

# How to build your own Infrared Mini Juke Box

Pat McMahon– V1– 27/1/2019

**Design Brief** – Design your own Infrared Mini Juke Box and using Pat’s 14M2 Picaxe Microcontroller, write code to play different Tunes and control various colour LED’s, to give the effect of a Juke Box.

**Note**– Below is a sample of Pat’s design and “How to build” to get you started. Use your own modified design and Code or use Pat’s. The design below used 5mm diameter long leg (~27mm) LED’s, 11 in total ( 10 Coloured 5mm LED’s and one 3mm red LED Indicator )

## Mini Juke Box (Infrared Controlled)



**Below are some of the Production Steps, Tick off each box as you complete a task and Document it.**

- Go online and search “Juke Box free images” and select, download and print your selection for your model.



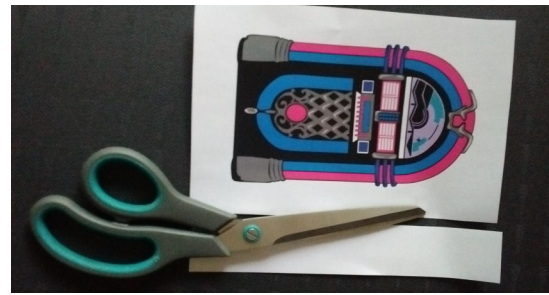
- Make up your own 3mm Plywood Base (~150 mm x 250mm) with 4 ,10mm wide supports.





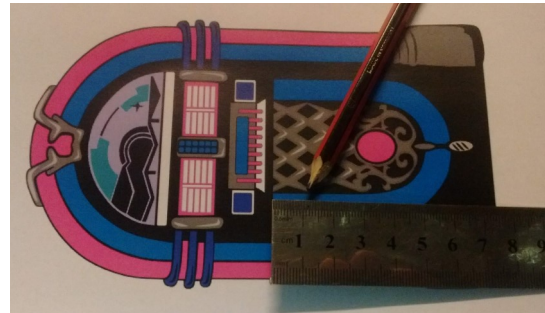
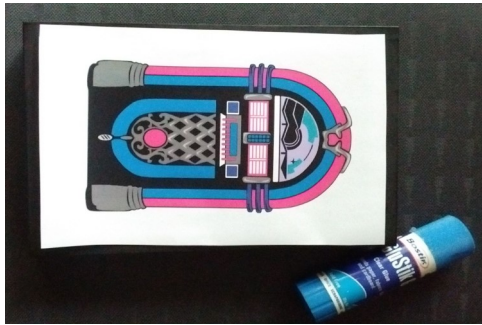
Optional- Spray the plywood frame with a Matt Black for image.

Carefully cut out your paper Juke Box to fit the plywood frame.



Use a Glue Stick to carefully fix the paper to the frame and let dry.

Mark out on your design, the centres for your 10 colour LED's, indicator light, piezo sounder and Infrared Receiver.



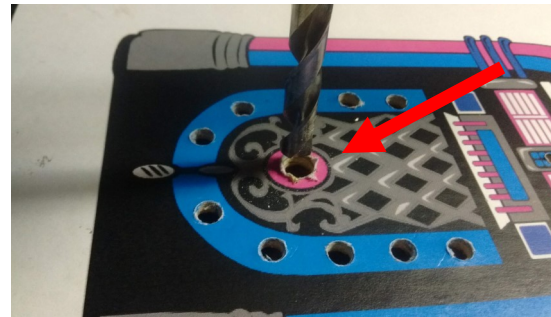
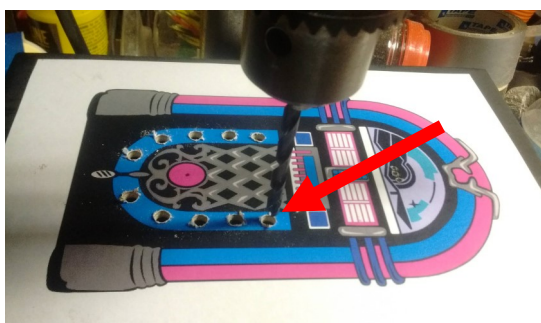
Using a 2mm diameter drill, drill 3 holes at 3mm spacings, for the Infrared Receiver.

Using a 3mm diameter drill, drill one hole for the 3mm Red indicator LED.



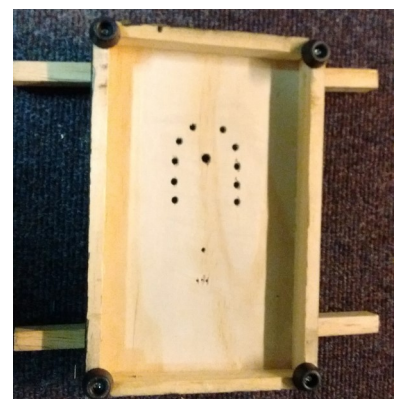
Using a 4.8mm or 3/16" diameter drill, drill 10 holes for your coloured LED's.

