# What is Scratch ?

With Scratch, you can program your own interactive stories, games, and animations — and share your creations with others in the online community.

Scratch helps young people learn to think creatively, reason systematically, and work collaboratively — essential skills for life in the 21st century.

Scratch is a project of the Lifelong Kindergarten Group at the MIT Media Lab. It is provided free of charge.

Scratch comes pre-installed with Raspberry Pi (OS- raspbian wheezy).

http://en.wikipedia.org/wiki/Scratch_(programming_language)

http://scratch.mit.edu/

# Scratch GPIO

Installing ScratchGPIO5 software on a Raspberry Pi

With Raspberry Pi connected to Internet

Copy the text below ( left click just before the s of sudo and drag right until all the text in the line as been selected) then right-click and select copy. Open up an LX Terminal window and select Edit and the Paste that into an LX Terminal window and run it to download the installer.

*sudo wget http://goo.gl/Pthh62 -O isgh5.sh*
or
*sudo wget http://goo.gl/ikUpyJ -O isgh5.sh*

Once the installer has been downloaded then just type (or copy and paste the text below as before)

*sudo bash isgh5.sh*

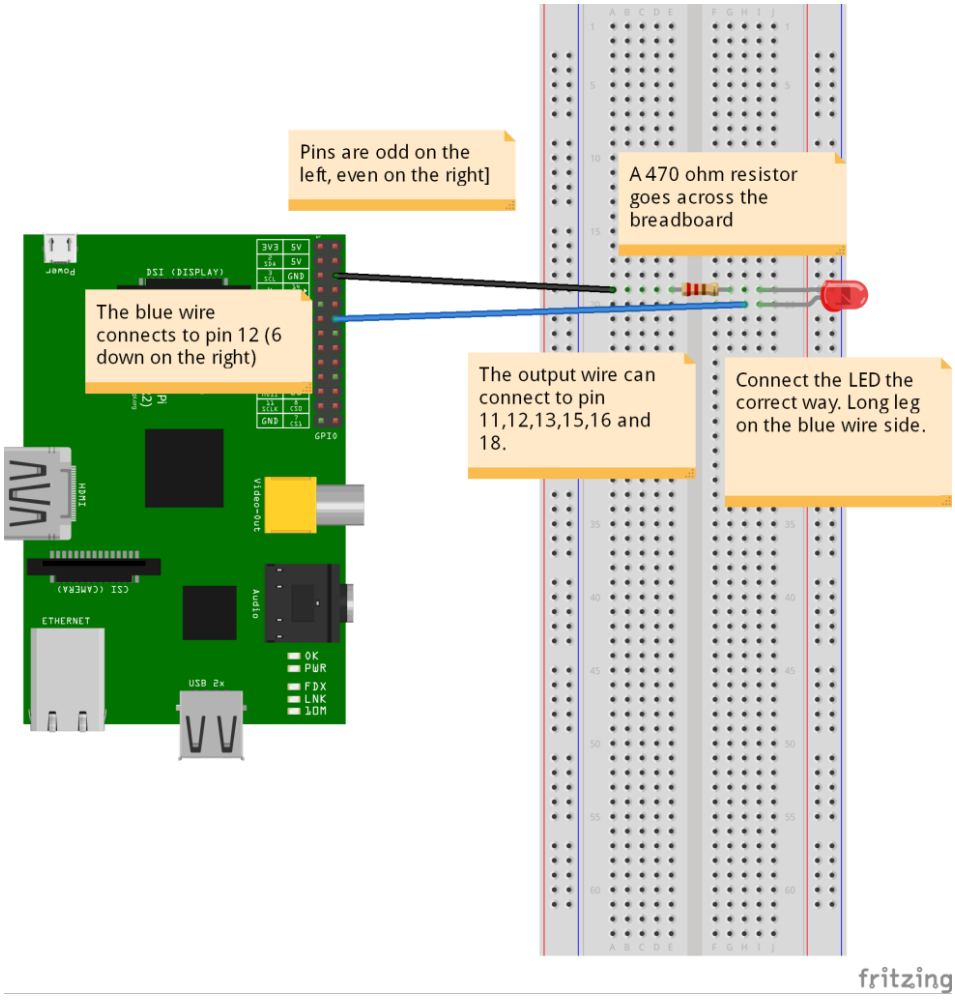
The installer will create 2 desktop icons – ScratchGPIO5 which is used for beginners using simple circuits and ScratchGPIO 5Plus which is used with specific add-on boards.

references:-
http://www.scratchmypi.co.uk/using-the-raspberry-pi-and-scratch-to-make-leds-light-up/

# Equipment

Breadboard
Resistors (typically about 50  ohm)
LEDS
Wires – female to male

# Wiring




Note that the long leg on the LED is positive and needs to be on the side where the wire comes from the output pins.

