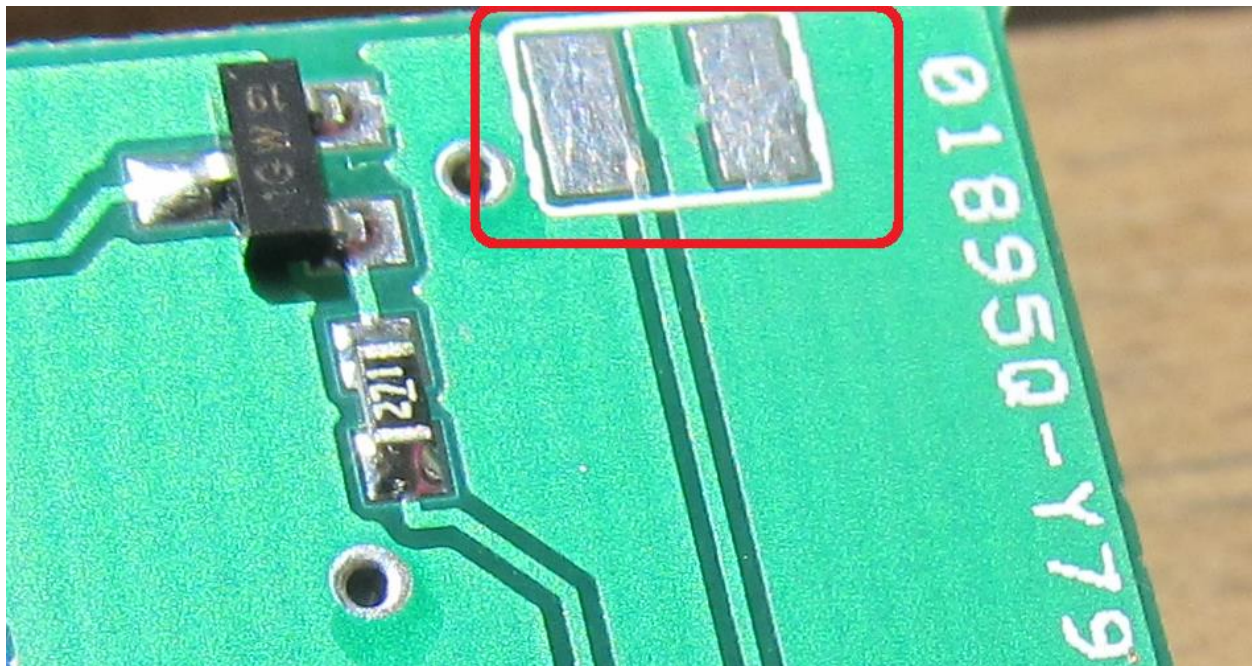

After the initial 20 seconds, the board will start and the LED will flash every second to indicate it is running.

To access the unit's web server, you need to navigate to the default IP address: http://192.168.1.55

The UI will look differently depending if you chose to use JQuery or plain HTML in the HTML settings page. Pictured below are the two versions, the plain text version is more compatible, while the JQuery one is much more fancy and better to use with mobile phone for example.

