MAN
<>
MACHINE

a quick introduction to
interaction design and
physical computing

this presentation is inspired by the works of others
in the true spirit of sharing knowledge for other people
to learn from our mistakes.

thanks go to

Massimo Banzi
Alexandra Deschamps-Sonsino
Tom Igoe
David Mellis
and more...

some illustrations by

Elisa Canducci

what is interaction design?

a fairly new discipline that sets the rules
by which a user interacts with a system,
be it software, hardware or a combination of the two.

a kitchen oven

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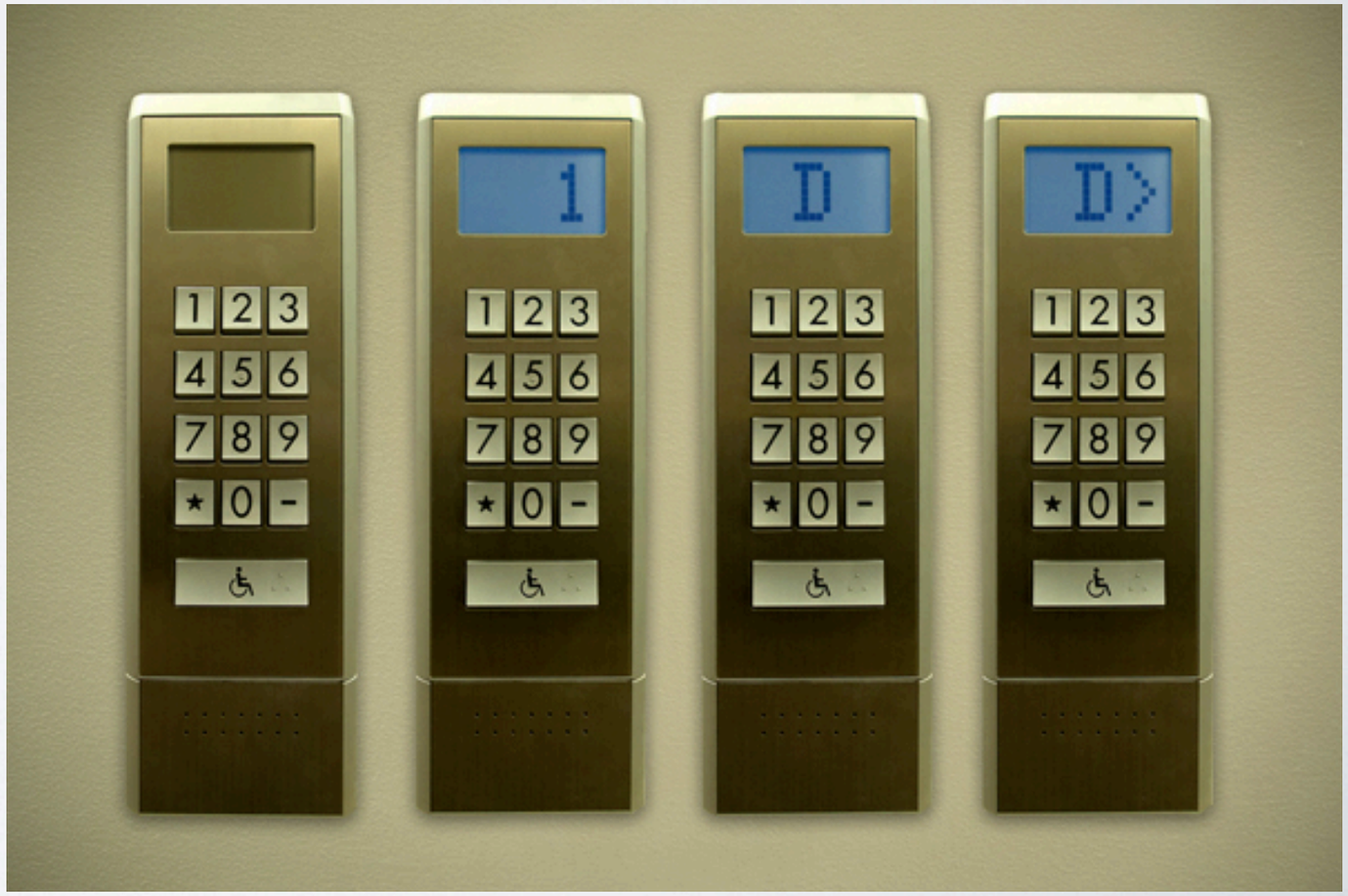
an elevator



what is interaction design?

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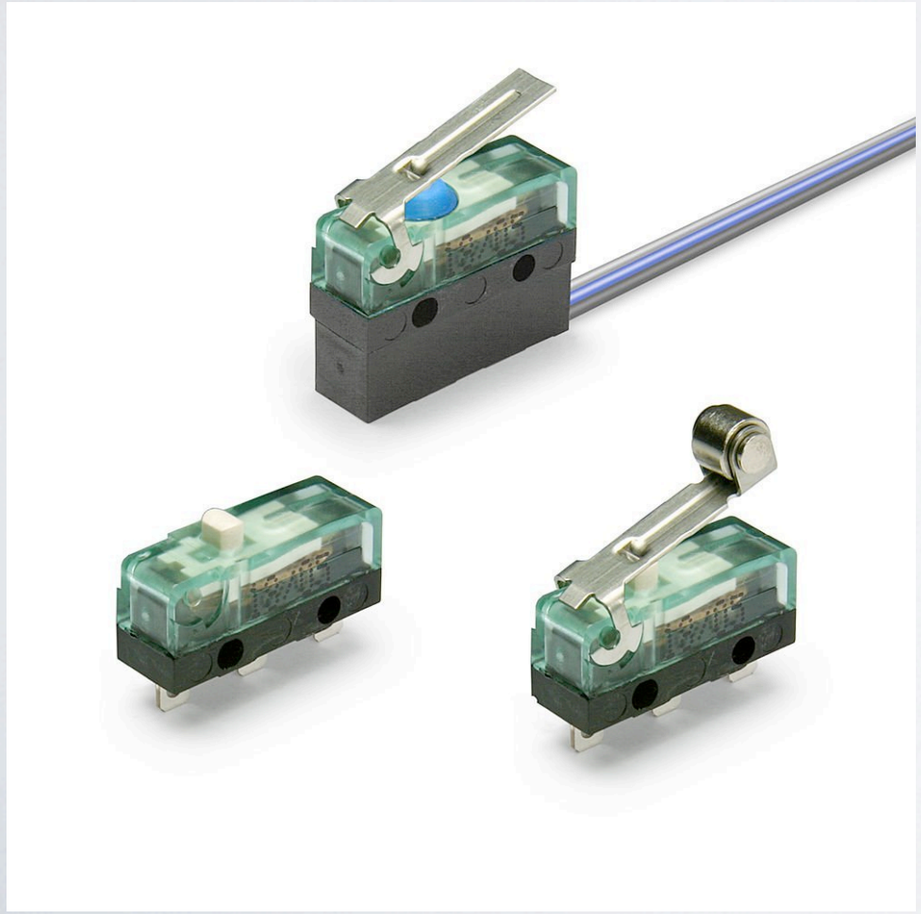
a mobile phone

what is physical computing?

it's all about using electronics (sensors, actuators, microcontrollers) to service an art installation or a design product.



