Using GPIO Server with a Configuration Template

There are two versions of Scratch that will run on the Raspberry Pi and can be used for GPIO projects.

1.   Scratch GPIO, a very simple and user friendly version written by Simon Walters for the earlier versions of the Raspberry Pi that does not require configuration files to make it work.

2.   GPIO Server developed by the Raspberry Pi Foundation and bundled with NOOBS.

The GPIO Server version of Scratch relies on some configuration scripts to enable the Scratch broadcast scripts to communicate with the GPIO pins on the Pi.

These scripts are not particularly complicated and the children can be taught how to use them but they are more often a distraction from the main teaching points within a project. It is easier for young children if they are kept out of sight somewhere in the background.
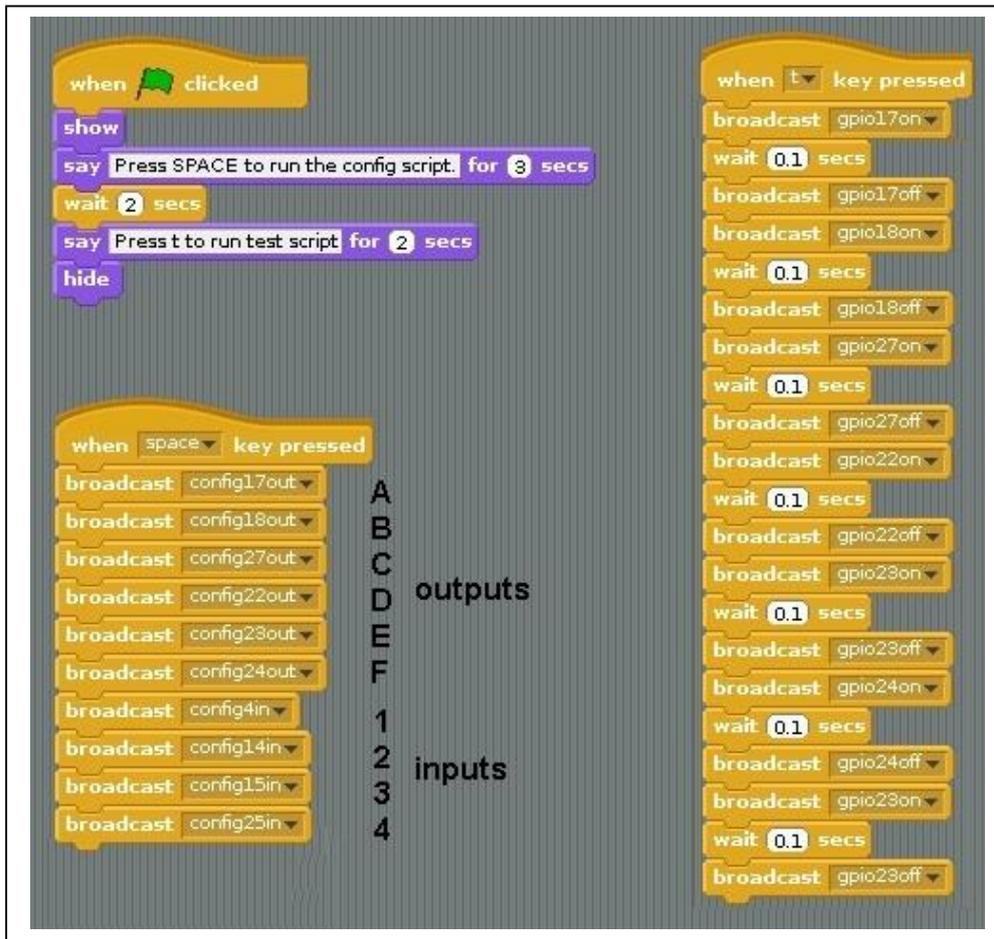
A relatively simple method is to have a sprite that contains all of the config scripts pre-programmed along with simple instructions to remind the children to run the script at the start of each session.

Once run, the session is then set up for GPIO work and the scripts can remain hidden in the background.

You can also include a test script that the children can use to make sure that the config scripts have done their job properly. And to reset the GPIO outputs to off if things go wrong.

There are two ways to make the config scripts available to the children. They can:

- either import a sprite to their Scratch projects that contains the scripts (see below and Config_Cat in the code library)
- or open a template file that already has the config scripts attached to one of the sprites.

when [green flag] clicked
show
say [Press SPACE to run the config script.] for (3) secs
wait (2) secs
say [Press t to run test script] for (2) secs
hide

when [space ▾] key pressed
broadcast [config17out ▾]
broadcast [config18out ▾]
broadcast [config27out ▾]
broadcast [config22out ▾]
broadcast [config23out ▾]
broadcast [config24out ▾]
broadcast [config4in ▾]
broadcast [config14in ▾]
broadcast [config15in ▾]
broadcast [config25in ▾]

A
B
C
D   outputs
E
F

1
2   inputs
3
4

when [t ▾] key pressed
broadcast [gpio17on ▾]
wait (0.1) secs
broadcast [gpio17off ▾]
broadcast [gpio18on ▾]
wait (0.1) secs
broadcast [gpio18off ▾]
broadcast [gpio27on ▾]
wait (0.1) secs
broadcast [gpio27off ▾]
broadcast [gpio22on ▾]
wait (0.1) secs
broadcast [gpio22off ▾]
broadcast [gpio23on ▾]
wait (0.1) secs
broadcast [gpio23off ▾]
broadcast [gpio24on ▾]
wait (0.1) secs
broadcast [gpio24off ▾]
broadcast [gpio23on ▾]
wait (0.1) secs
broadcast [gpio23off ▾]

The config script will run when the green flag is clicked, setting up the outputs:

A - gpio17

B - gpio18

C - gpio27

D - gpio22

E - gpio23

F - gpio24

The inputs will be set up as:

1 - gpio 4

2 - gpio 14

3 - gpio 15

4 - gpio 25

Pressing 'T' will turn on each output for a tenth of a second. It is also a simple way to turn all of the outputs off.