Using a 6mm diameter drill, drill one hole for your Piezo Sounder to be heard.



Sand the back of the plywood if required, from drilling.

Lift the frame off the bench and insert the Coloured LED's into the plywood, with all the short negative legs facing to the centre.



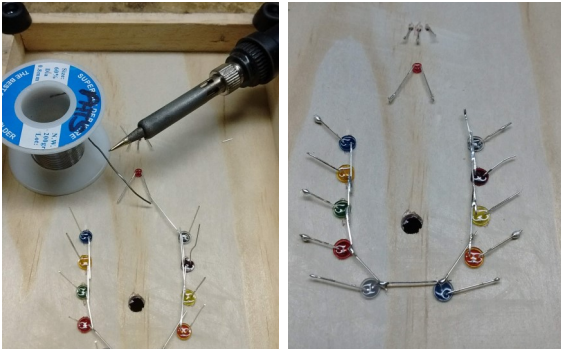
- ☐ Carefully using a flat blade screw driver, push the LED's home for a tight interference fit.



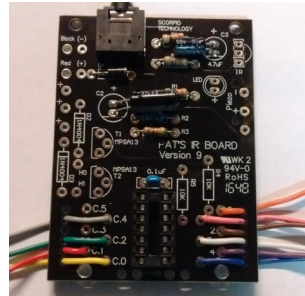
- ☐ Bend down the inside, short negative legs of the LED's ONLY, to touch each other, then solder.



- ☐ Bend out the long Positive legs of the LED's and tin.



- ☐ Build Pat's 10 component 14M2 Microcontroller, inserting 10 x pre tinned 100mm coloured wires through the tug holes and solder in pins 0,1,2,3,4,5,c.0,c.1,c.2,c.4 (skip c.3).

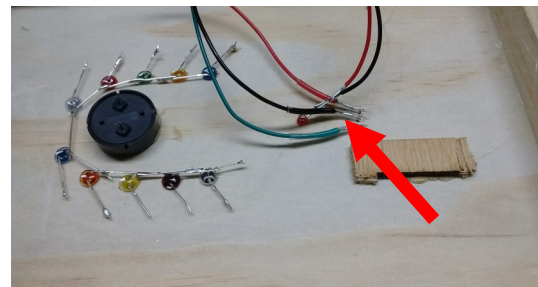


**NOTE**- Leave out the Piezo Sounder, Indicator LED and Infrared Receiver to insert later in the plywood Frame.

- ☐ Using a Hot Glue Gun, carefully apply glue to the outside of the Piezo Sounder and centralize it, to fit the 6mm drilled hole in the plywood frame , fixing from the rear.



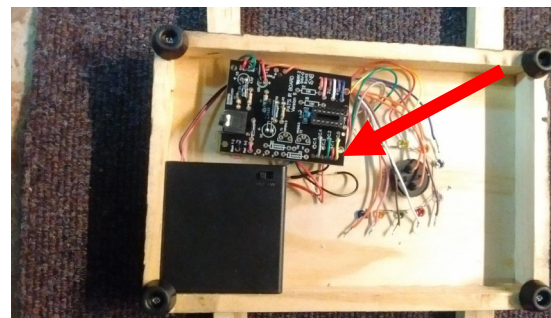
- ☐ Attach 100mm long coloured wires to the Infrared Receiver, Piezo Sounder and the 3mm indicator LED .



- ☐ Using double sided tape, attach to the back of the 6V Battery pack.



- ☐ Attach the Microcontroller wires to the Piezo Sounder, 10 LED's, Indicator LED & Infrared Receiver. Attach the 6V Battery pack & microcontroller to the frame.



- ☐ Using the Picaxe Programming Editor, Code your Juke Box with some of the 10,000 Tunes available in the Wizard or use Pat's Code to play 12 Tunes & 10 LED's.



See Pat's separate "How to Program" and "What each Button Does" sheet, for his Code.

- ☐ Program the Infrared Universal Remote by pushing and holding the Red on Button & Button2 (Sony). Test your Model.