The 'home' page contains links to the possible pages. Below the menu will be the firmware version (FW), the uptime statistics and your unit's detected IP address (WAN).
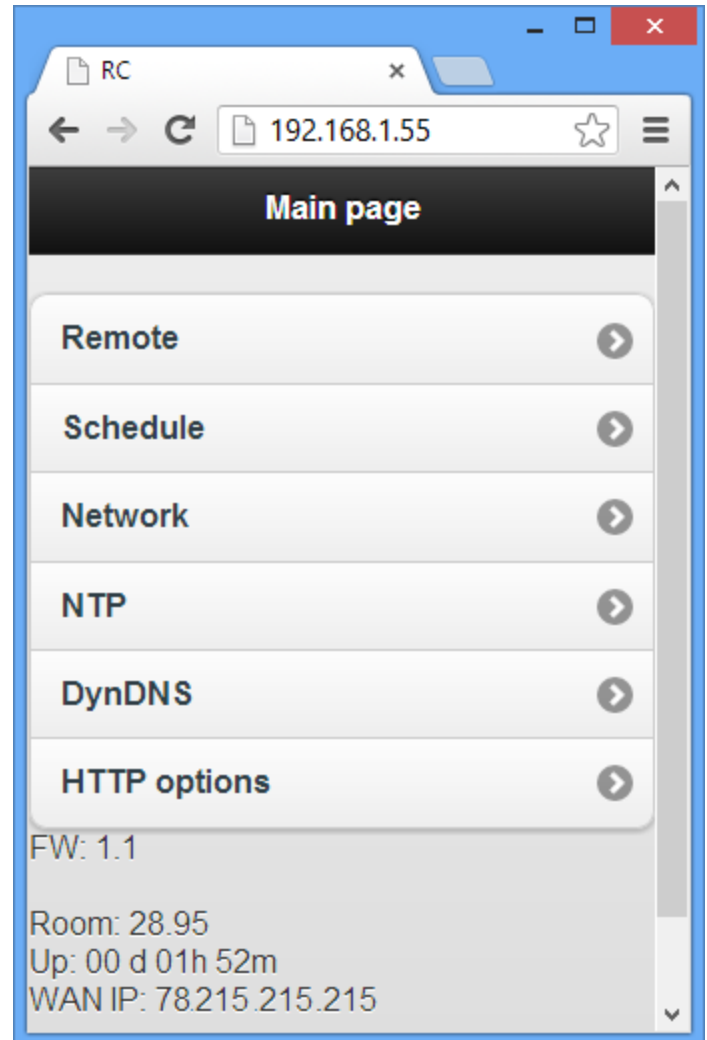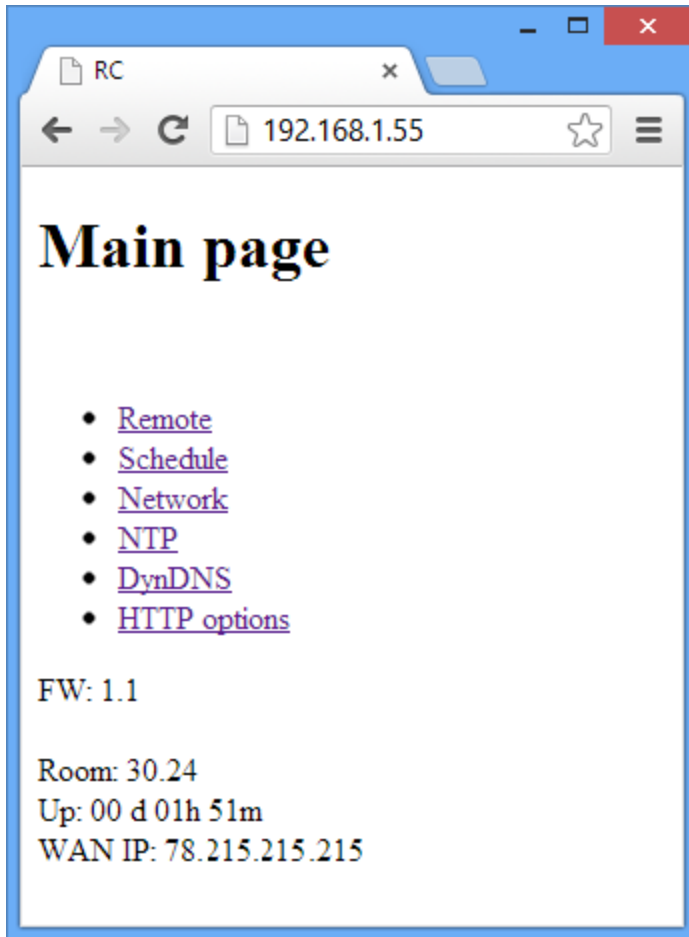
The 'Remote Control' page allows for manual setting of the desired AC parameters:
