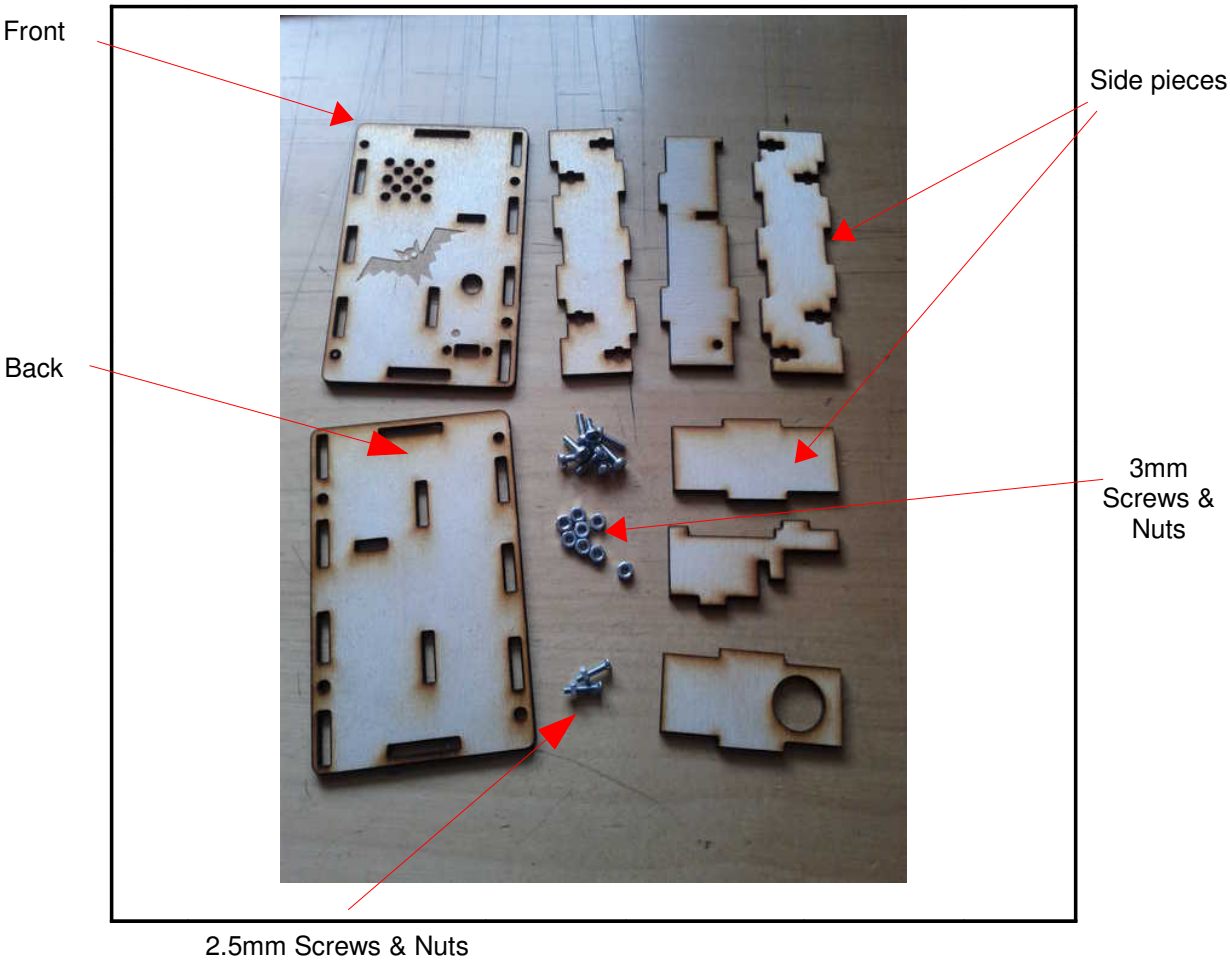
Bat Listener Enclosure Instructions

Date:	16/09/13	Version:	1.0	By:	Matt Little

This is a laser cut wooden enclosure for the Bat Listener Kit. It is designed to enclose all the circuitry, speaker and battery within a hand-held unit.
It is held together using the T-nut slot method and can be opened easily to replace the battery.

Parts included:

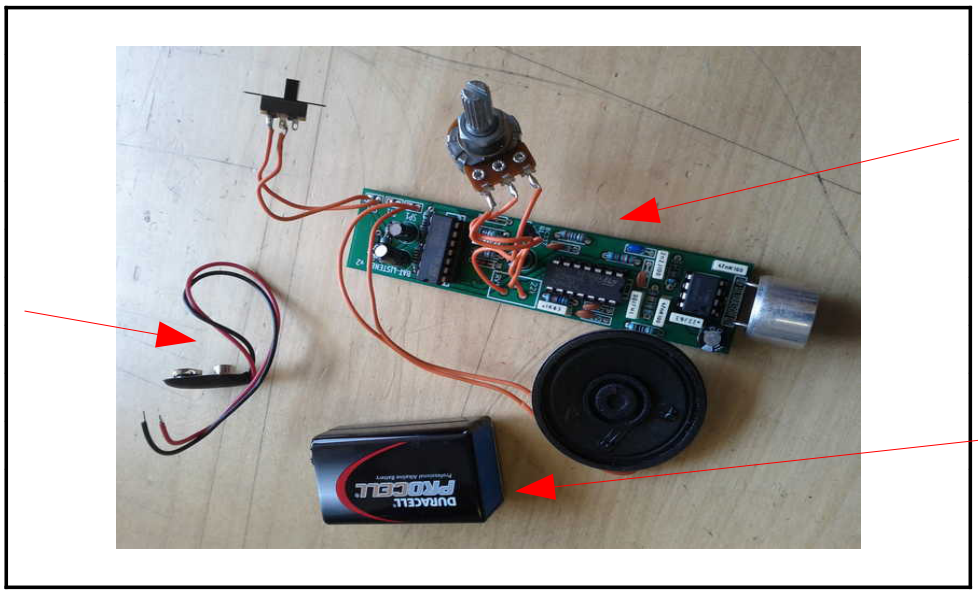


Parts list:

Ref	Description	Value/Code
Enclosure	3mm Laser Cut Ply	8 pieces
Fittings	2.5mm Screws and nuts	2 x screws, 2 x nuts
Fittings	3mm Screws and nuts	8 x screws, 8 x nuts

Tools required:

Bat Listener circuit:



This kit has been designed and produced by:

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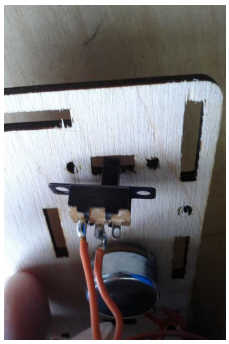
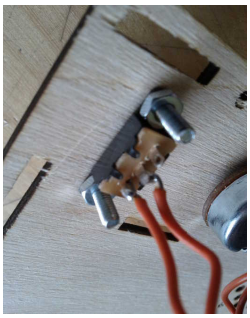
Instructions:

Step: 1	Fit Variable resistor
This fits into the larger circular hole in the front. The nut and washer can be taken off, the threaded part is pushed trough and the washer and nut replaced and tightened. There is a small metal spike on the variable resistor – this is designed to stop the resistor turning. If it stops the resistor sitting correctly then it can be removed by snapping off with the long-	

nosed pliers.	

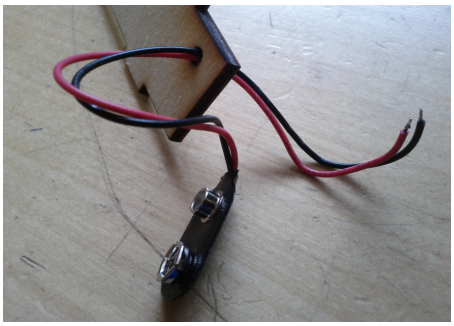
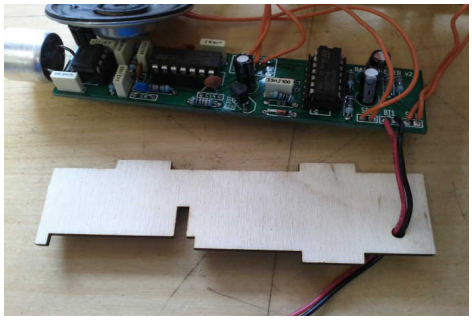
Step: 2	Fit on/off switch

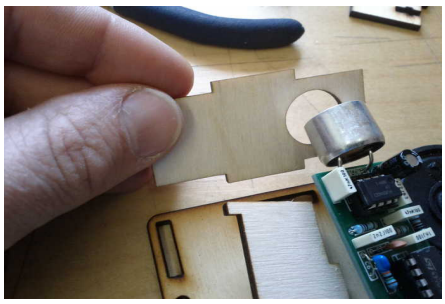

The on/off switch is attached to the back of the front piece. The two 2.5mm screws and nuts are used to hold it in place.
Note: The black dot is designed to indicate the ON position. The two wires from the circuit board should be soldered to the middle switch pin and the pin which aligns to the black dot. This will mean when the switch is at the black dot then the device is ON.

Step: 3	Fit battery clip

The PP3 battery clip goes through one of the internal pieces of the case. This is the longer, thin piece with a small hole at one end. Ensure that the clip is on left hand side and the PCB is on the right hand side of this piece, as shown here.
Solder the PP3 clip to the PCB, ensuring correct polarity.

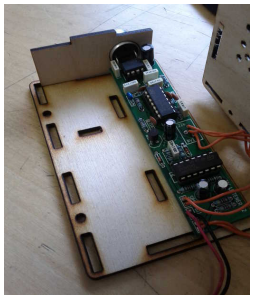
Step: 4 Fit ultrasonic sensor

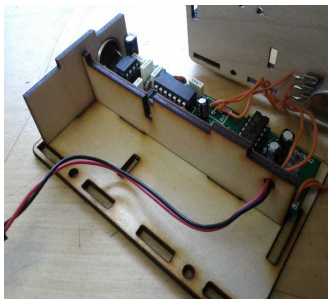


The ultrasonic sensor fits through the end piece with a large hole cut-out. The sensor sticks out of the end of the device so it can receive ultrasonic signals.

