# Pixie RGBm

Introduction

The **Pixie RGBm** is an all-in-one unit for programmable Mood light projects using either PICAXE™ or Genie™ microcontrollers.

The **Pixie RGBm** is an example of the use of Programmable Components within D&T. The kit provides a 10mm diffuse RGB LED and connections sensors such as LDR, Thermistor and chip temperature sensors such as the LM35DZ or TMP36, for environmental sensing.

- PICAXE™ or Genie™ versions
- 10mm Diffuse RGB LED
- Connections for LDR/Thermistor sensing
- Connections for LM35DZ or TMP36 chip based temerature sensor
- PP3 battery snap for 3V/4.5V battery holder - AA or AAA
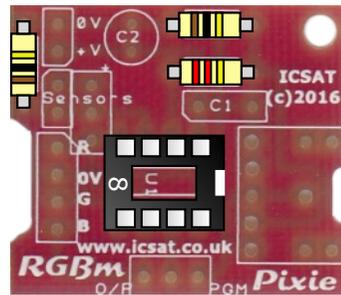- Can use 3V 3032 coin cell instead
- 30mm x 30mm

Assembling your Simple Dice

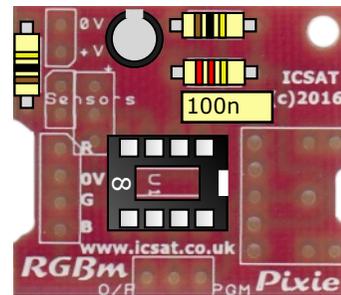Solder on to the pcb the 8 pin DIL chip socket, with the notch matching the marking.
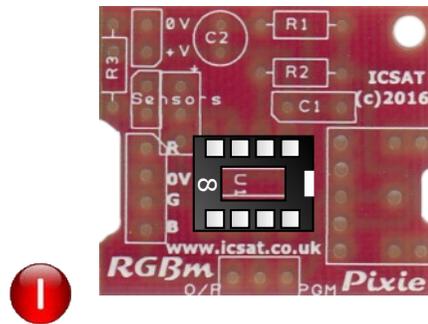
1

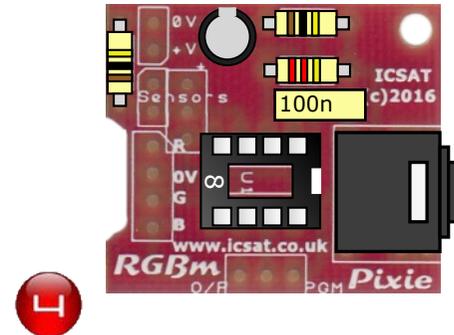Solder in place R1 (10K), R2 (22K) & R3 (10K)

2

Solder in place C1 (100nF) & C2 (100uF) capacitors. It is important to make sure C2 is the correct way round - short lead is 0V.
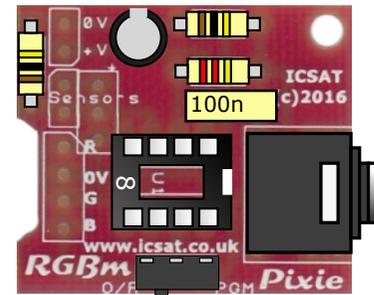
3

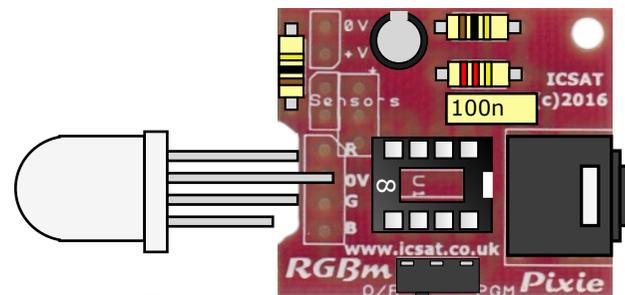Now solder in place the 3.5mm stereo jack - downloading socket

4

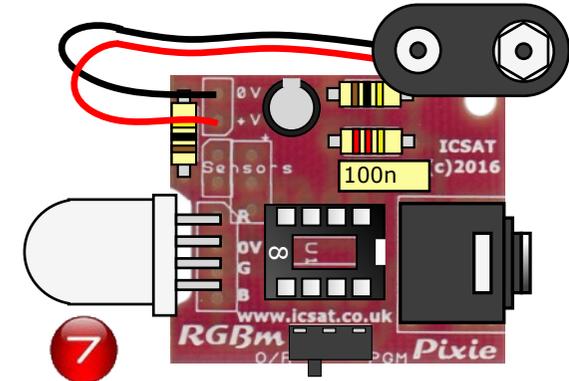Solder in place the spdt downloading switch, be careful not to over heat it!

5

The RGB LED should now to added, ensure that it goes in the right way around. The longest leg is 0V in this case
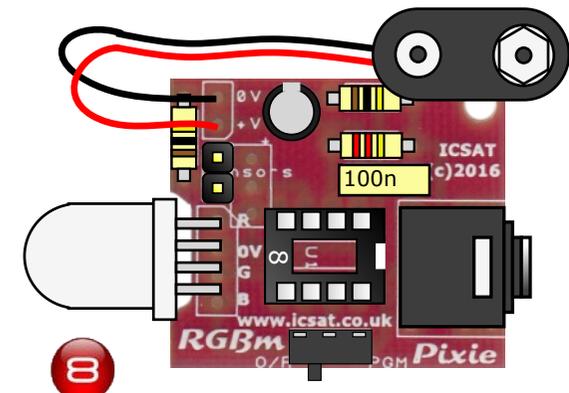
6