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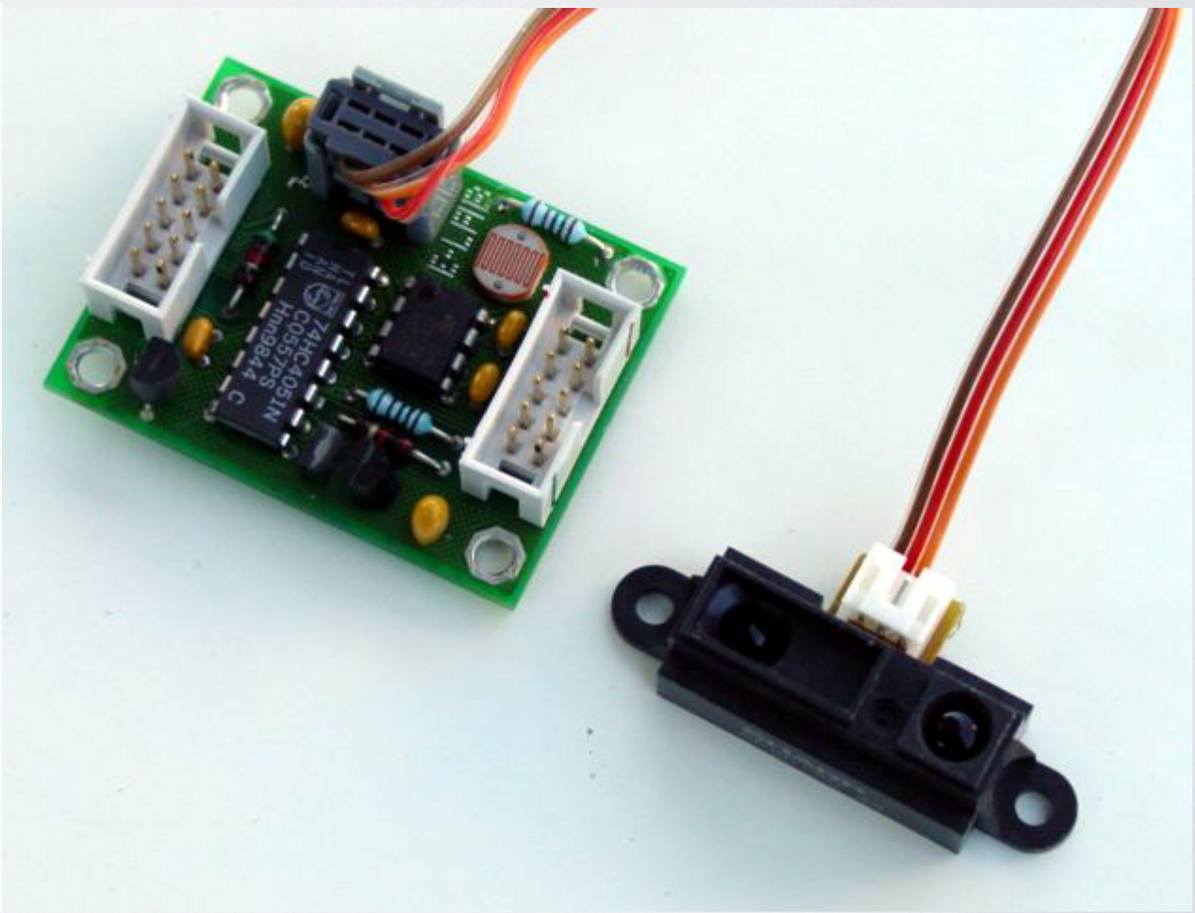

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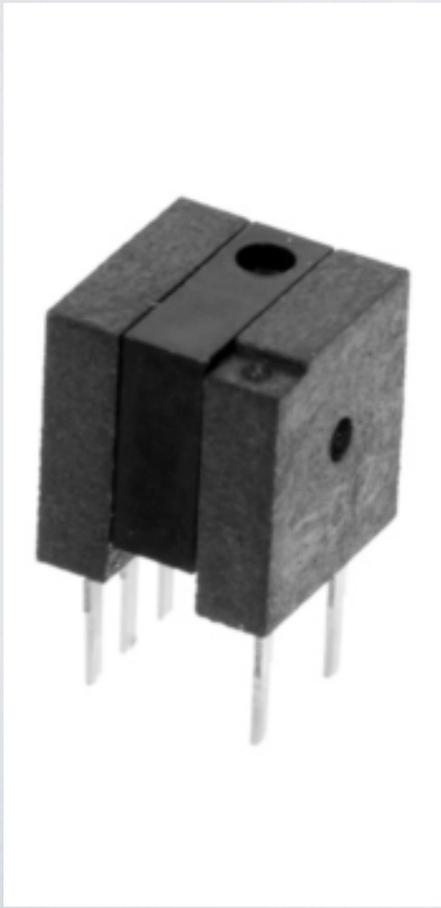

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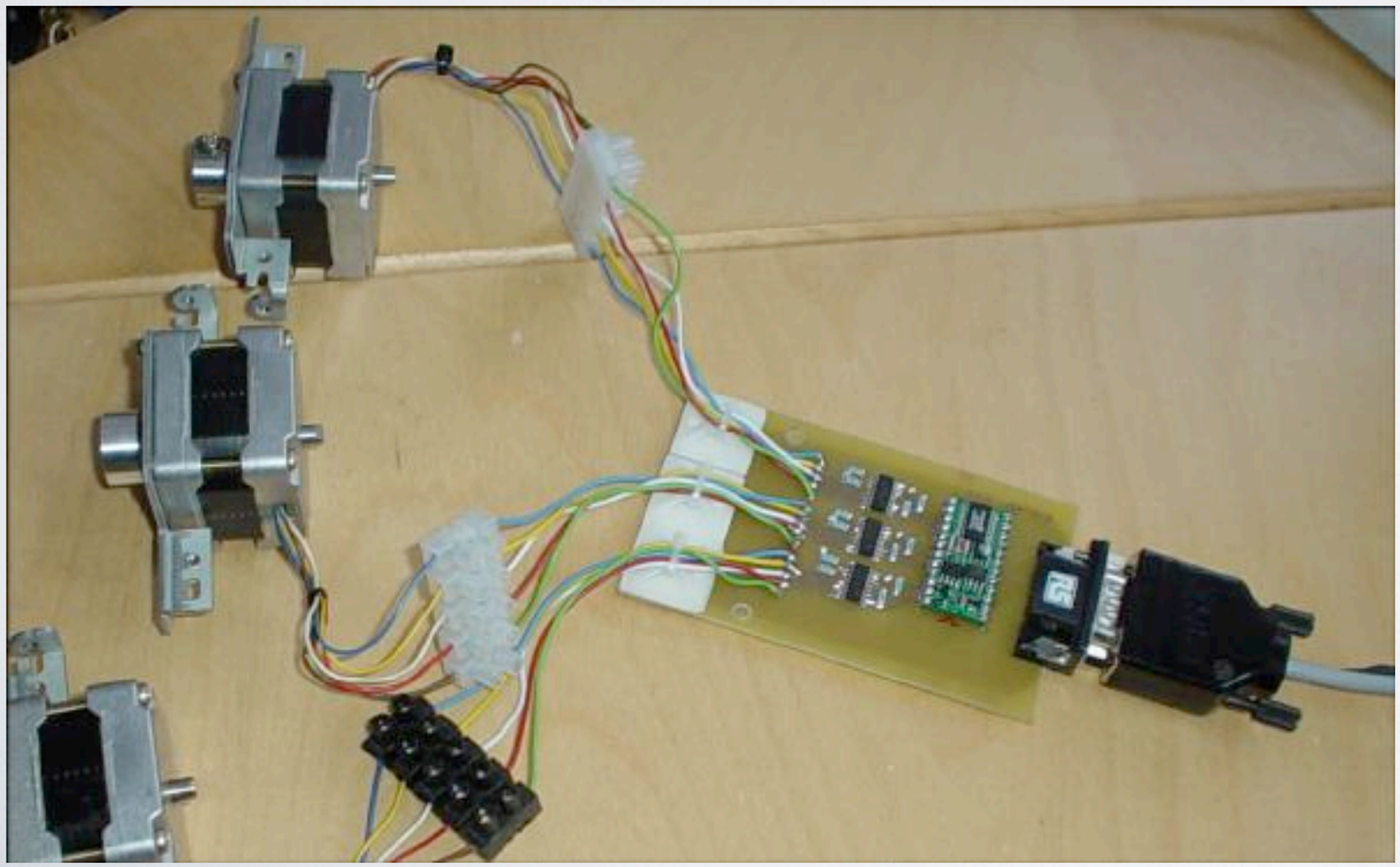
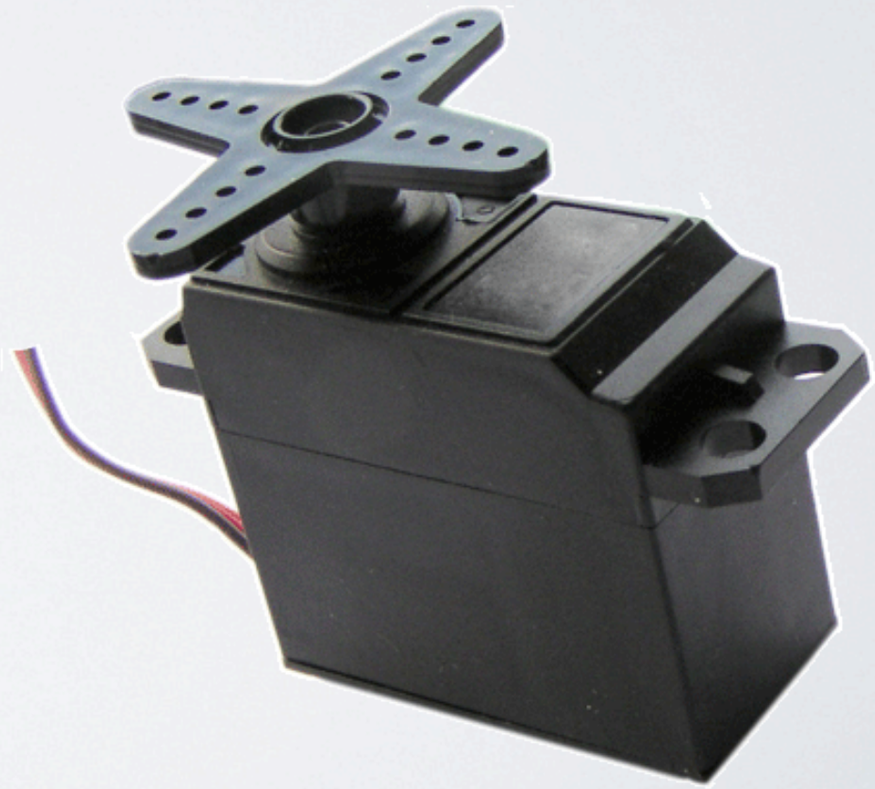




prototyping

is essentially building some roughly sketched products that represent and implement the functionalities of the final object we are designing.