The Pi has a number of GPIO pins for OUTPUTS. You can use 11,12,13,15,16 or 18. The odd numbers are on the left and the evens are on the right.

## The code

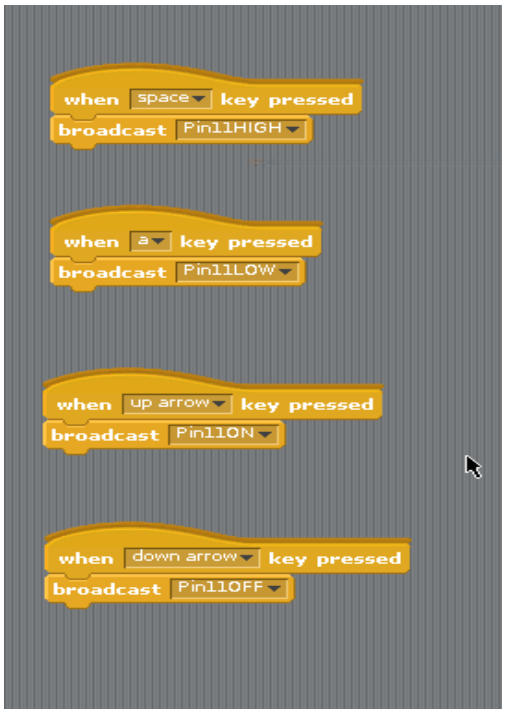
Scratch has a BROADCAST function. You can create a BROADCAST message for the pins.

BROADCAST PIN11HIGH

or BROADCAST PIN11ON

So when you connect a function such as

WHEN SPACE BAR PRESSED, BROADCAST PIN11HIGH



The LED will light up. If it does not work, check your wiring. If you connect the wire from Pin11 to Pin1, this supplies 3.3V and the LED will light up.

