

Get excited and make things!

How and why we
change the world
around us for the
better!

Matthew Beckler
January 14, 2013



Build18 – Why are you here?



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“Build18 was founded out of the belief that the ECE curriculum is too structured - there just isn't enough room for simply tinkering with electronics and making cool stuff. It's meant to give ECE students time to work on self-proposed, creative projects and to promote the fun and playful aspects of engineering.”

**CERTIFIED
BUILDER**
BUILD18 2011

hosted by
◆ IEEE Electrical & Computer ENGINEERING
Carnegie Mellon University

sponsored by

Questions

- Why do we make?
- What drives this?
- What resources are available in the wider world?

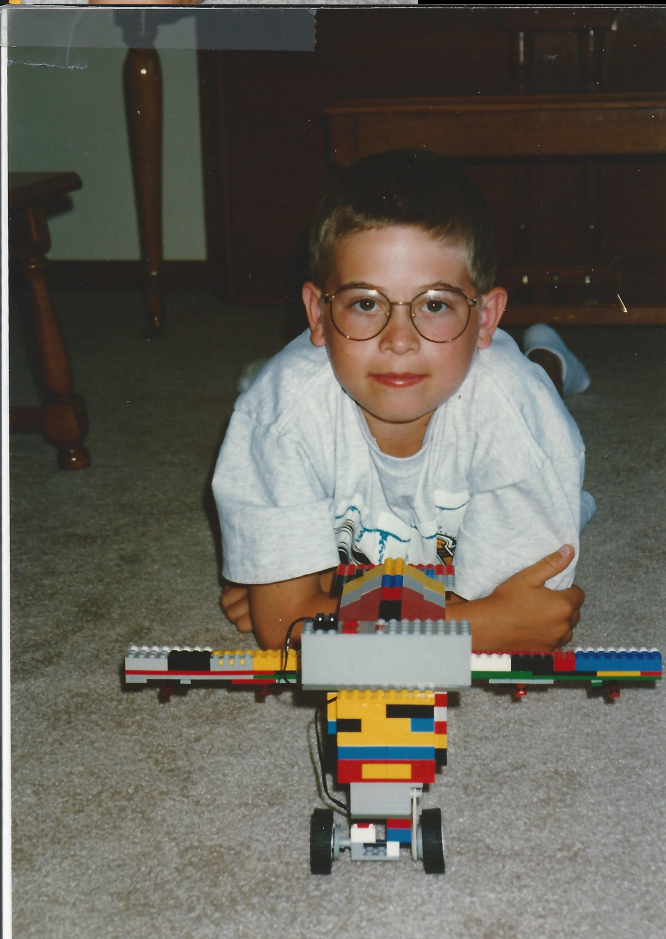


LEGO!



LEGO!

LEGO!