Now add the PP3 battery snap

7

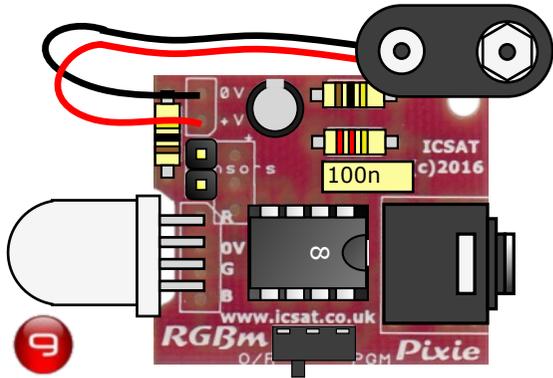Solder in place the 2 pin header for the LDR/Thermistor connector

8

You now need to insert the PICAXE™ or Genie™ chip. Make sure the chips notch matching the notch on the DIL socket.
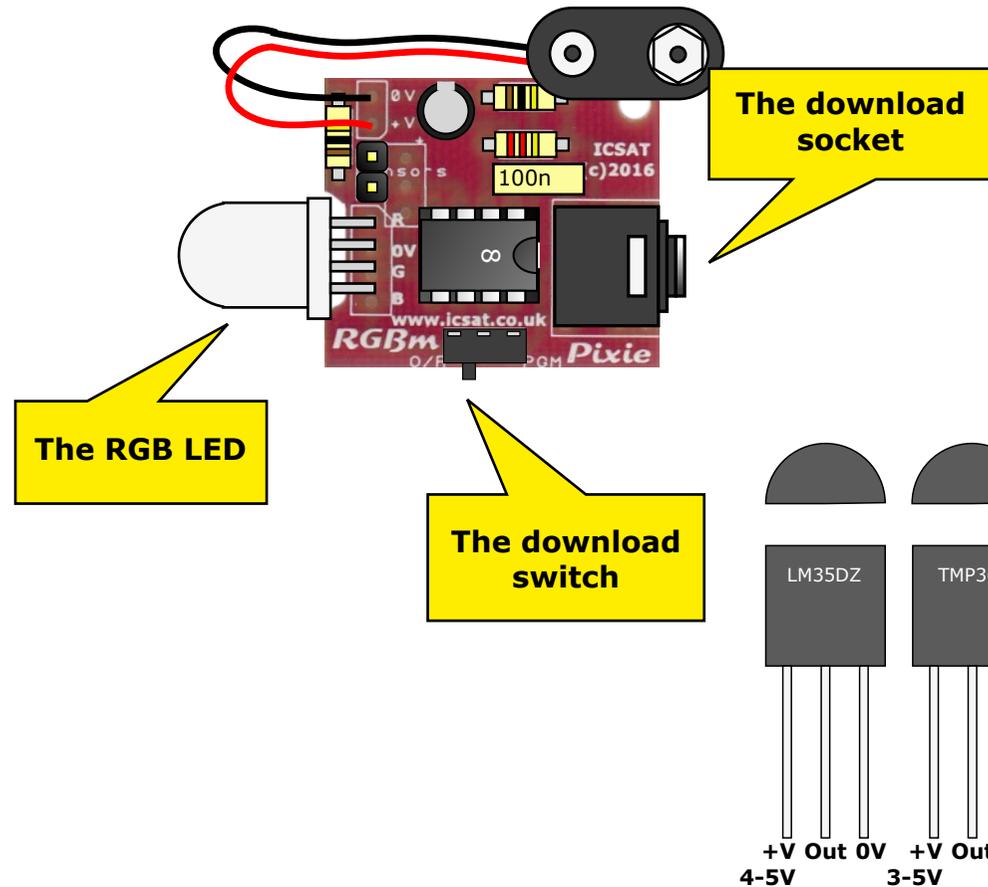

Operating your *Pixie RGBm*

To operate your *RGBm* module, you will need to use either the PICAXE Programming Editor or the Genie Programming Editor / Circuit Wizard 3.

When downloading code to your *RGBm* module remember to move the switch to the **PGM** position (right hand end), when running your code move the switch to the **O/P** position (left hand end).

Completed *Pixie RGBm* Reference diagram

The download socket

The RGB LED

The download switch

| LM35DZ | TMP36 |

+V Out 0V   **+V Out 0V**
4-5V   **3-5V**

Pinout for LM35DZ & TMP36

Using sensors with the *Pixie RGBm*

Basic sensing:

To add an LDR or Thermistor, you need to connect it to the 2 pin header using wire or a 2 pin connector. In your code you will need to use pin *c.4 on the PICAXE* or the *A4 pin on the Genie* and a read ADC command.

Advanced sensing:

Using a 3 pin header or wire you can connect either a **LM35DZ** or **TMP36** chip based temperature sensors. Both these produce an output of 10mV per °C, for example 0.22V equals 22°C. You will need to scale your analogue reading:

PICAXE - use the **readadc10** command, scale factor: divide by 2 to get °C

Genie - use the **In A4** command, use the scale command with a scale factor:multiple by 2 to get °C

Power Supply

The Pixie RGBm is designed to use a 3V or 4.5V power supply, this can be easily obtained from a set of 2 or 3 x AA / AAA batteries or a 3V coin cell such as a 2032 - you can purchase coin cell holders for this from Rapid Electronics **18-0498** or Kitronik **2252-01**
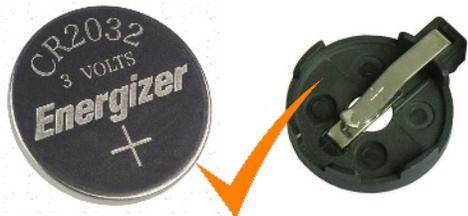
Do not attached PP3 9V battery it will destroy your *Pixie RGBm* circuit.

AA   **AAA**