To turn the LED off,

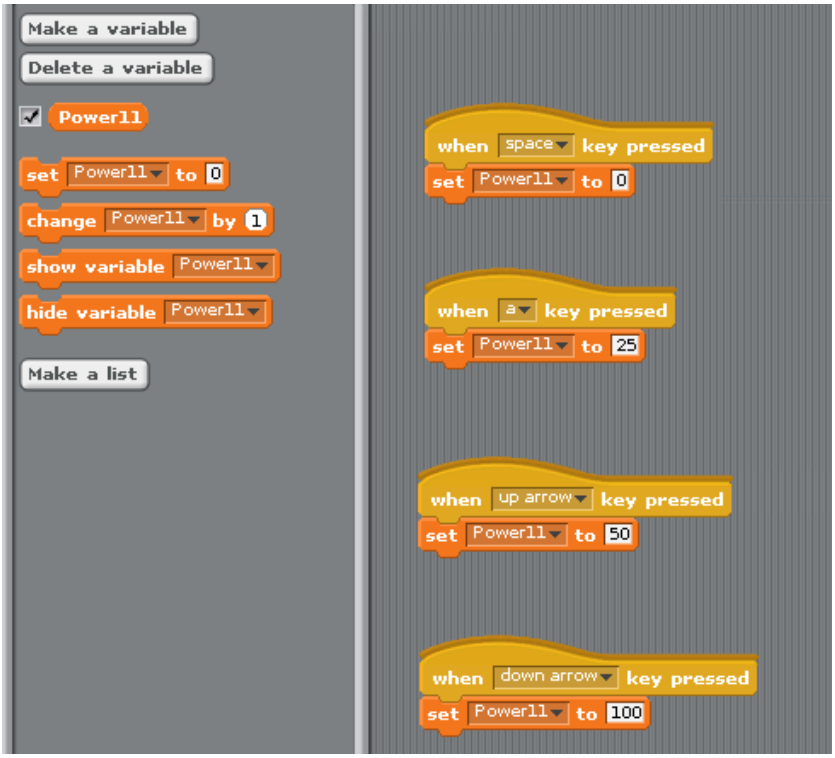
BROADCAST PIN11LOW

or BROADCAST PIN11OFF

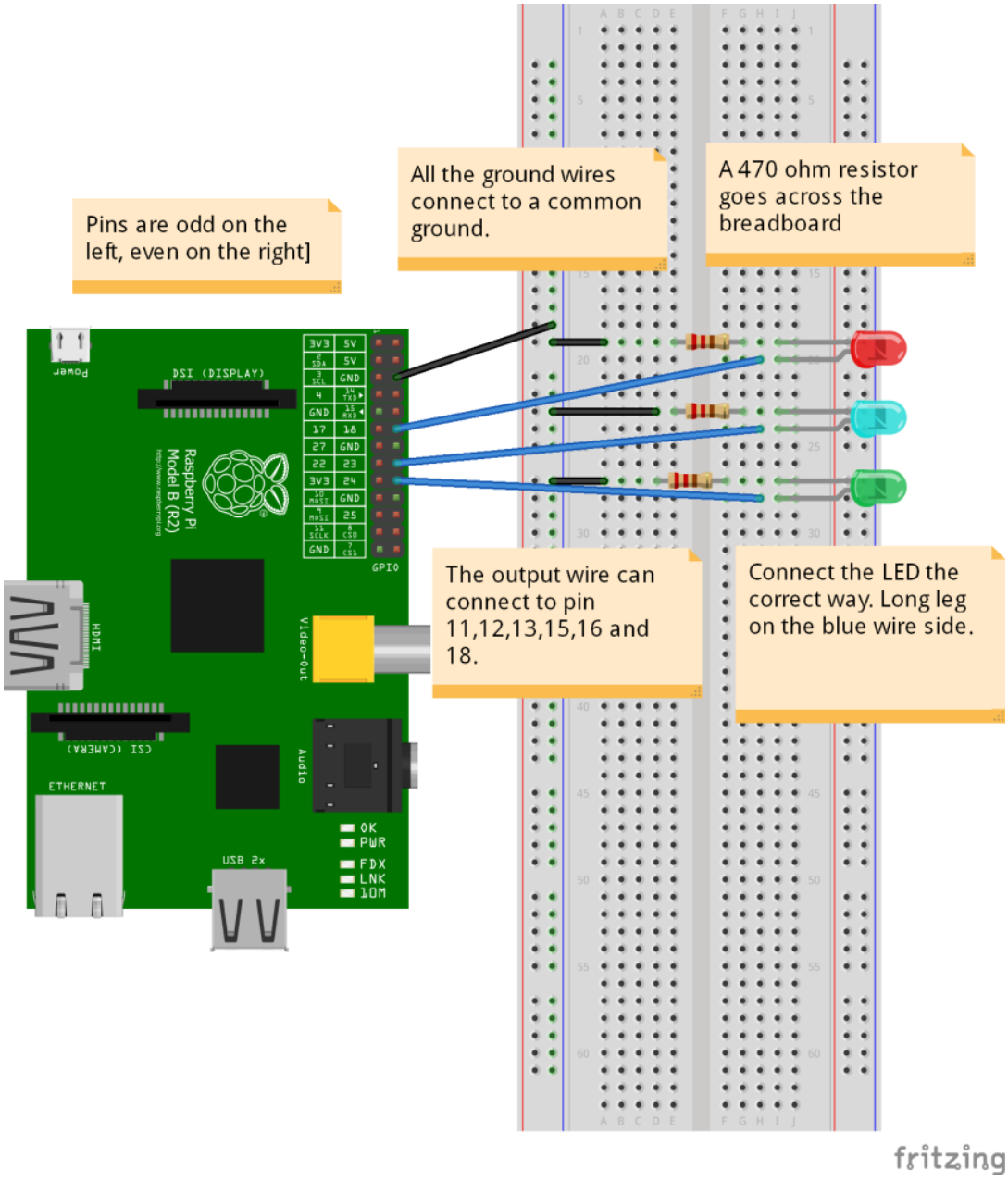
You can also control Power by creating a VARIABLE

Create a VARIABLE called Power11.

You can then set the VARIABLE to a number between 0 and 100.




You can connect multiple LEDs by using a common GROUND.




Once you have control over the LEDs, you can link it to the Scratch program and make things happen.

Instead of LEDs, you can use simple buzzers as OUTPUTS. Don't use motors as they need more power than the Pi can supply.