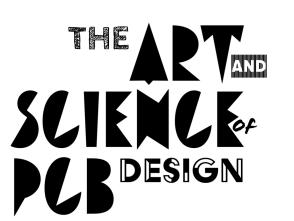# lecture 04 - BT SPEAKER DESIGN
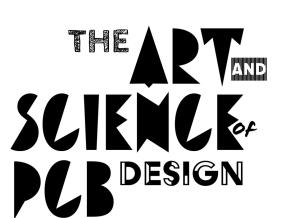
how does it work and how was it designed?

OMG YAY ANNOUNCEMENTS

- lab02 DRs happened - if you need/want to DR and haven't yet, contact us.
- lab04 is out! due Thursday, start early. this will take 10-15 hours.
- lab05 starts Tuesday, you'll be putting together your speakers
- lab feedback form on piazza!
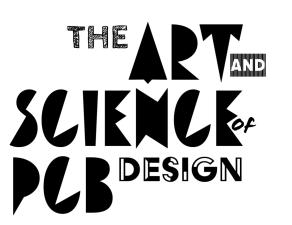
- *track 2 DR scheduling going live after lecture!*

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whoa there what's a DR?

fundamentally you're to convince us that you know what you're doing

- make slides / some kind of design document
- aim for 15 minutes of presentation, and 15 minutes of Q&A
- what problem you're trying to solve
- what circuit topology will let you do this
  (show us some alternative options you've got, if there are any)
- how that circuit works
- what concerns that raises for PCB design
- how you'll resolve them, along with references to convince us that that'll
  actually resolve them
- today's lecture will have a lot of this, actually.

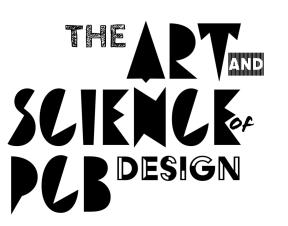*we'll be critical, but it's because we care about ya'll <3*

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plan for today

- design requirements
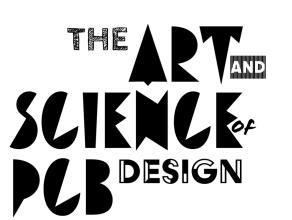- functional blocks of the circuit
- deep dive into each block

goals:

- do for track 1 what we did for track 2 last week
- provide a working understanding of the circuit so you can properly debug it next week
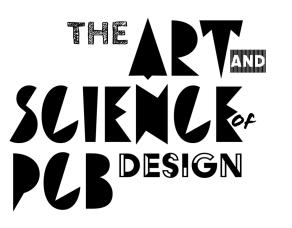
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design requirements

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design requirements

- accept audio data over bluetooth
- play said audio data out over a speaker, at a reasonably loud volume.
- be portable, and include a battery of some sort
- be powered by 18650 cells, since we have a bunch of those lying around (ty Joe!)
- handle batteries safely, including reasonable protection from overcharge and over discharge
- be chargeable over USB
- be programmable to let people hack the firmware to their hearts content <3
- sound pretty good
- be as cheap as possible

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questions?

lecture feedback form is on piazza!

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