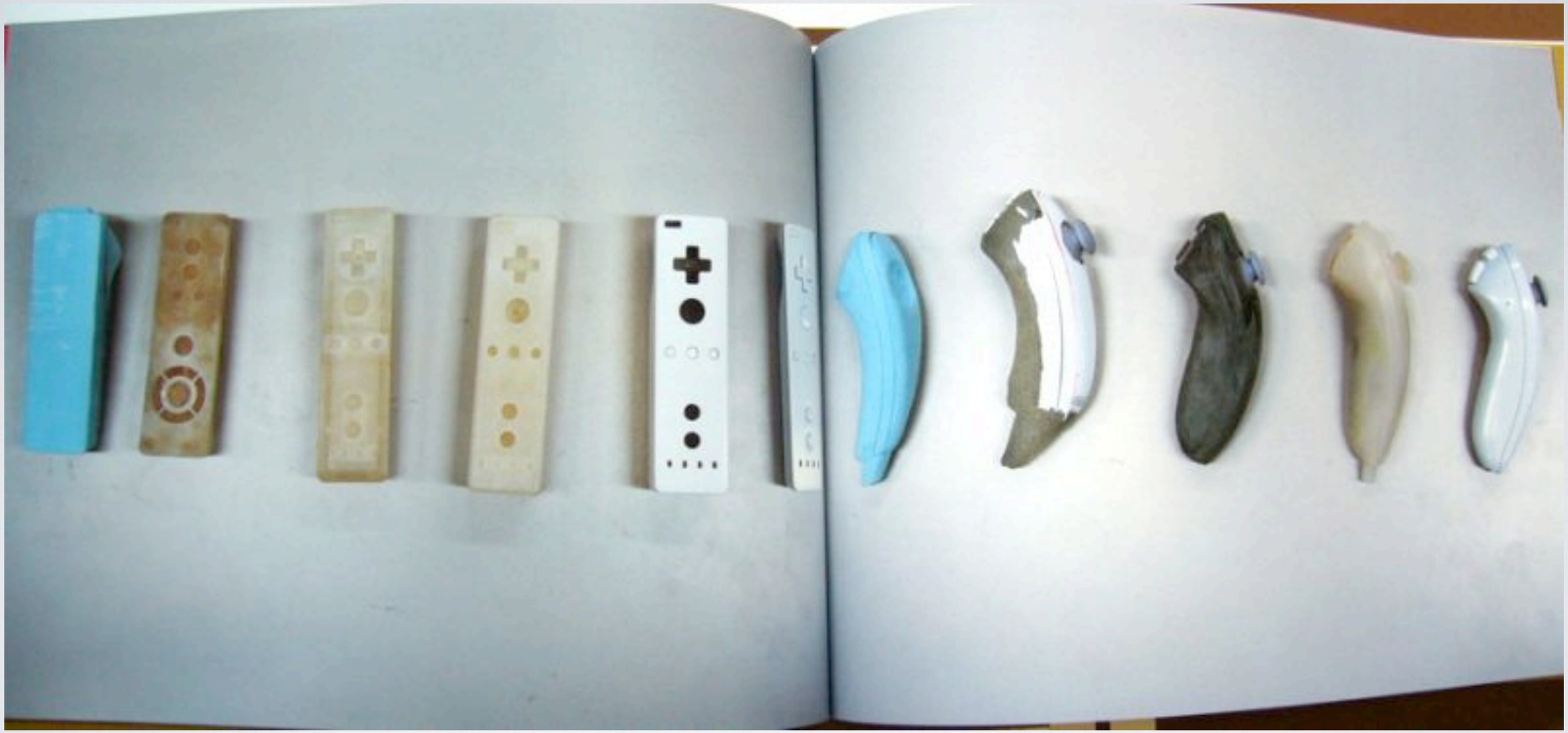
imagine what was done in a hidden lab in Cupertino when they had to first prototype the iPod.

if you can't imagine... here is what it looked like.

prototyping

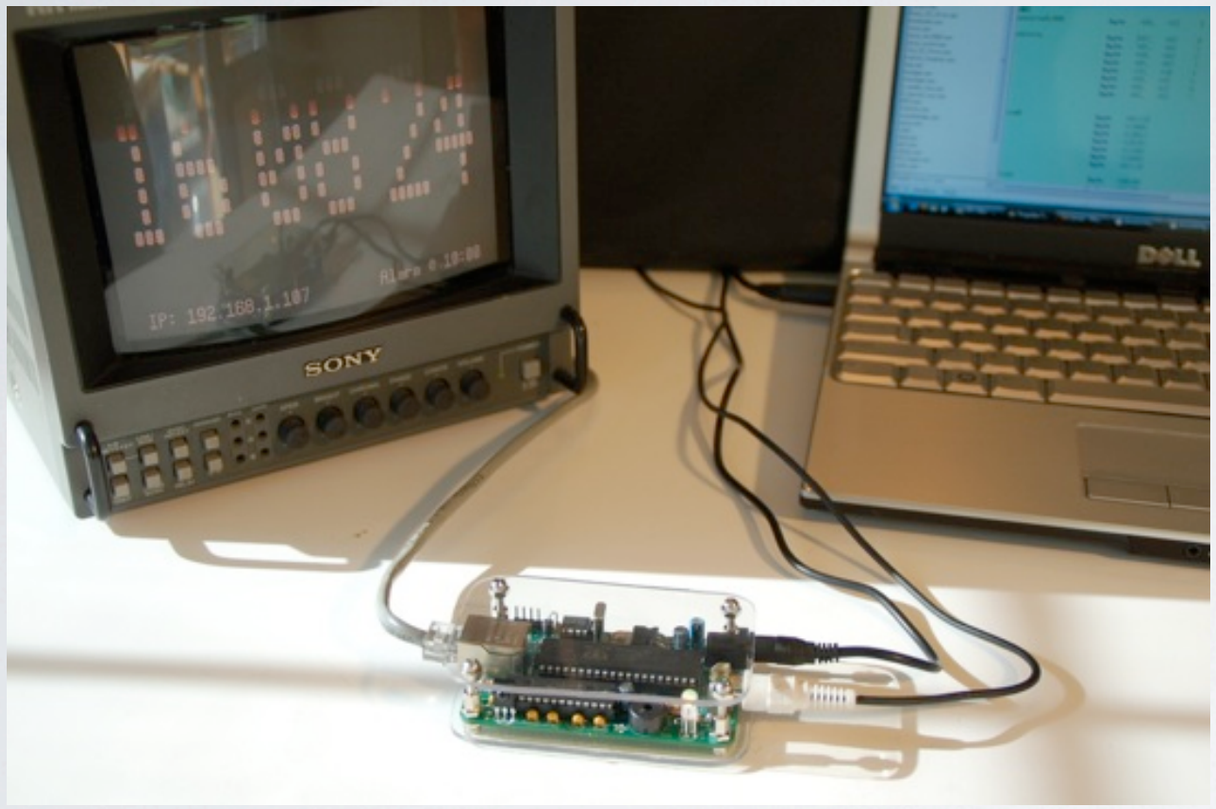
iPod, early stealth prototype (Apple, 2001)