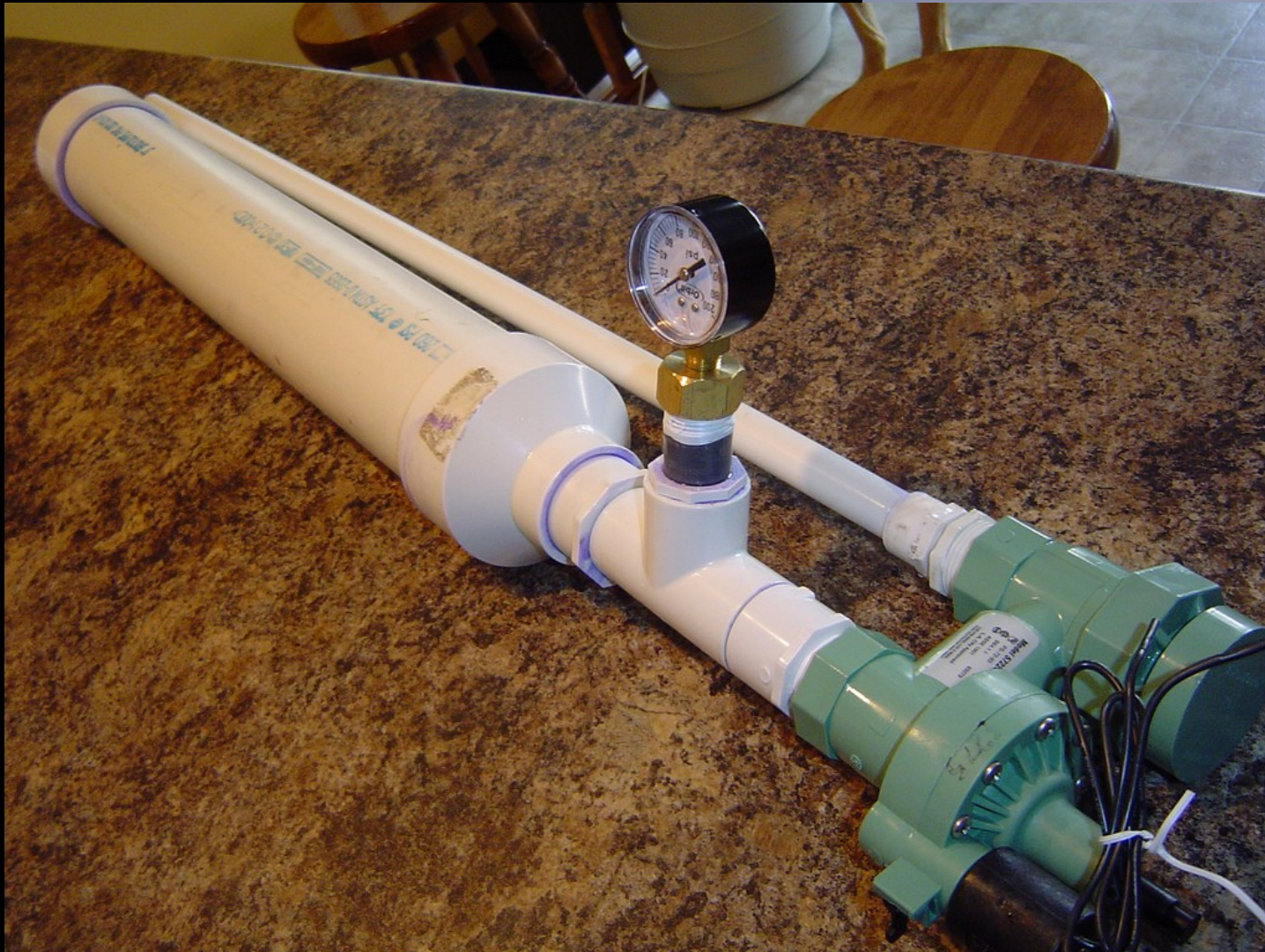
LEGO!



(and Knex,
Tinker-toys,
Meccano, etc)

Pneumatic potato cannon

Trebuchet





Gauntlet arcade cabinet
In dorm room (MAME)



Why do we make?