**CONGRATULATIONS** on Building & Coding your own Mini Juke Box, Well Done!

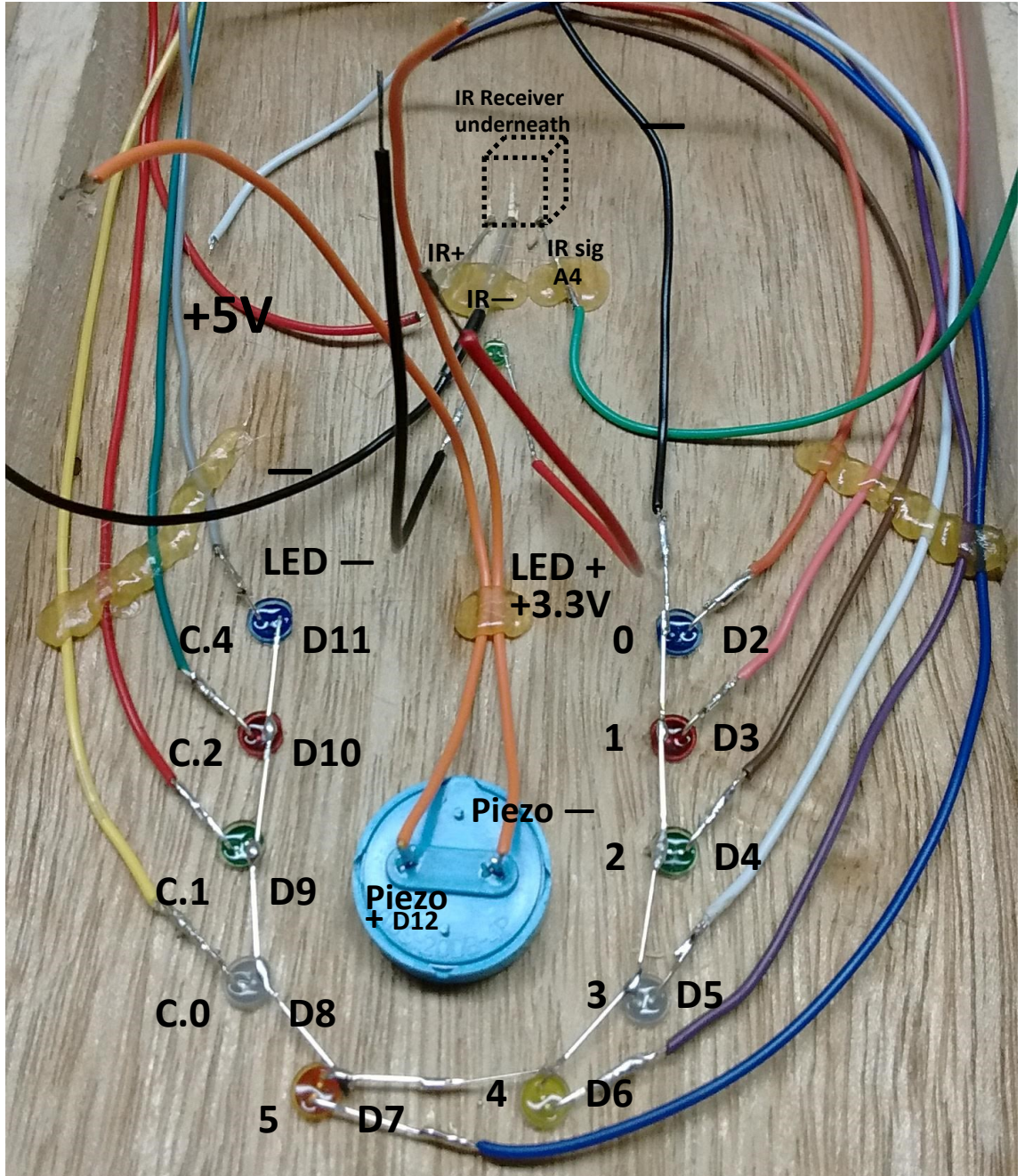
Infrared Remote -M  
To set to SONY Protocol  
Power + 2 (SONY)



# Infrared Mini Juke Box—Wire colour code/Connections

Pat McMahon V2—1/11/23

NOTE— The information below is for a PICAXE Microcontroller connection on the left of a part, ARDUINO Microcontroller connection on the right of a part.



3mm Indicator LED

No Polarity

Piezo Sounder

Infrared Receiver

PART	PICAXE	Wire Colour	ARDUINO
LED 1	0	Orange	D2
LED 2	1	Pink	D3
LED 3	2	Brown	D4
LED 4	3	White	D5
LED 5	4	Purple	D6
LED 6	5	Blue	D7
LED 7	C.0	Yellow	D8
LED 8	C.1	Red	D9
LED 9	C.2	Green	D10
LED 10	C.4	Grey	D11
LED's Neg	Neg(-)	Black	Neg(-)
Indicator LED	LED +	Red	+3.3V
	LED -	Black	Neg(-)
Piezo Sounder	Piezo +	Orange	D12
	Piezo -	Black	Neg(-)
Infrared Receiver	IR+	Red	+5V
	IR-	Black	Neg(-)
	IR Signal	Green	A4