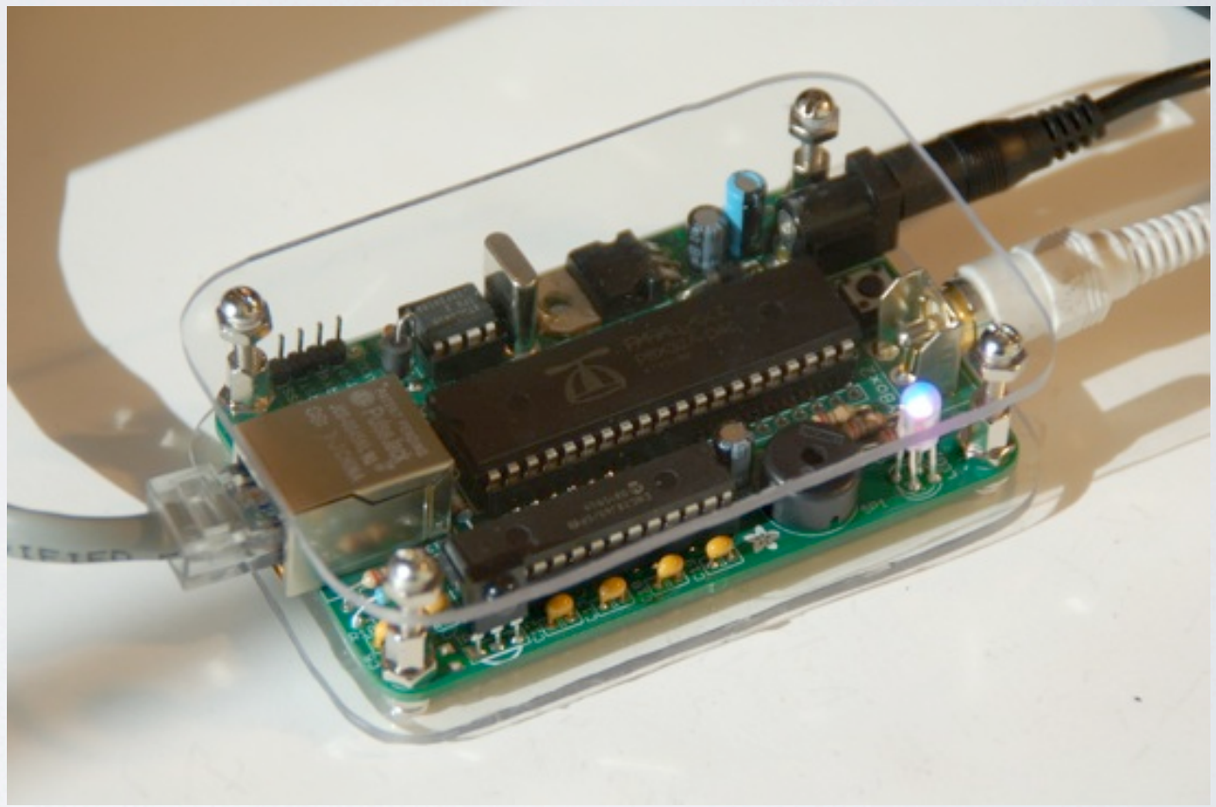
prototyping



WiiMote controller prototypes (Nintendo)

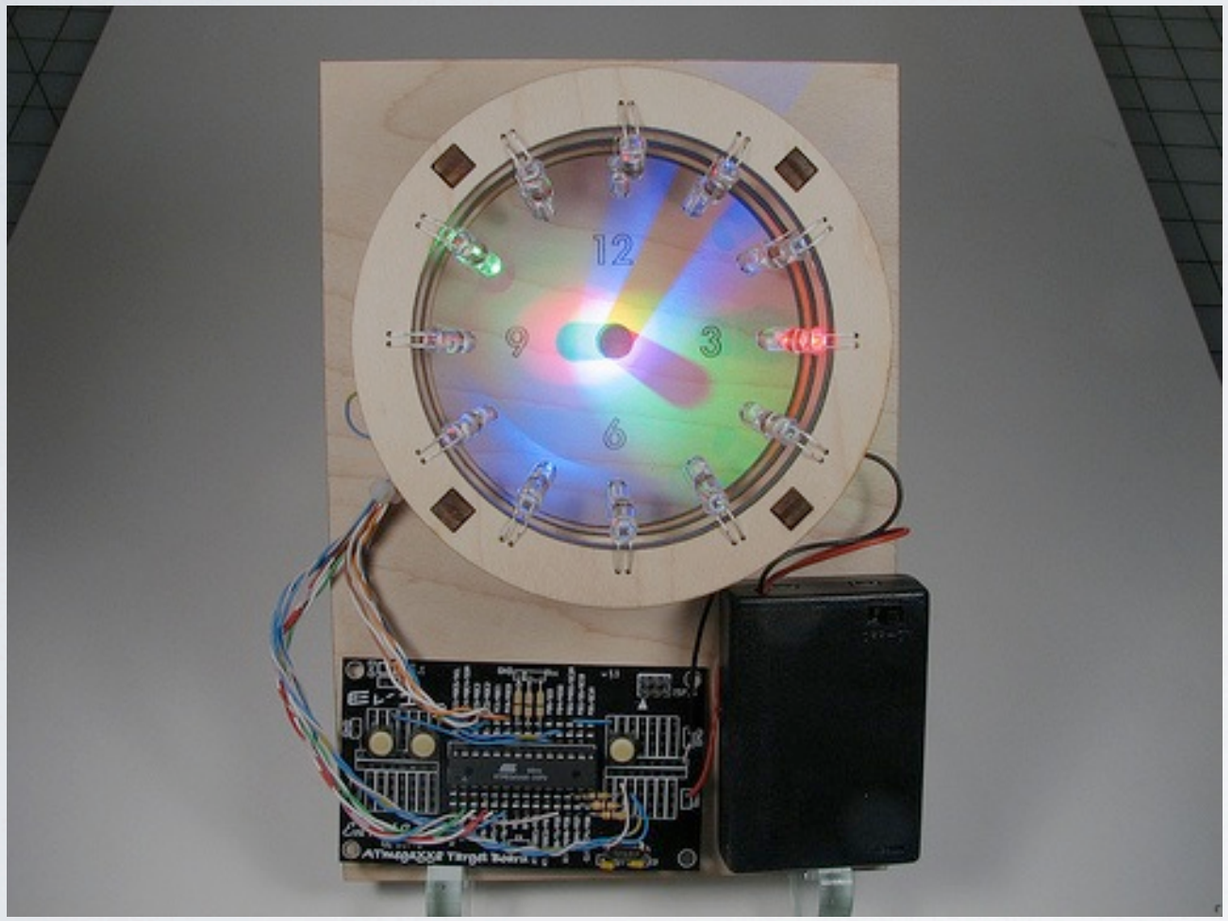
prototyping

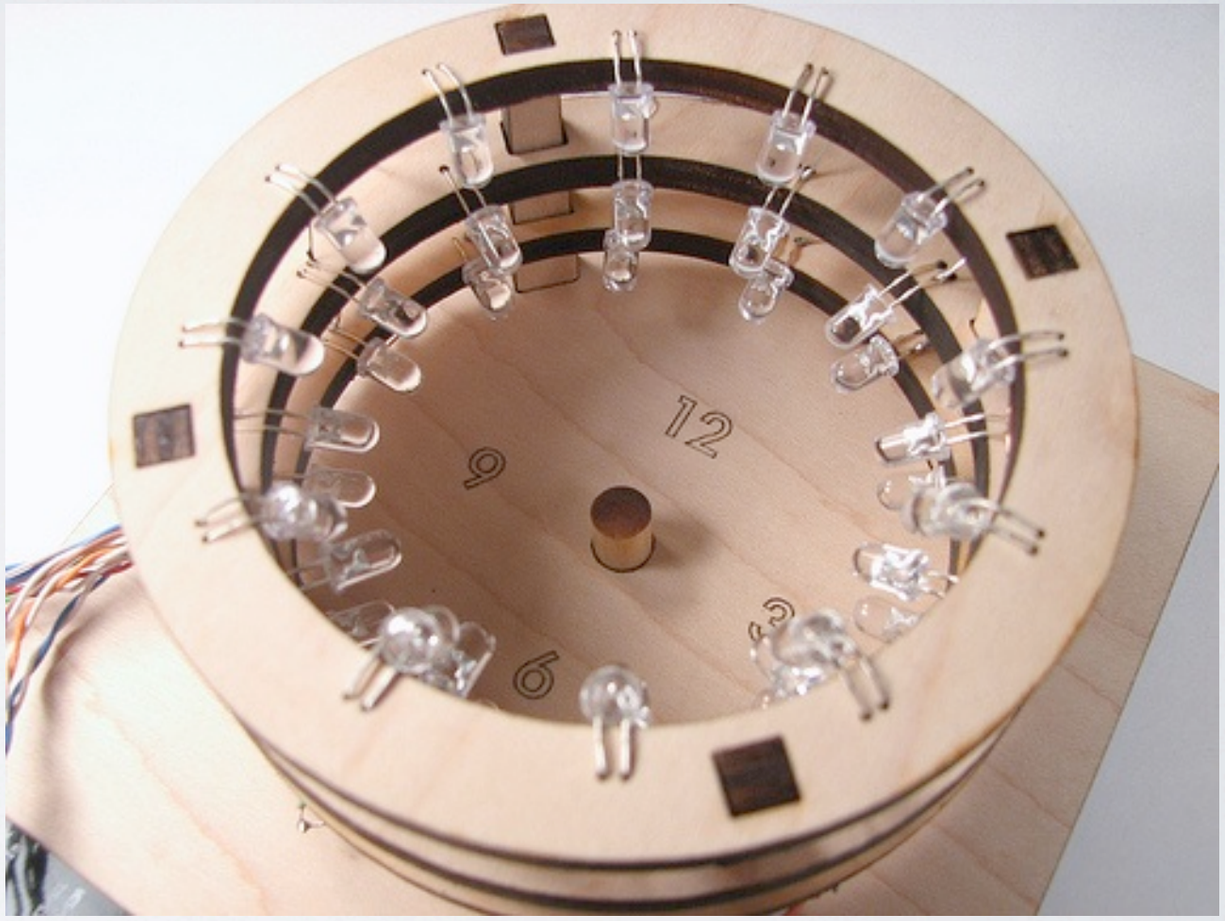




YBox2 (adaFruit.com)

prototyping





Bulb Dial Clock (Evil Mad Scientist Laboratories)