Homemade workbench

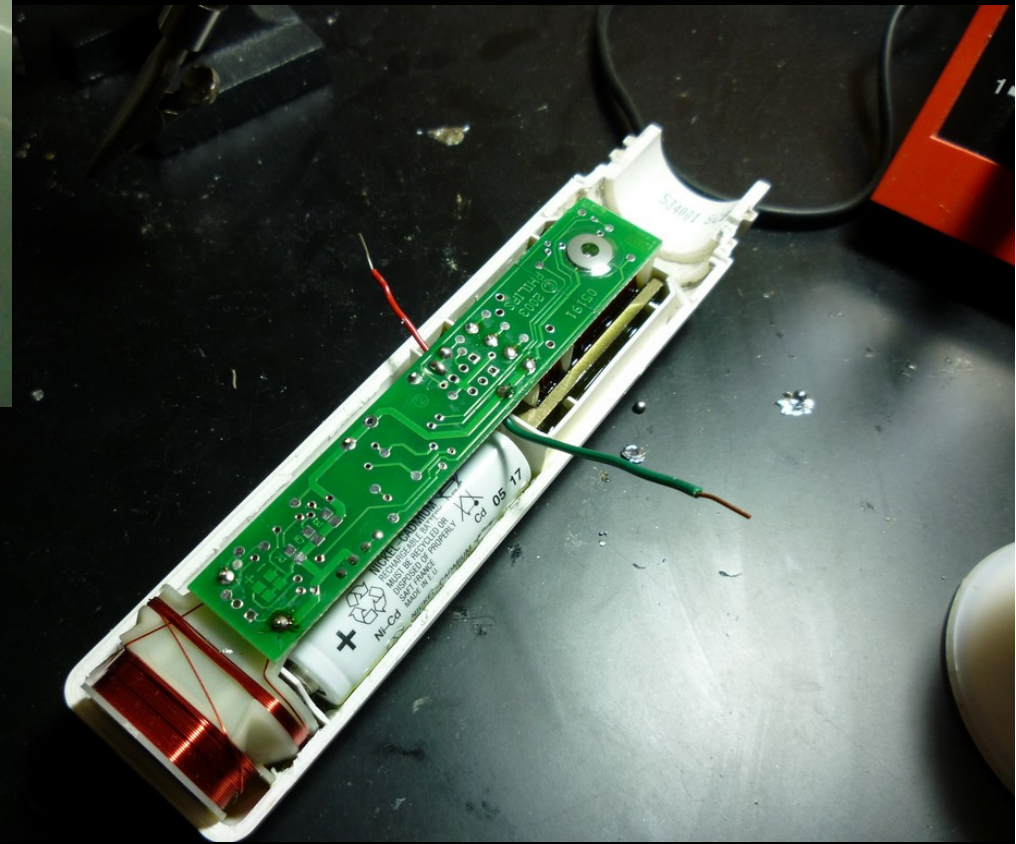


Sometimes you
must build the
things you need!



Homemade
power supply
from ATX computer supply

Repairing things that break



Because you can make things
more to your desires than others



Making your own bread, cheese,
beer, sauerkraut, kimchi, yogurt!

- “I make things I want or need which don't exist, cost too much to buy, or could be made better to suit my needs.”
- “Curiosity and passion for learning. I like projects that teach me something new. I enjoy making things no one has made before.”
- “I get a sense of accomplishment, of 'there goes a bit of me' that will work for as long as I want it to.”
- “It's like a nice disease; you just can't help it!”

What drives this desire to make?

What do many day jobs look like?



At the end of the day, what's changed?

At the end of the day, what's changed?



Patterns of magnetic fields on a spinning piece of rust in my git server in California

We are more than cogs in the machine



Sense of accomplishment



What resources are available?