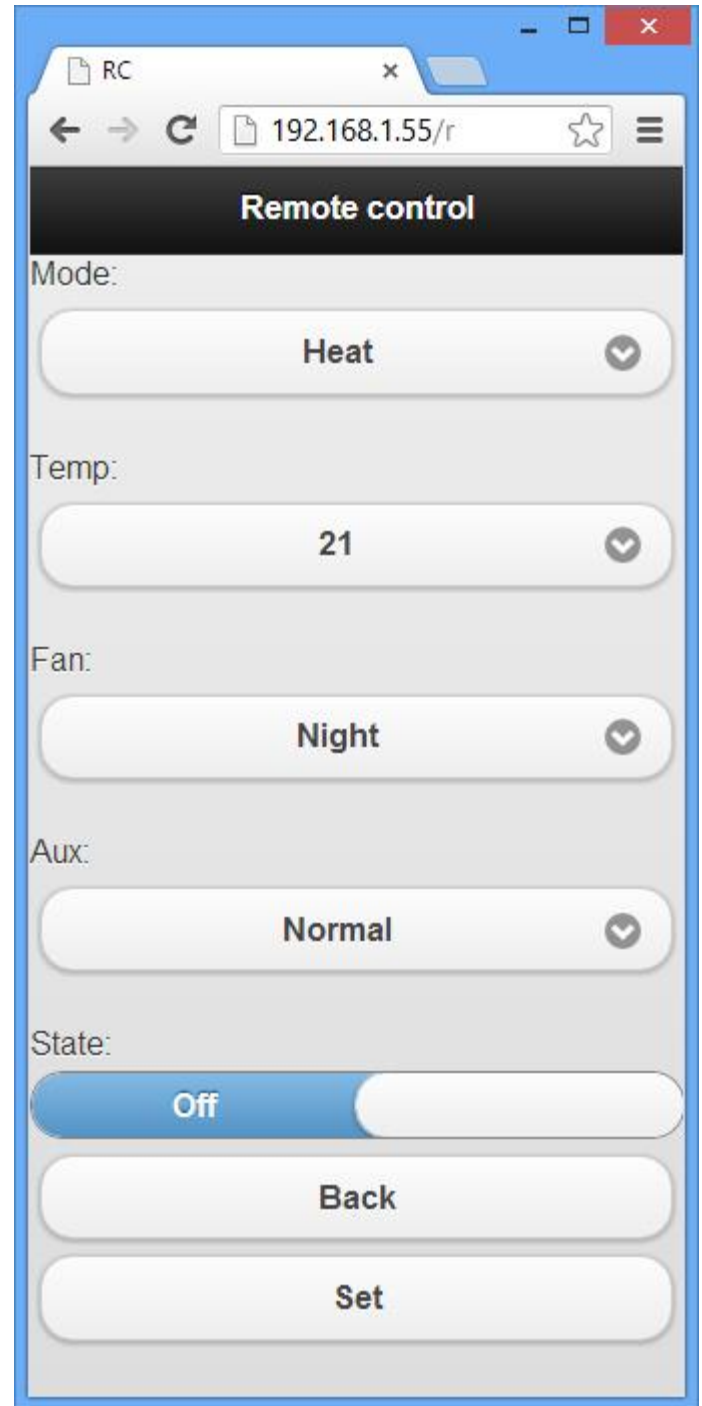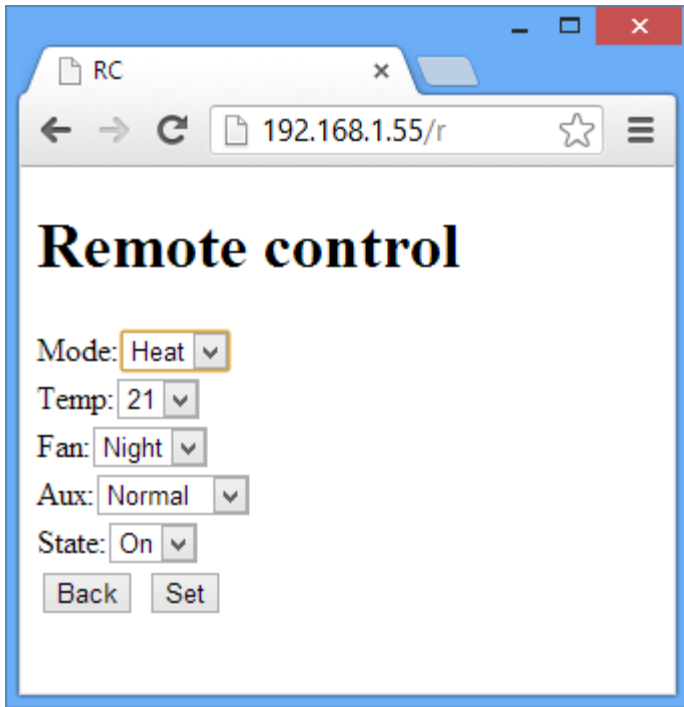
The 'Schedule' pages allow you to set up to 10 timers (0 to 9) that will transmit the desired setting at the defined time. This feature requires NTP settings to be configured properly so that the board can poll the time and date.

