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DC 619/858

8 Feb 2017

Bob, baseball cap dark hair, caps,  
YATZI? Fair Hair Superman Haircut  
Monzi - dark haired Woman (India?)

@zappbrandn xor 0 to 60 in short time!

AND! XOR 3 originally now 5  
DC 20 fake party. Hackable WiFi Backpack  
at DC 23

Bender at DC 24

(2012 exiled to management)

Obsessed  
w/ badges  
"ninja badge"  
games between  
badges.

1) Learn Basics (Arduino)  
(555 timer)

2) Learn PCB design  
e.g. electronic ornament

3) Brainstorm (maple mini)  
accepted Ideas Bling, hackable, comms, Easter eggs;  
Rejected Ideas? Games  
Bender  
- password cracking  
- spectrum analyzer  
- Breathalyzer

Issues dominated by power use! (Needs low)  
60mA? (under 200mA)

Wearables - power - weight  
Three AA batteries pretty much limit

Bender is Arduino ~ tick() function?

4) Set up the BOM  
component  
engineering  
KiCad (KiCad)

check everything  
poor mans scheduler,  
multithreading the  
hard way?  
Dropped Pockets(")

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hard way?

Dropped Packets :/

KiCad vs. Eagle

Osh Park \$3 per square inch  
based in Portland,

"Electro" in China (recommended)

"Dirty PCBs" another one to go to.

Batteries from Costco, Jonyard from India

Mapping the pins

1/2 the time spent here, sourcing

5) fail early and often

6) Put it all together

perf board  
prototype, 4 layer, \$60 per 3 boards  
don't do 1 layer

8) Fail Again!

Lots of things that didn't get caught  
in review...

9) Fix (final schematic) spm board

10) Prototype

11) Fail Again (Fix)

12) Start Buying Parts

China packages and lists

13) Prototype again

14) Finalize PCBs (USB troubles)

15) Production. Hard. This will break  
you.

16) Production Fails  
Converted Oven didn't work?

# (wearable Custom IoT) "Layer 1"

~1/2 LEDs were fakes! counterfeit

## Lessons Learned

prototype test fix repeat

Start coding early

plan for failure (TP) (expose IO)

plan for manufacturers

Do not use arduino - tabs kill you  
The IDE doesn't scale.

be meticulous about your BOM

Cost per badge > BOM account for  
Production is hard. prototyping \$3k!  
Manage your supply chains.

More than  
2x for DC25

DC25 prototypes next week  
12 LEDs, plus cigar

~20k  
this year  
needed

Rigado BMD-300 SoC  
— Nordic NRF52, Arm Cortex M0+  
· M4F

— 512 kb Flash, 64 kb ram

— BLE 4.2 ANT NFC

— Integrated antenna

— Color LCD 128 x 128

15 x APA102 LEDs AKA "Dotstar"  
tilt + ambient light

~175 exist  
DC24

Sold  
to  
Whoever  
found  
us

Bling modes 😊

BYOB (Hackable) easy to add  
Add-ons, speed before cool

Games badge-to-badge game will work  
FlappyDefCon

Bluetooth Company ID applied for —  
might be accessible by phone