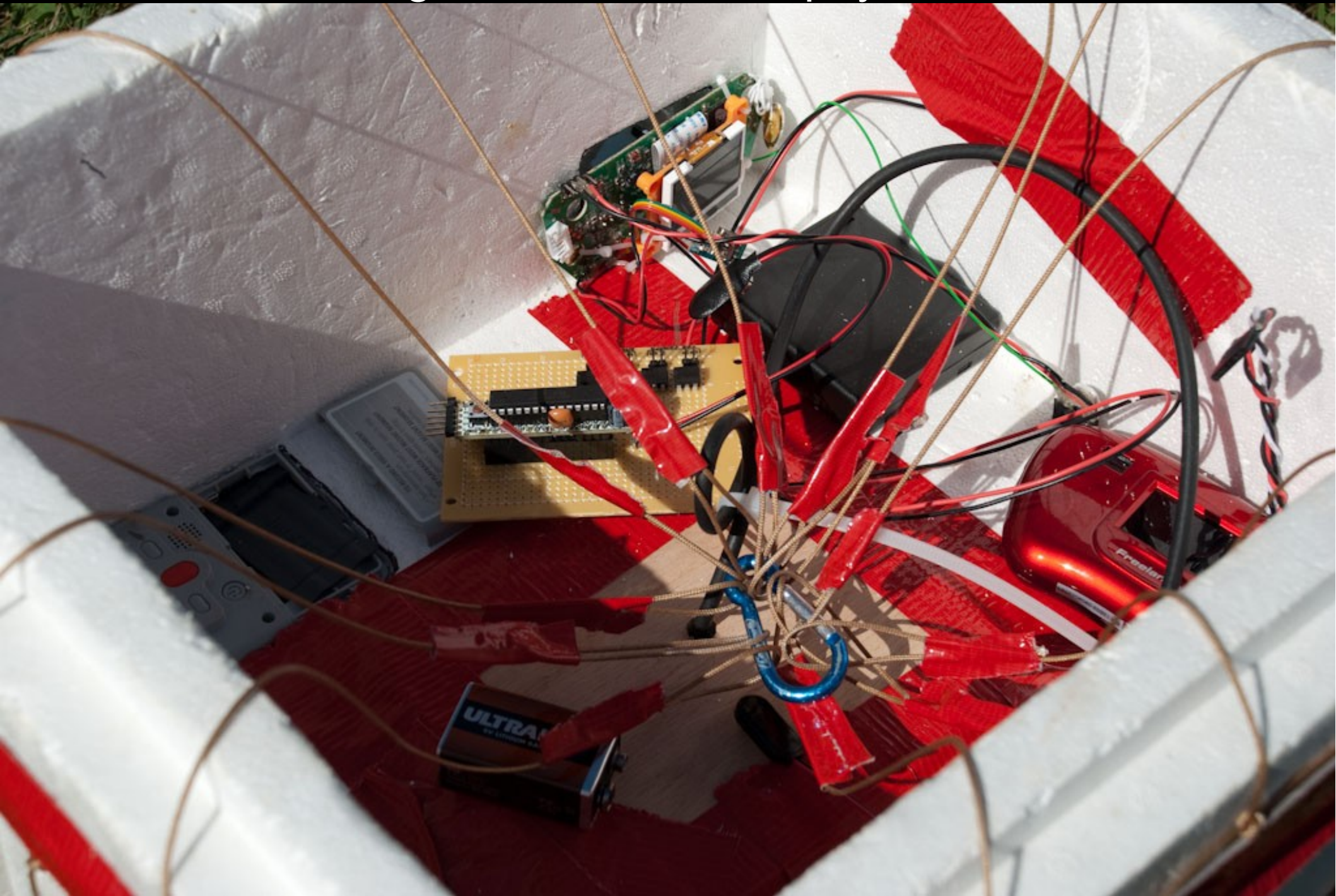
HackPittsburgh
1936 5th Ave.
Pittsburgh, PA 15219

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@hackpgh