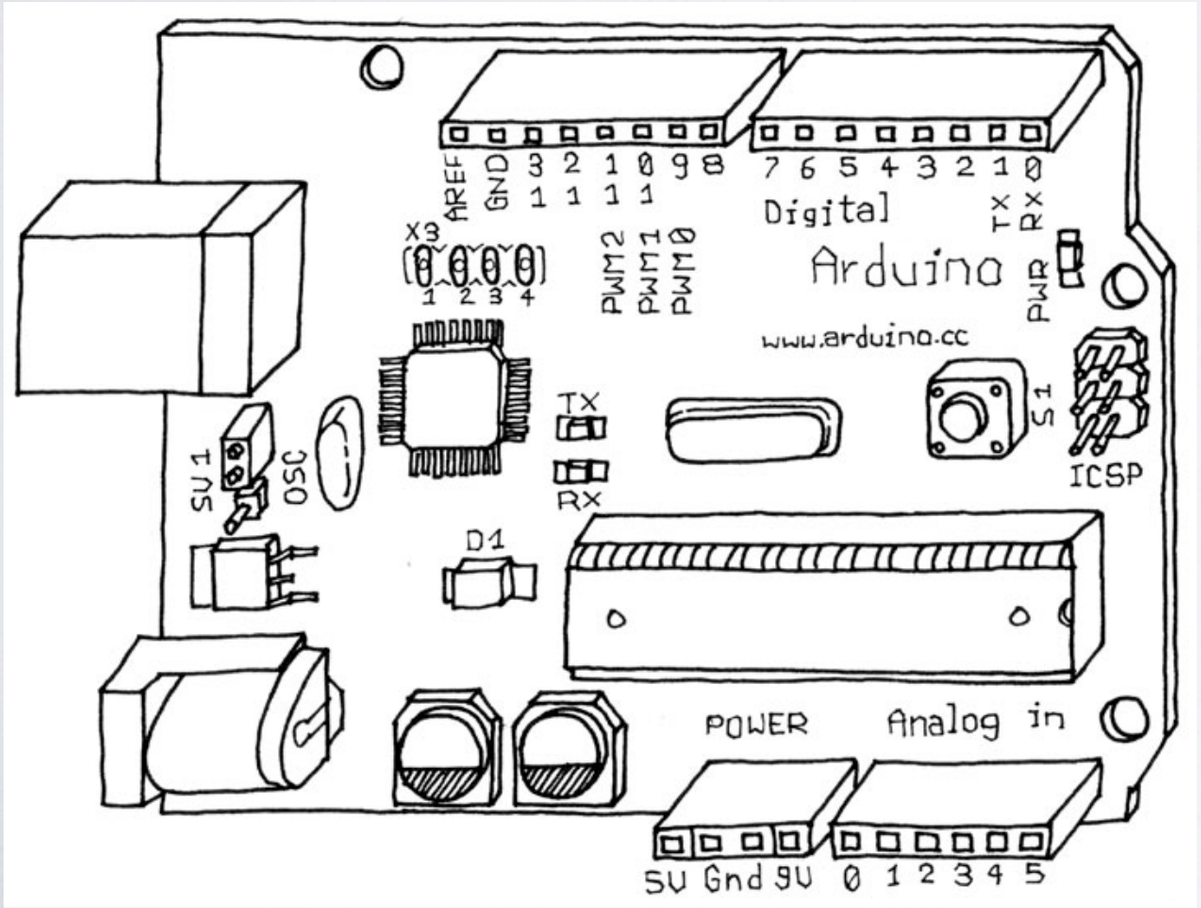
the ugly duckling tale

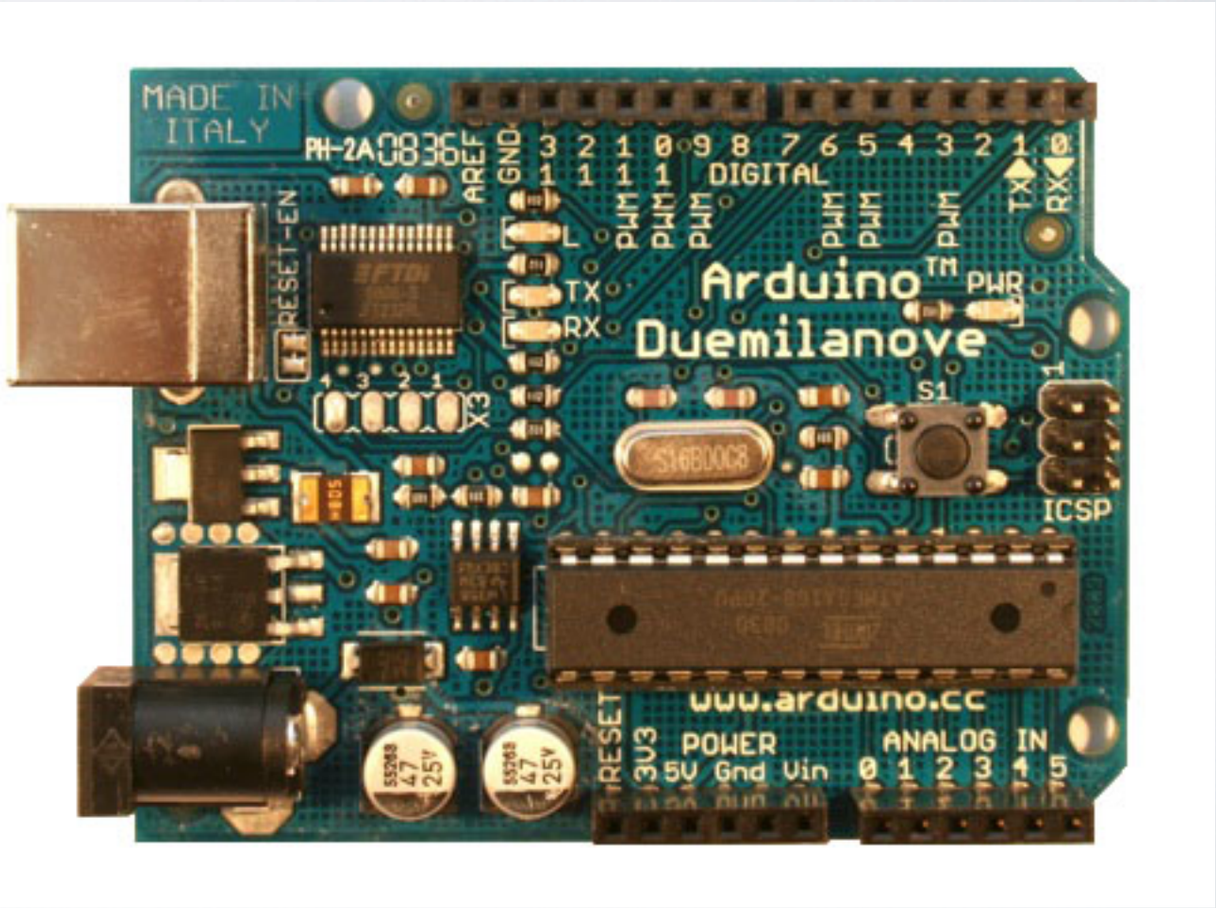
prototypes sometimes can look very ugly, but they help throughout the production process to discover flaws in interaction design (not always true).
most of these ugly ducklings turn into beautiful swans.
the iPod prototype you just saw is a good example.

the ugly duckling tale

while in a not so distant past this involved a lot of engineering work, today this is not always necessary in the first steps of a product concept.
this makes the process a bit easier and creative because designers can achieve a lot without having to talk to engineers... besides they speak two VERY DIFFERENT languages.

today, thanks to the work of some geeks, designers can make LEDs blink and motors spin with ease.
a lot of prototyping platforms for designers exist, and we will focus on one: *ARDUINO*.