Browser 1

192.168.1.55/s0

Timer 0

Go to timer #
0 1 2 3 4 5 6 7 8 9
Enabled? No
Day: MTWTFSS
Hour: 0
Min: 00
Mode: Heat
Temp: 14
Fan: Night
Aux: Normal
State: Off
Back   Set

Browser 2

192.168.1.55/s0

Timer 0

Go to timer #
0 1 2 3 4 5 6 7 8 9
Enabled?

No

Day:

MTWTFSS

Hour:

0

Min:

00

Mode:

Heat

Temp:

14

Fan:

Night

Aux:

Normal

State:

Off

Back

Set

The network settings page is where you re-configure the IP address, gateway and DNS. The DNS is pre-set to Google's DNS, I advise you leave it so.

f
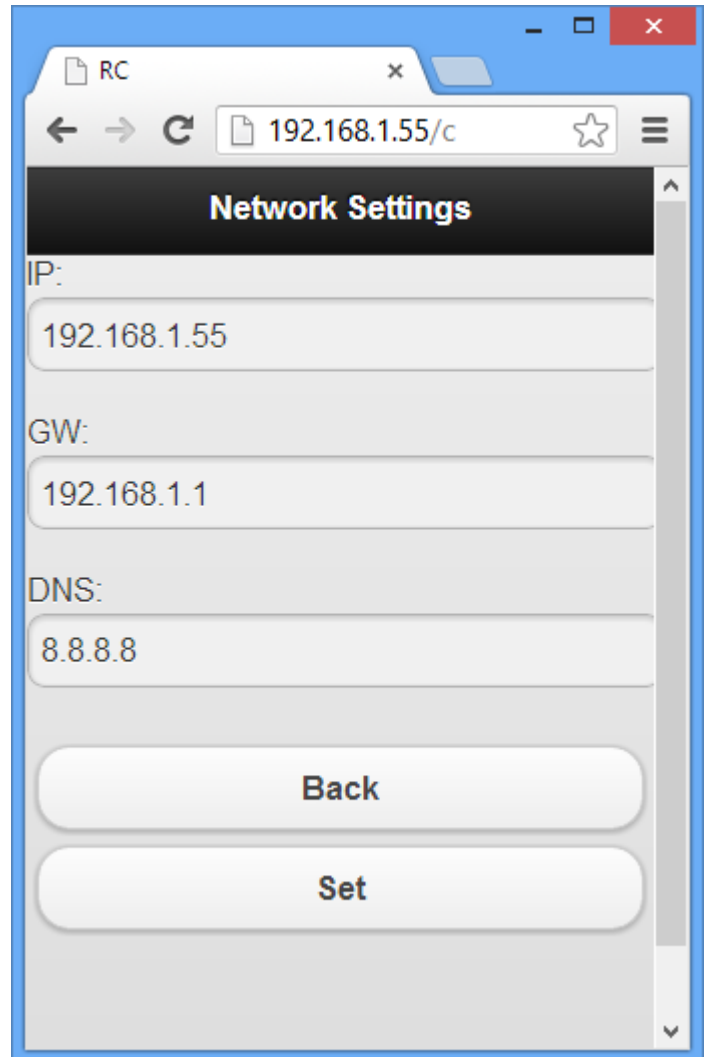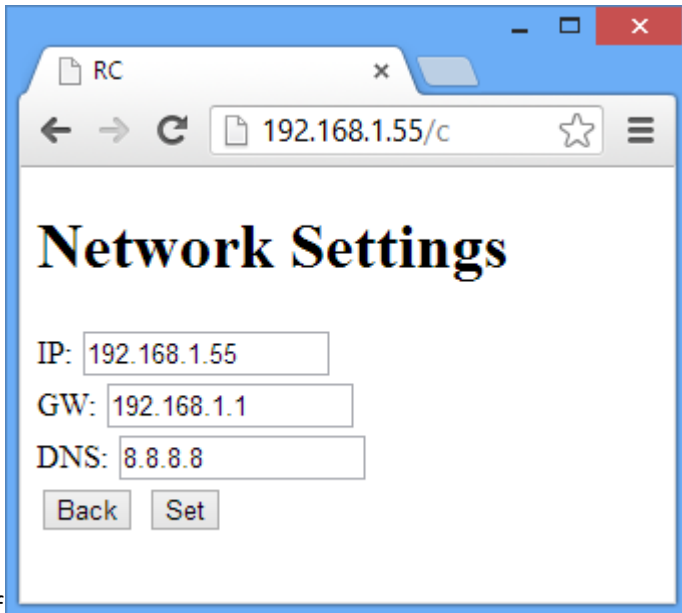
The NTP settings page is where you set the network time server, this is how the unit gets its time and date, needed for the scheduler. Time offset will adjust for the time zone, you may use positive or negative number.
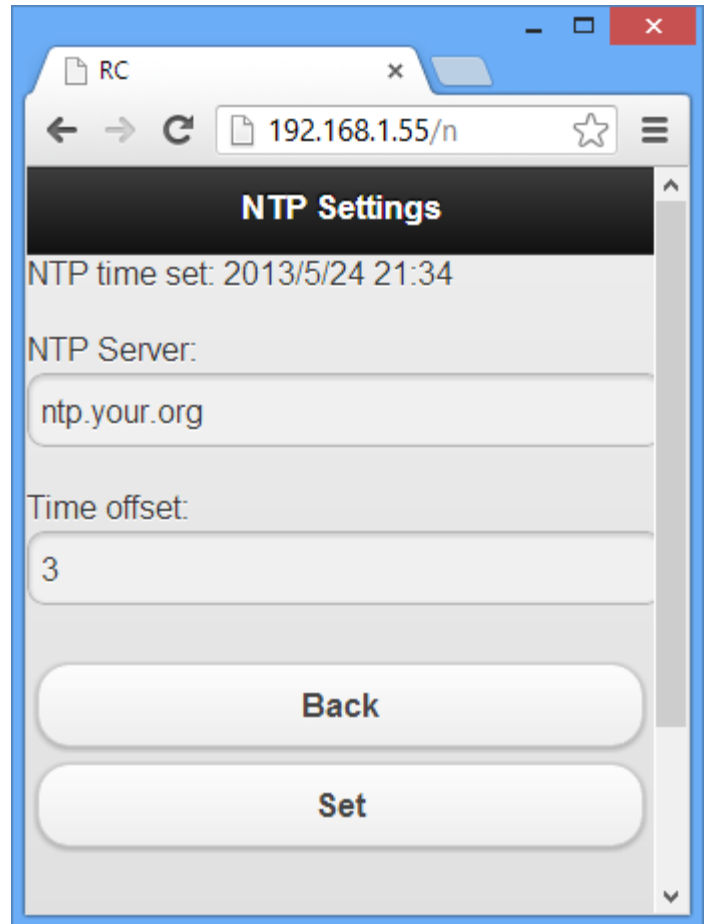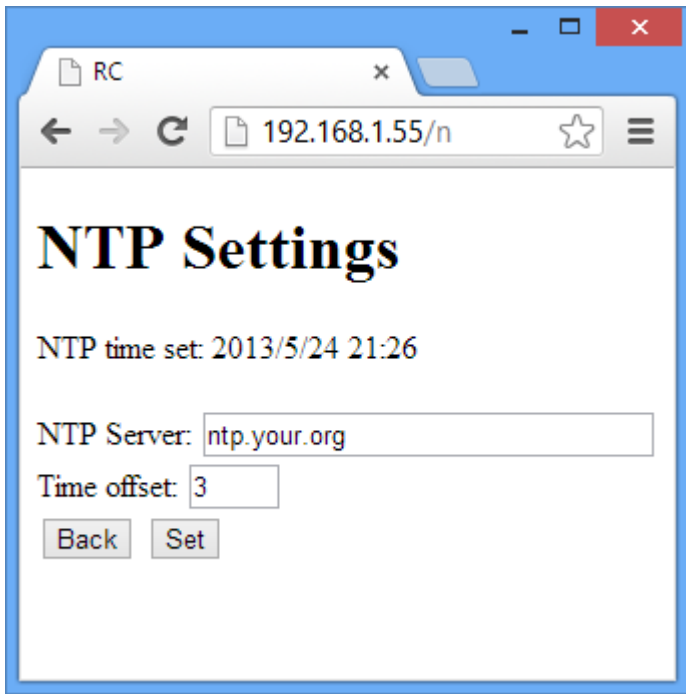
The DynamicDNS page is where you configure for using Dyn.com's dynamic IP services. Username and password cannot exceed 10 chars.