High-altitude balloon payload



6' to 30'
expansion
at 100k feet

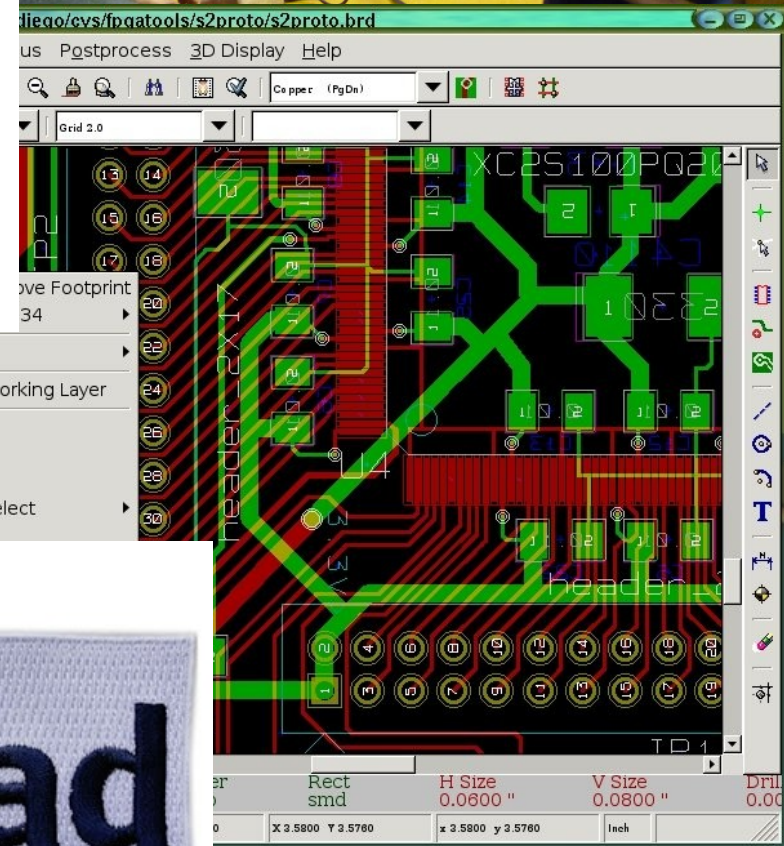
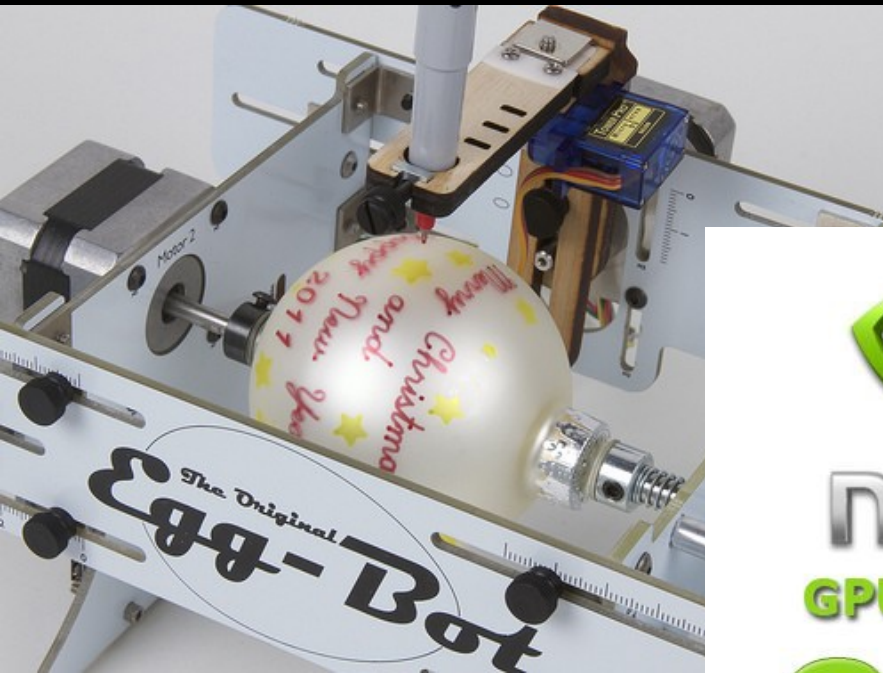