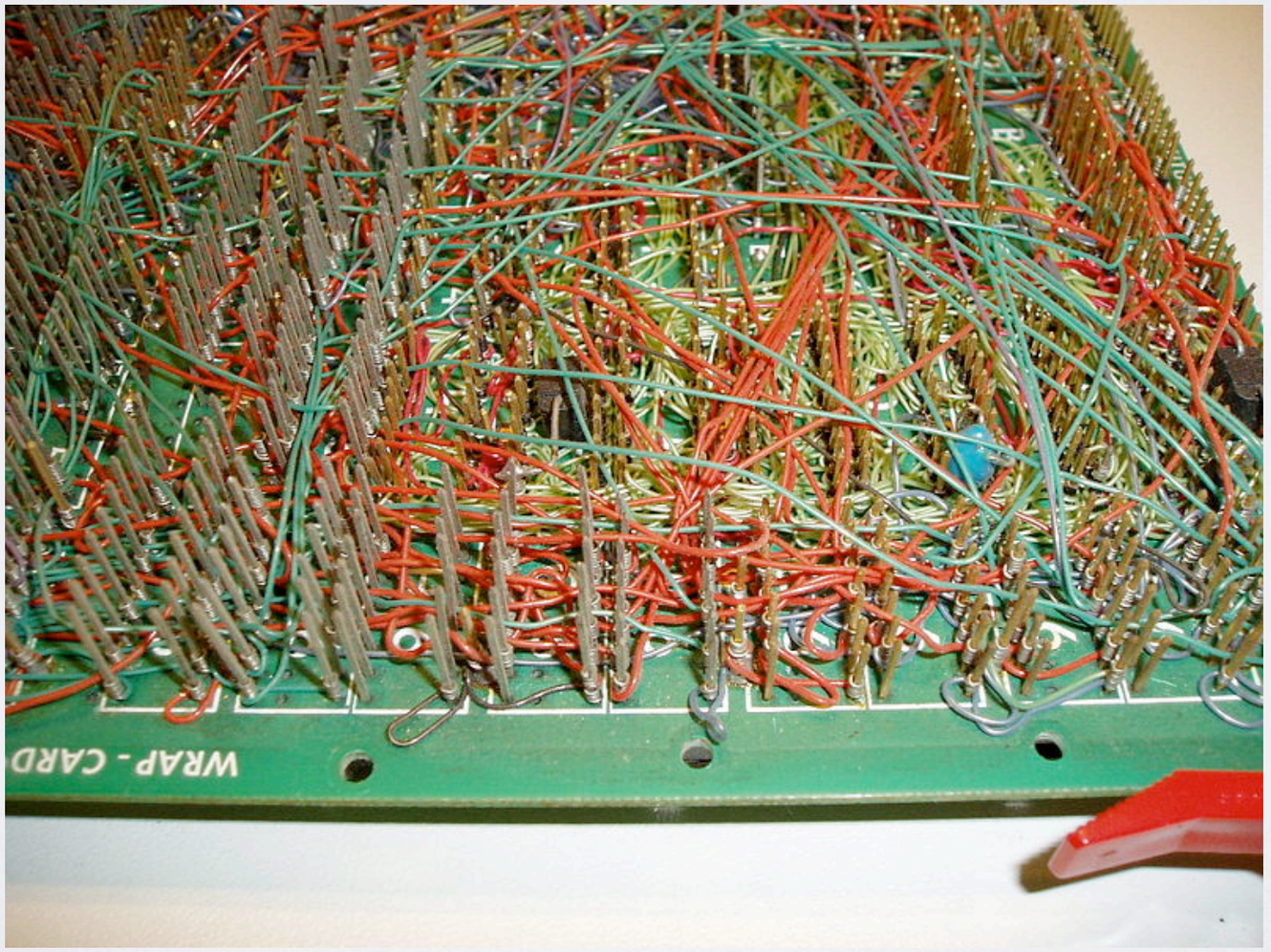
Arduino is

an Open Source electronics prototyping platform based on a MicroController, a USB port, an IDE (Integrated Development Environment), some supporting libraries to allow for extra functionality such as:

- talking to a computer or another machine
- writing to a display
- controlling motors
- connecting to the net
- handle wireless communication
- and more...

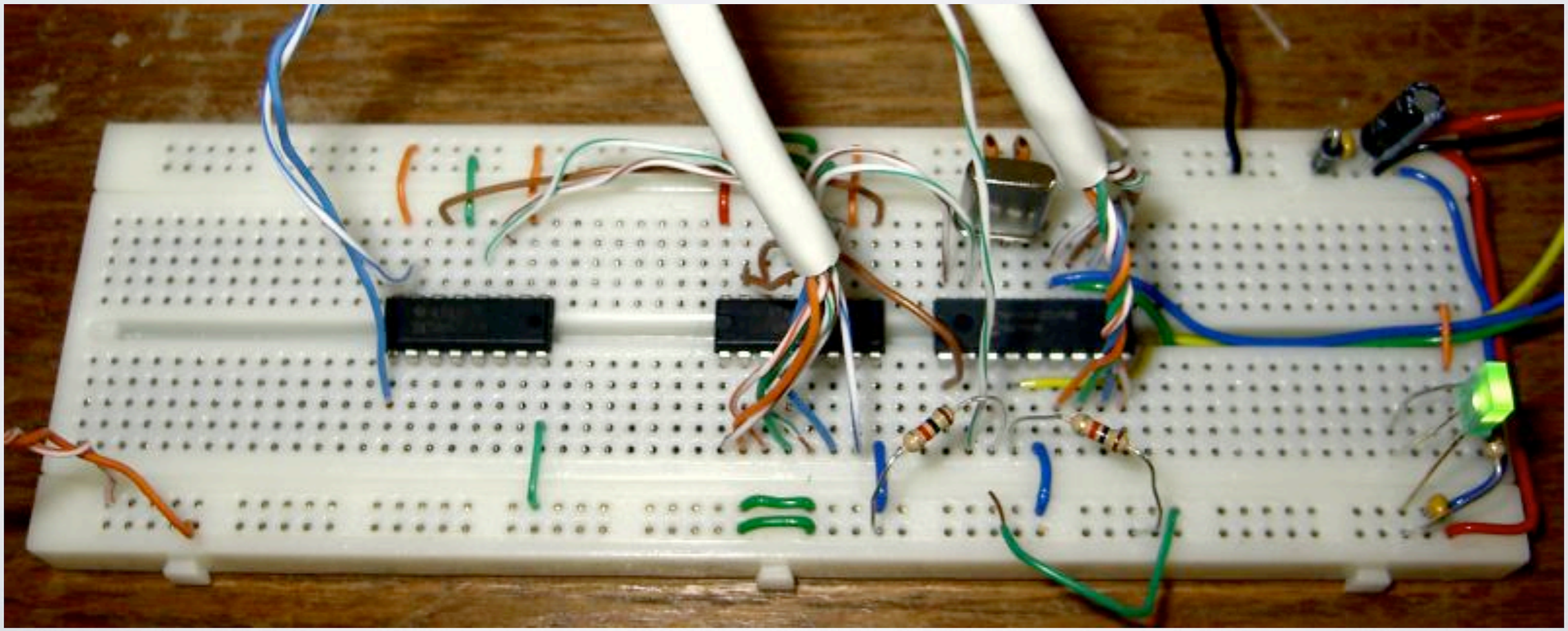
sometimes patching things is not that bad

all the connectors, pins and tiny things you saw (and probably scared you) actually serve a purpose and will soon make a lot of sense to you.
you just need to learn how to patch things together