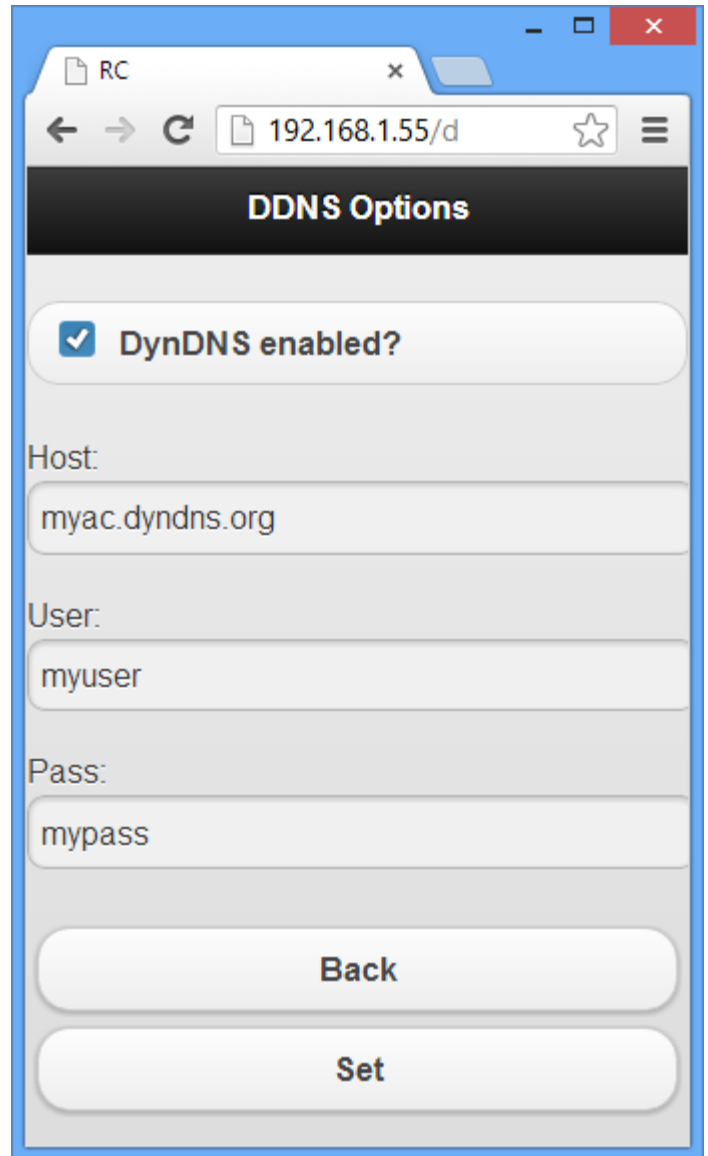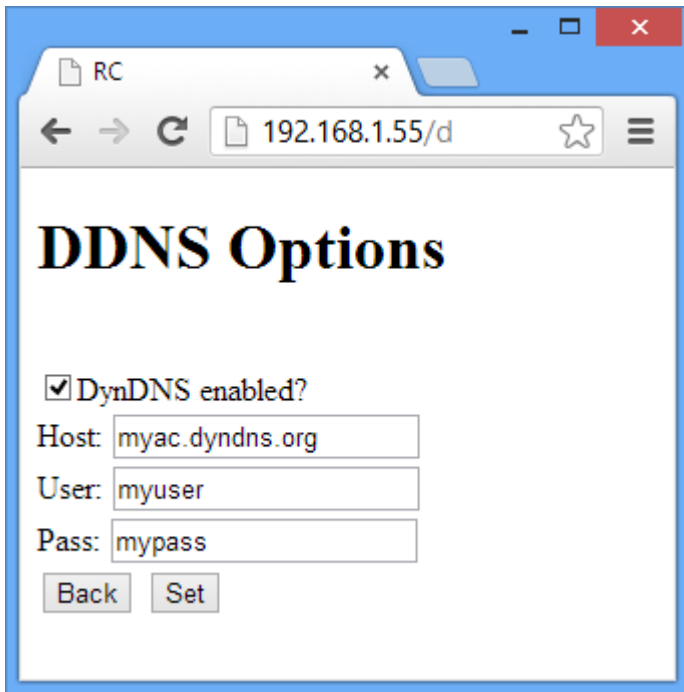
The HTTP settings page allows you to set alternative HTTP web server port, valid ranges are 1-255. You can enable the JQuery UI from here too.

For added security, you may enable HTTP authentication by setting a user and password (10 chars each max)

HTTP

Port: 80

☐ JQ UI?

☐ HTTP Auth?

User: _____

Pass: _____

[Back] [Set]

Port:

80

☑ **JQ UI?**

☐ **HTTP Auth?**

User:

Pass:

Back

Set