Three pound
payload:
Cameras,
GPS logger
and ham-
radio xmit.

About 98,000 feet



Teaching classes / Friday public talks



Maker Faire®

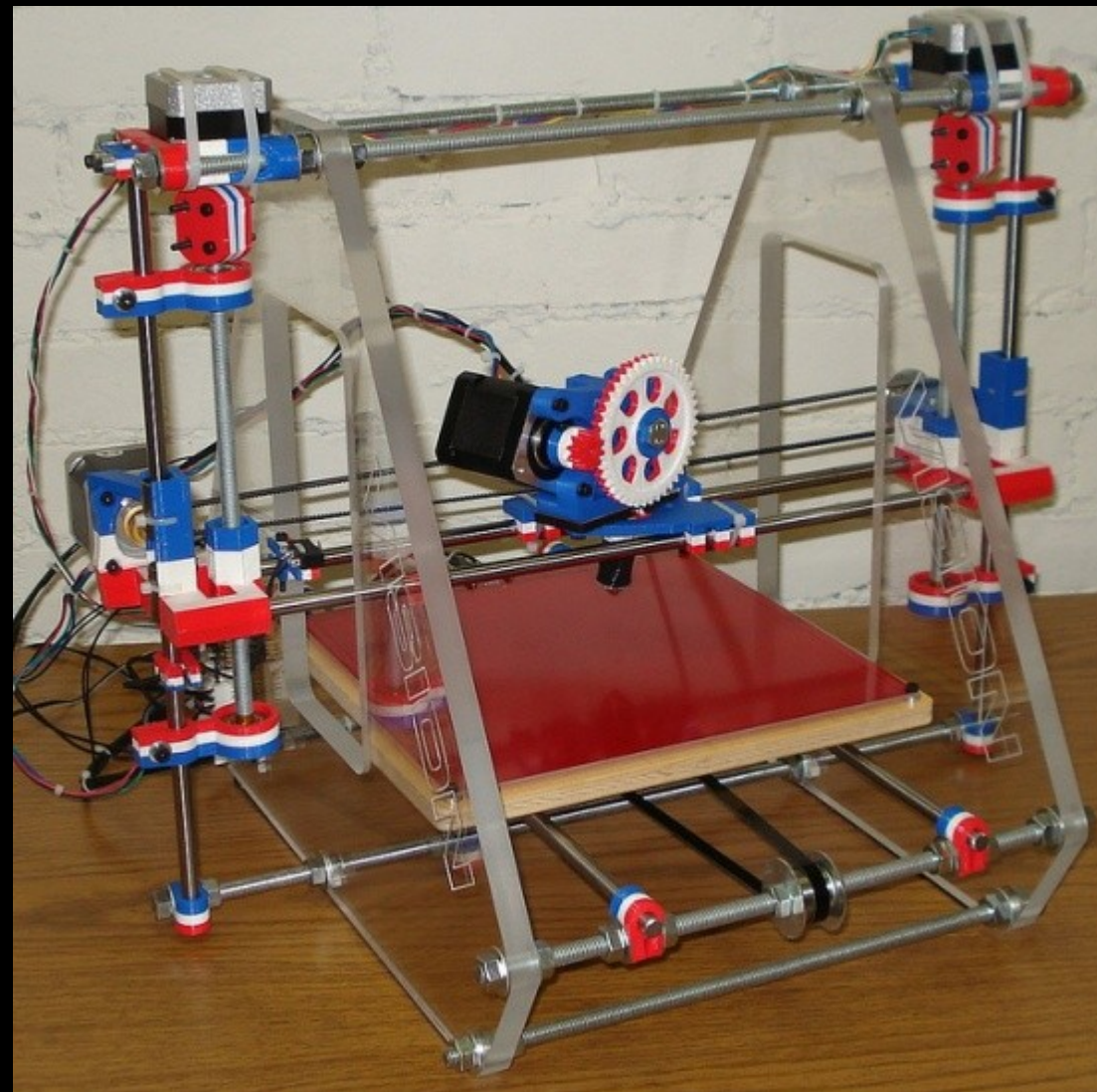
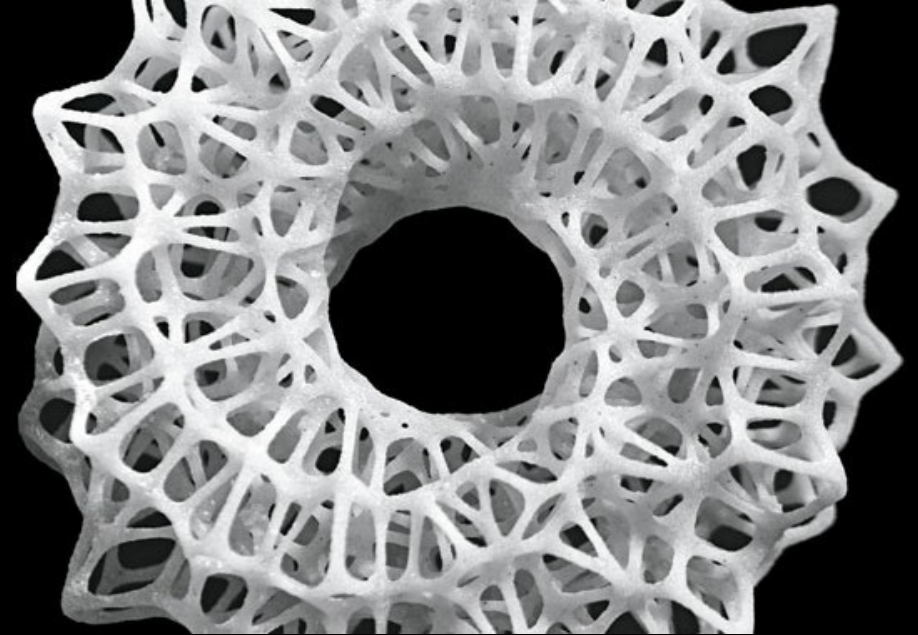
"The best artistic science fair in the world!"



Pittsburgh Mini Maker Faire®



3d printing



[illegible]

Re-train your brain

- Wikipedia changed the world
 - “I don't know anything about X”
 - But I can now easily look it up with my phone

Re-train your brain

- Wikipedia changed the world
 - “I don't know anything about X”
 - But I can now easily look it up with my phone
- “My faucet broke. Guess I need a new faucet.”
 - Can I re-wrap the threads with Teflon tape?
 - Could I 3D print a new nozzle?
 - Would it work to mill a new handle on the CNC?