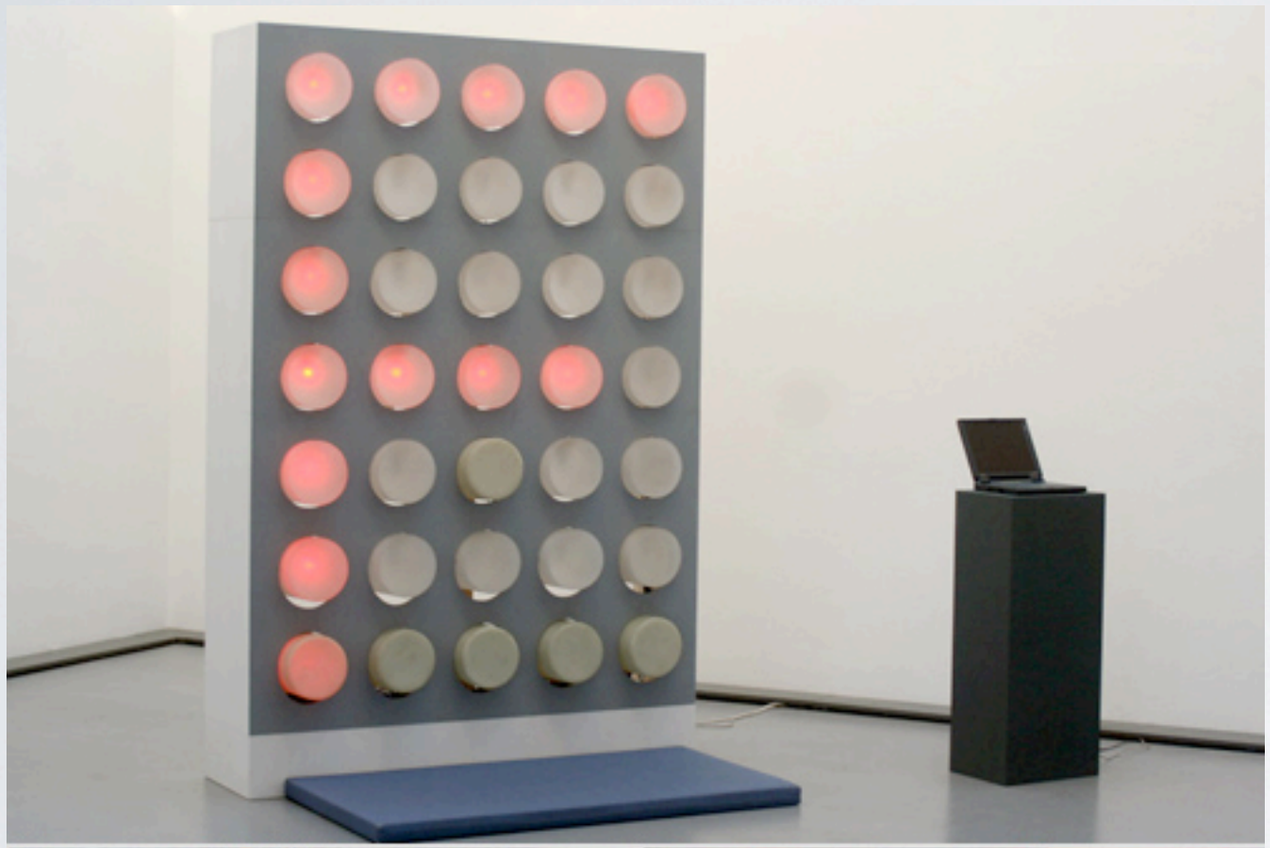


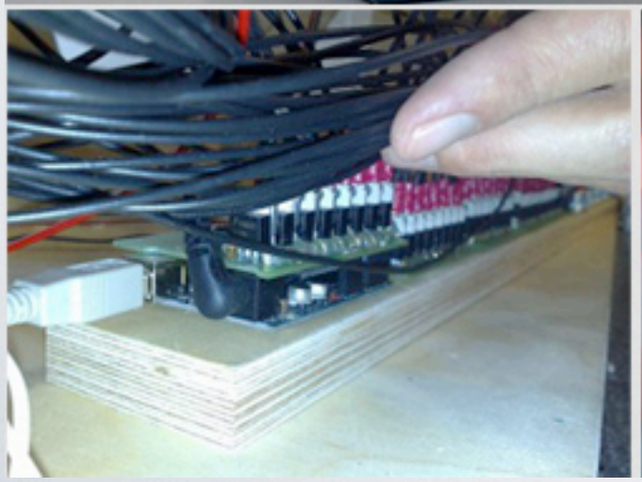
what?

of course that was a joke.
I'd never ask you to do anything like that...
or would I?
for now we'll just stick to "simple" Jumper Wire patching.



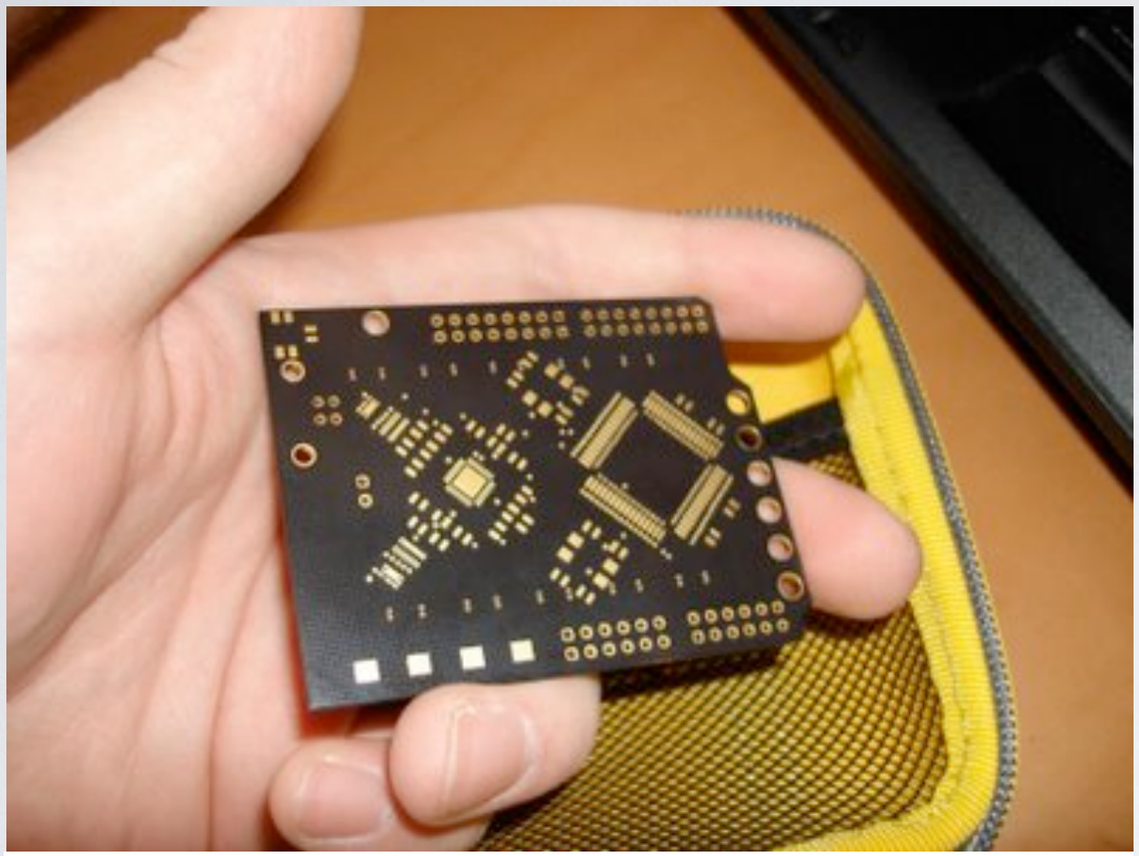
what do designers and artists do with Arduino?

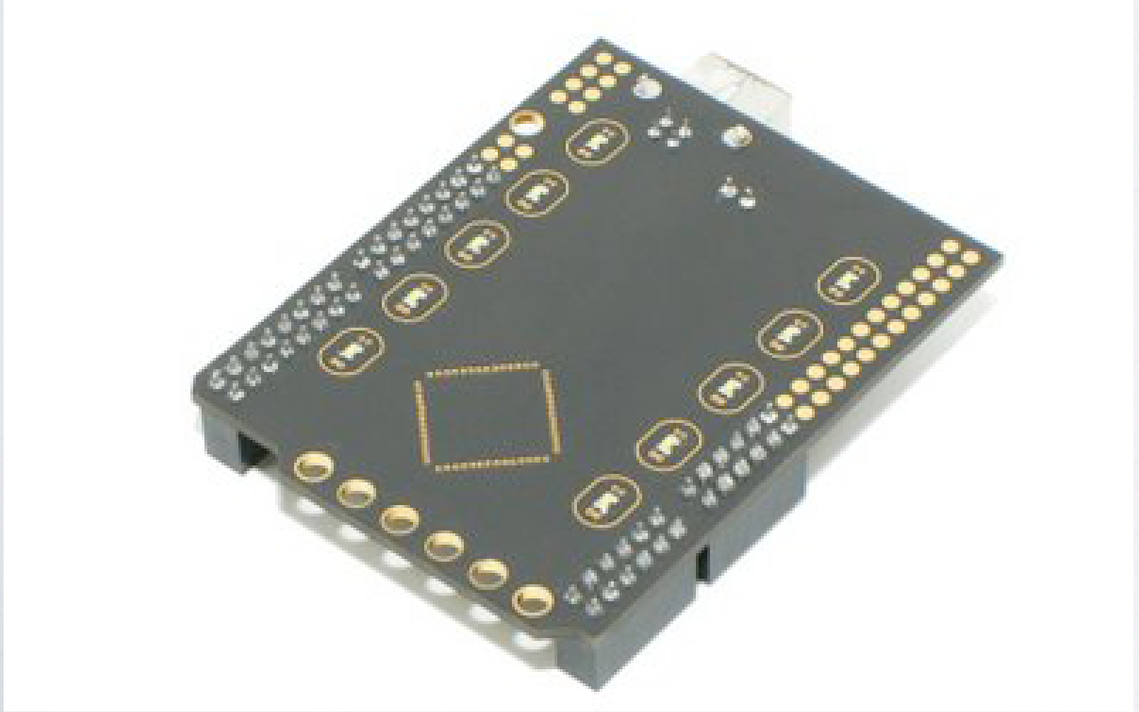




Digigripper:
interactive climbing wall that lets you tumble to the ground if you don't follow the hectic changes of the digital signs, which are shown on a human sized 5 x 7 LED display.

