Controlling LED's with Scratch

Introduction

Within this worksheet you are going to learn how to connect and control LEDs with a Raspberry Pi through scratch code.

Equipment We Will Be Using

To complete this worksheet you will require:

- A Raspberry Pi with all cables
- A Electronic Breadboard
- 1 x Red LED
- 1 x Yellow LED
- 1 x Green LED
- 3 x 330 ohms Resistors
- 4 x Male to Female jumper wires

Creating The Circuit

Before you create the circuit make sure the raspberry pi is turned off. To create the circuit follow the diagram below: **NOTE** LEDs Have one longer leg called the annode which is always connected to the positive supply of the circuit. The shorter leg called the cathode which is connected to the negative side of the power supply. The resistors go in between the short leg and ground rail on a breadboard.
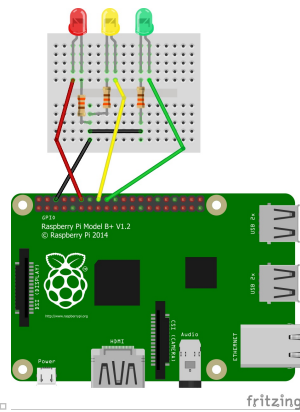
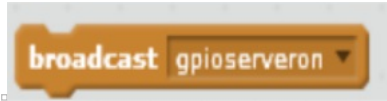Now plug the power supply in to turn the Raspberry pi on.

Code

Your Raspberry Pi should now be booted up. Go to Menu -> Programming and click on Scratch. Now drag and drop the folowing blocks to crate your code:
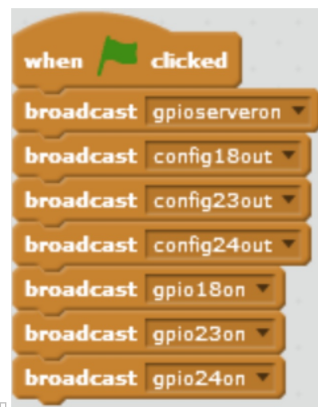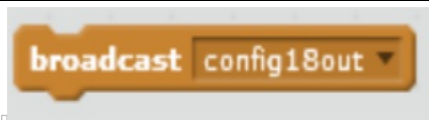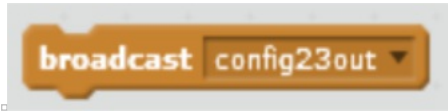

What The Blocks Do

Code Block	Meaning
	When the green flag is clicked the code will run

broadcast gpioserveron ▼	Turning the GPIO Server on so that scratch can communicate with the GPIO Pins
broadcast config18out ▼	Configuring pin 18 as an output
broadcast config23out ▼	Configuring pin 23 as an output
broadcast config24out ▼	Configuring pin 24 as an output
broadcast gpio18on ▼	Giving pin 18 power and turning the red LED on
broadcast gpio23on ▼	Giving pin 23 power and turning the yellow LED on
broadcast gpio24on ▼	Giving pin 24 power and turning the green LED on
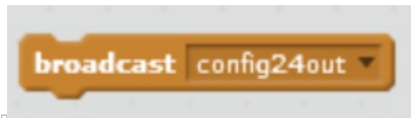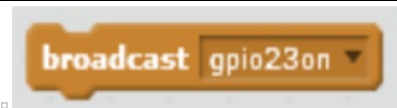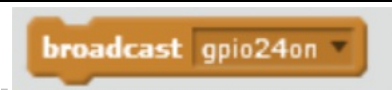
NOTE To edit the code of the broadcast blocks click on the little black arrow and pick *new/edit* and type the text into the dialog box and press enter.

Once you have copied the code above and checked to make sure it is right. Save the file and call it LED_on

Running The Code

You are now ready to run the code. You can do this by clicking on the green flag. You should now see your LEDs light up.

Challenge

You have managed to turn the LEDs on. Now try and turn them off. Save your code in a seperate file.