Design and Make Project – Acoustic Thermometer for iPhone or iPad

Design Brief: Design an EarPod holder that can be used in conjunction with the Ondo application as an acoustic thermometer and can also serve as a useful carrying/storage case when the headset is not in use.

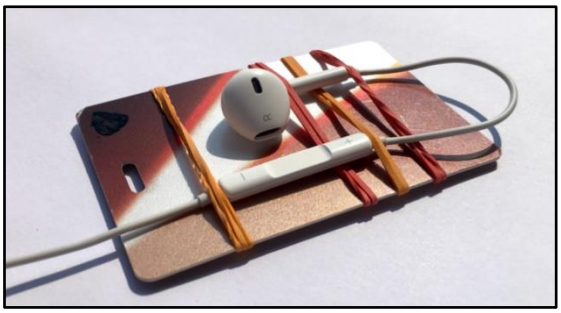
Requirements for acoustic thermometer functionality:

1. Right earpiece to be positioned with the open end pointing towards the microphone.
2. There should be a 7mm air gap between the microphone and the earpiece.
3. The microphone and earpiece should not be allowed to move relative to each other even when the holder is being moved or carried.
4. Easy to install or remove headset from holder.
5. The air gap separation (position of earpiece relative to the microphone) must be the same distance (7mm) after each installation.
6. The left earpiece needs to be positioned away from microphone (or the output "muffled") when measuring temperature.

Requirements for headset storage:

7. The holder needs to be compact, light and easy to carry in a pocket or bag.
8. The holder needs to protect the headset from damage.
9. It should be quick and easy to remove the headset from the holder.
10. It should be quick and easy to replace the headset into the holder.
11. The holder should prevent the leads from becoming tangled.

Current design (Luggage tag + elastic bands)



+ Positive	- Negative
Very easy to make	Easy to disturb position of earpiece or mic
Easy to remove headset	Requires recalibration after each assembly
	Not very good as a carrying case for headset

Prototype Mk1 (Old credit card, cuts to accommodate leads + Blue Tack to hold in place)

+ Positive	- Negative
Very little movement in earpiece or mic	Little more complicated to build
	Difficult to remove headset
	Requires recalibration after each assembly
	Not very good as a carrying case for headset

Prototype Mk2 (Old EarPod packaging from Apple)

+ Positive	- Negative
Designed for EarPods	Earpiece is pointing away from mic (signal is too weak and easily disrupted)
Can be used as carrying case	Earpiece and mic can move quite easily
	Requires recalibration after each assembly as location is not exact
	Apple no longer supply EarPods in this case

Prototype Mk3 (Old credit card, cuts to accommodate leads + fixing made from mouldable glue)

+ Positive	- Negative
Very little movement in earpiece or mic	Complicated to build
Relatively easy to remove headset	May requires recalibration after each assembly (depends on how well moulded fixings are)
	Not very good as a carrying case for headset

We would love to see your ideas and designs. Please send them to us at support@ondo.app.