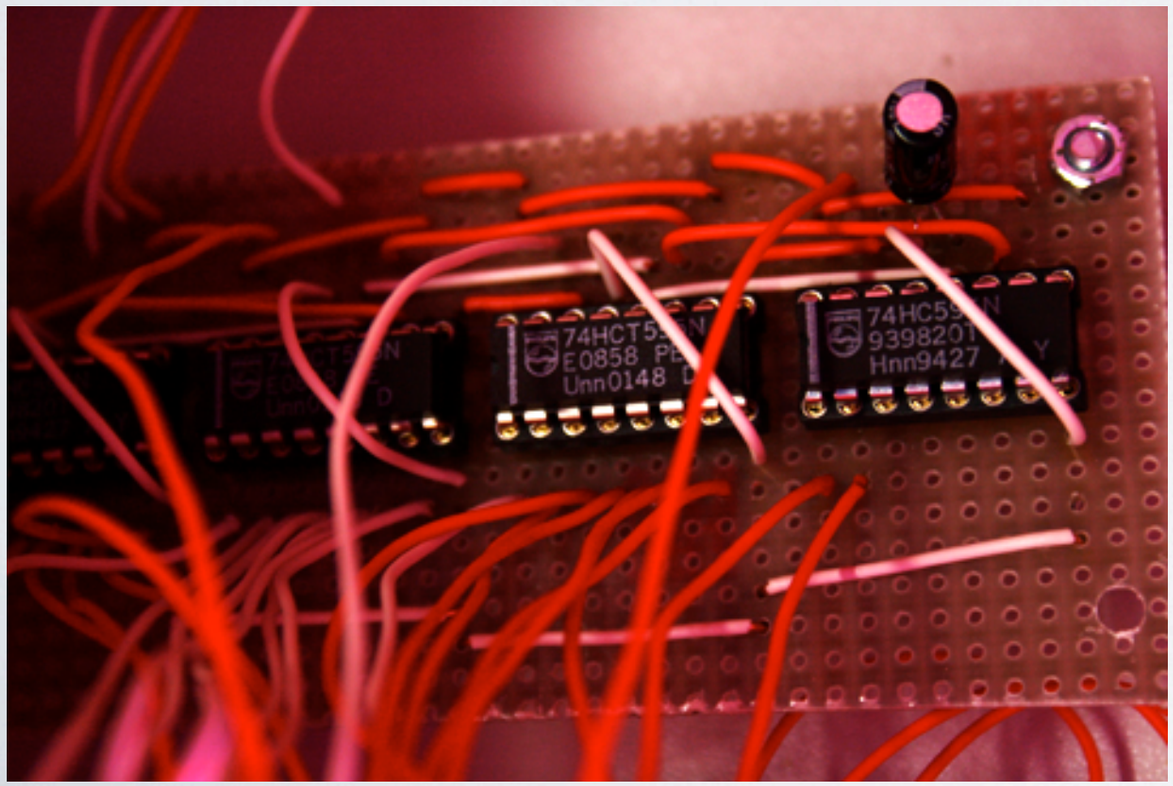
what do designers and artists do with it?





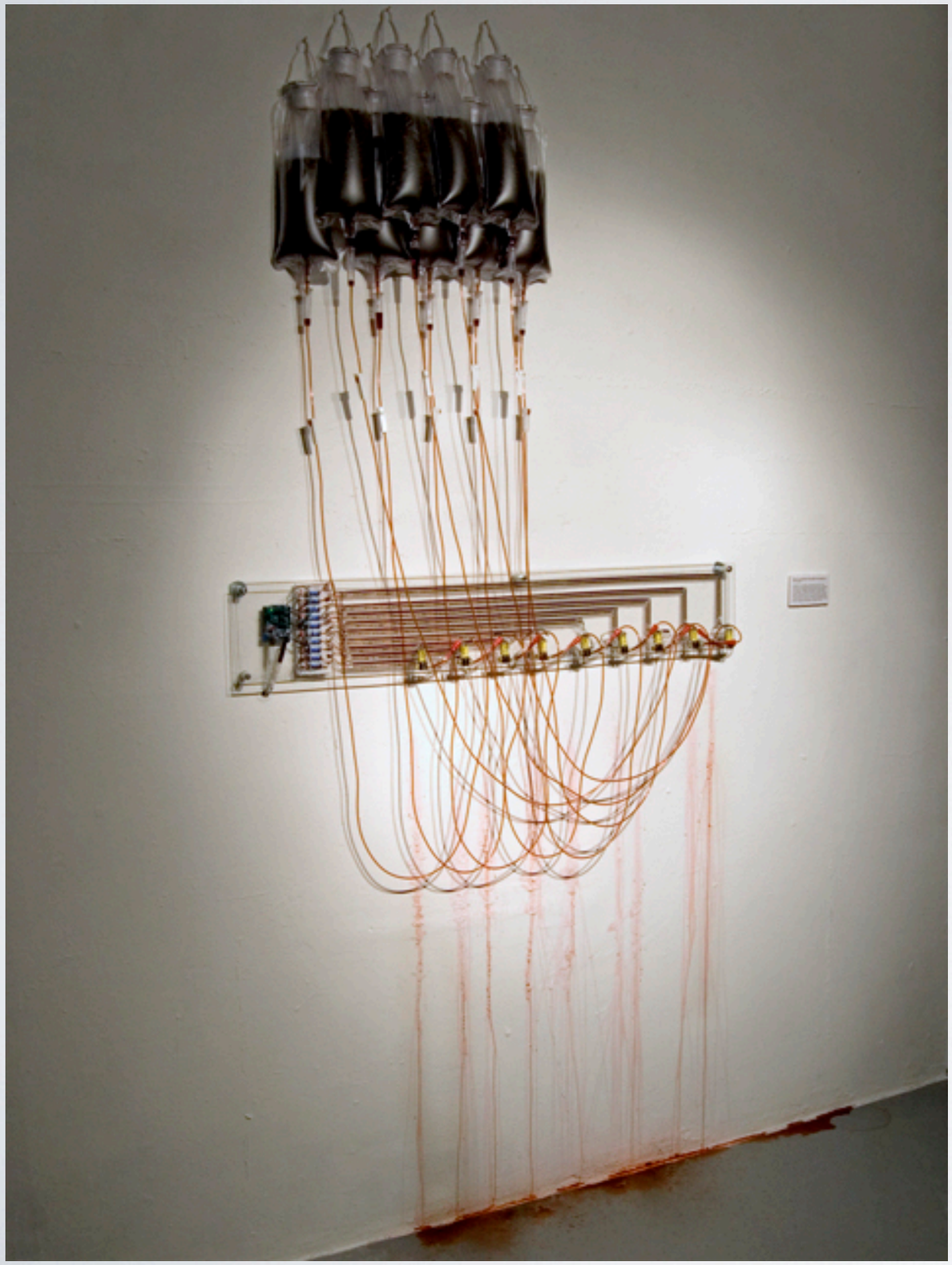
Illuminato Board:
can circuitry and PCB design become a form of art and artistic expression? The Illuminato project is a 42-IO pin, 64k memory homemade Arduino clone project to show off design and artistic expression on the PCB board itself.

what do designers and artists do with it?



StadtlichterImWohnzimmer:
light installation for the living-room

what do designers and artists do with it?



'*What it is without the hand that wields it*':
Manifestation of experiences that are purely virtual, or only real in a psychological sense, into the physical world - physical computing.

what do designers and artists do with it?

a lot of other things.
just check them out at this address...

http://www.arduino.cc/playground/Projects/ArduinoUsers

what will you do with it?

make sure you let us know