Planning for an apocalypse



Planning to crochet a scarf

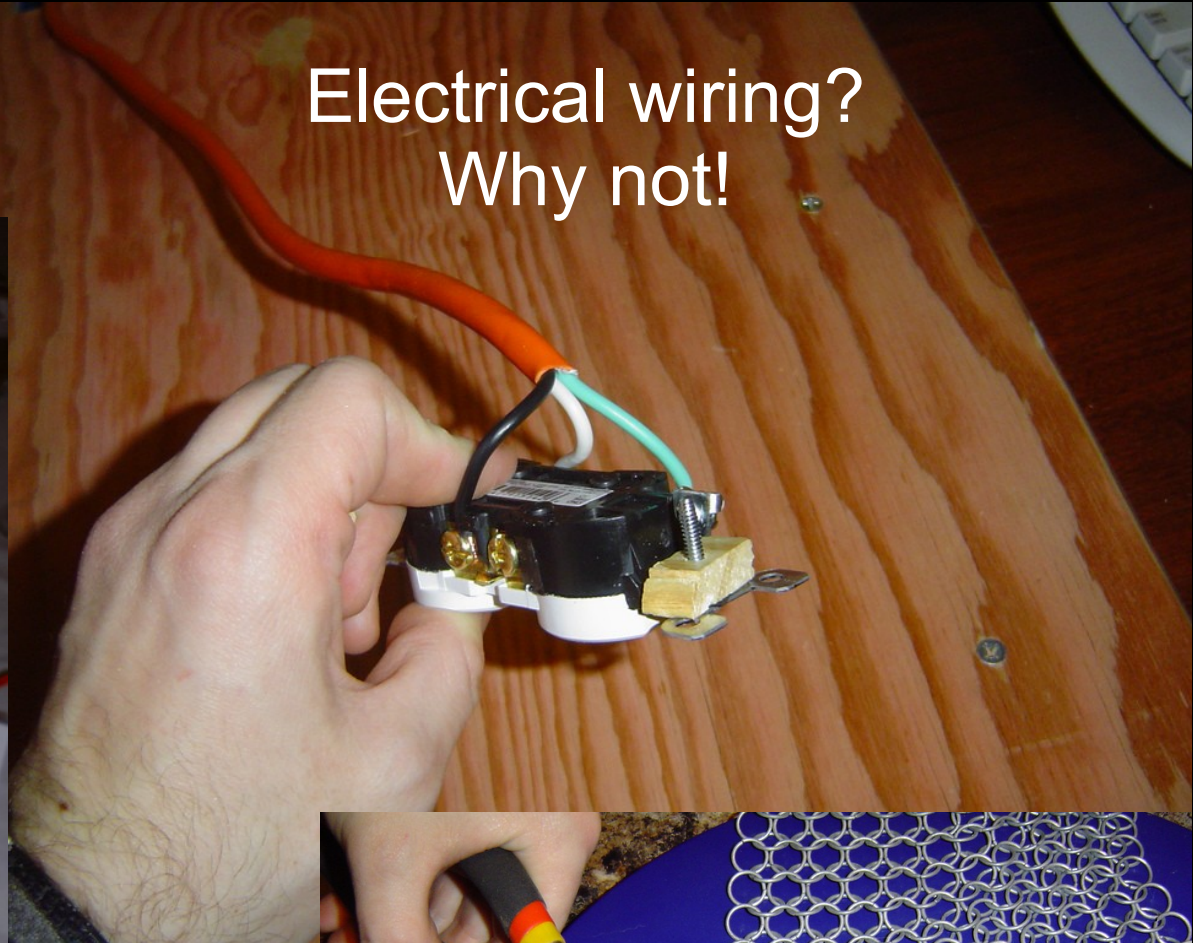


Learn something you know nothing about!

Flower arrangement?
Sure thing!



Electrical wiring?
Why not!



Chain-
maille?
Go for
it!



Get excited! Make things!
Make mistakes! Make messes!



Have the confidence to
change the world around you!