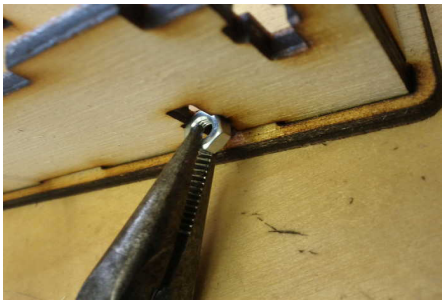
Step: 5 Build up the sides onto the base

We can now start to build up the enclosure.
First place the base down with the smaller cut out to the left, as shown in the first picture.
Add the ends and sides and mid piece, as shown here.



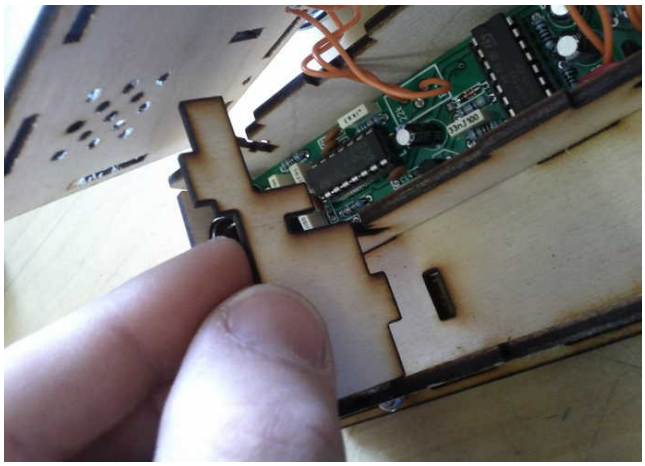


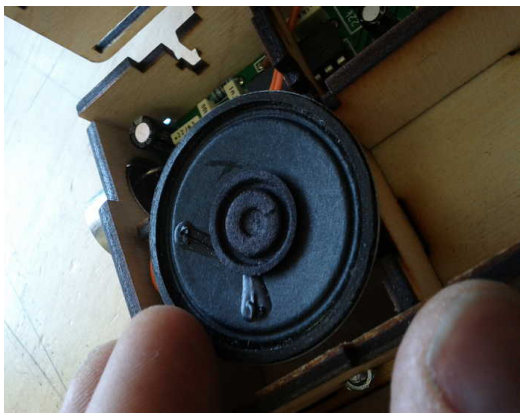
Step: 6 Add fixings

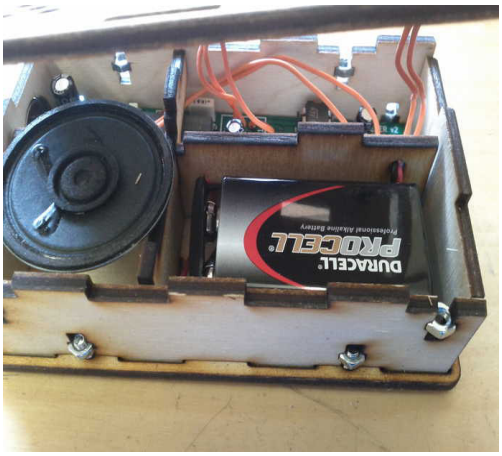


Push the 3mm nuts into the slots on the T-nut holders. This is easiest to do with a pair of long-nosed pliers.
Ensure that the nut is rotated so that the sides are parallel to the slot it will be inserted into.
Use the long nosed pliers to push the nut into place (not all the way through).

You can then insert the 3mm pan-head screws and tighten up. This will hold the side to the base.
Repeat for all four of the base screws.

Step: 7	Fit the cross section
The cross section holds the PCB into place and slots into the longer cross-section piece. There is a tab on the front and the back to hold it in place.	

Step: 8	Fit the speaker
	The speaker fits into a recess on the two cross section pieces. It does not need gluing, as it will be trapped in place when the unit is closed.

Step: 9	Fit the battery
We now attach the PP3 battery to the battery clip (also a good time to check it all works) and place the battery into the correct section of the enclosure. Due to the depth of the enclosure the battery might need some padding to stop it moving about too much (a small piece of polystyrene packing foam works well here).	

Step: 10	Fit the front
 	This is quite a fiddle stage, but we are nearly there. The front must fit on and all the tabs fit into the slots. Ensure that no wires are trapped between the side pieces and the front. Add the nuts and screw the top closed.

Step: 11	Build is finished!
	Have a nice cup of tea. You are now ready to go bat finding.

Once the device is constructed, the next step is to switch on and check its working – adjust the variable resistor until you can hear the device 'squealing'

Contact details:

We would like you to be happy with this kit. If you are not happy for any reason then please contact us and we can help to sort it out. Please email info@re-innovation.co.uk with any questions or comments.
If any parts are missing from your kit then please email info@re-innovation.co.uk with details, including where the kit was purchased.

More technical information can be found via www.re-innovation.co.uk.