

# Physical Computing @ Goldsmiths 2009

Daniel Hirschmann

<http://learn.plankman.com>



Traces, Cape Town, 2008

Jason Bruges Studio

<http://www.jasonbruges.com>

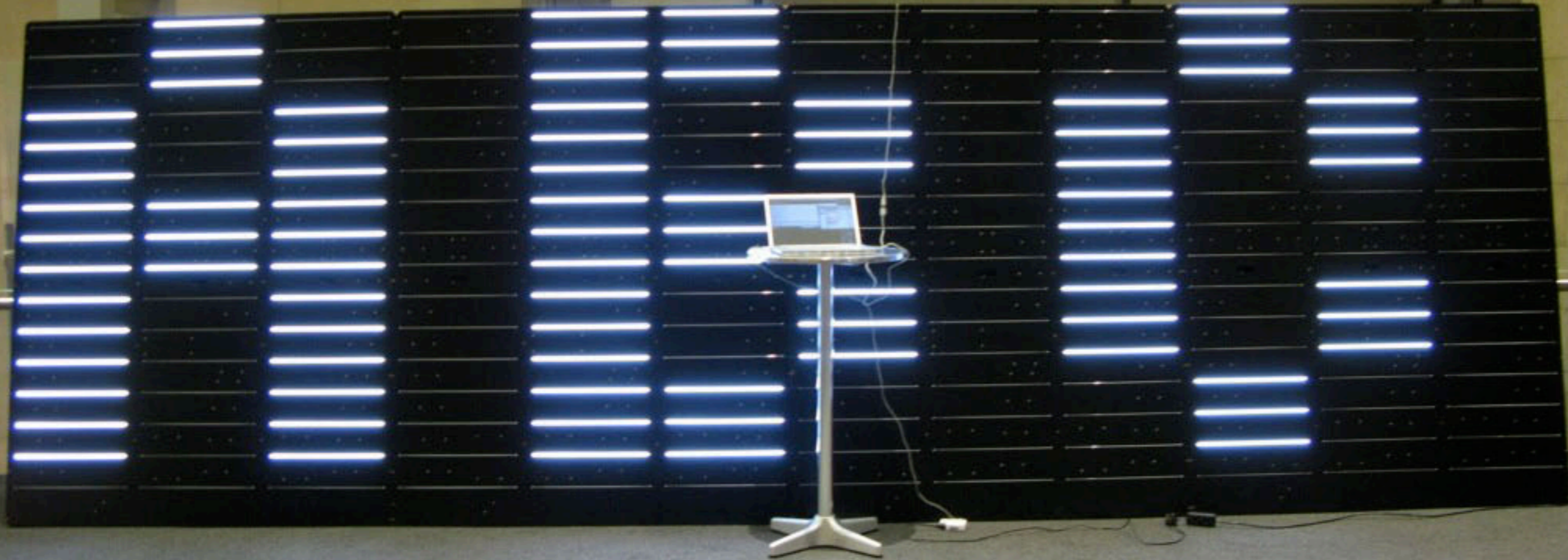
INDABA  
A BETTER WORLD THROUGH CREATIVITY





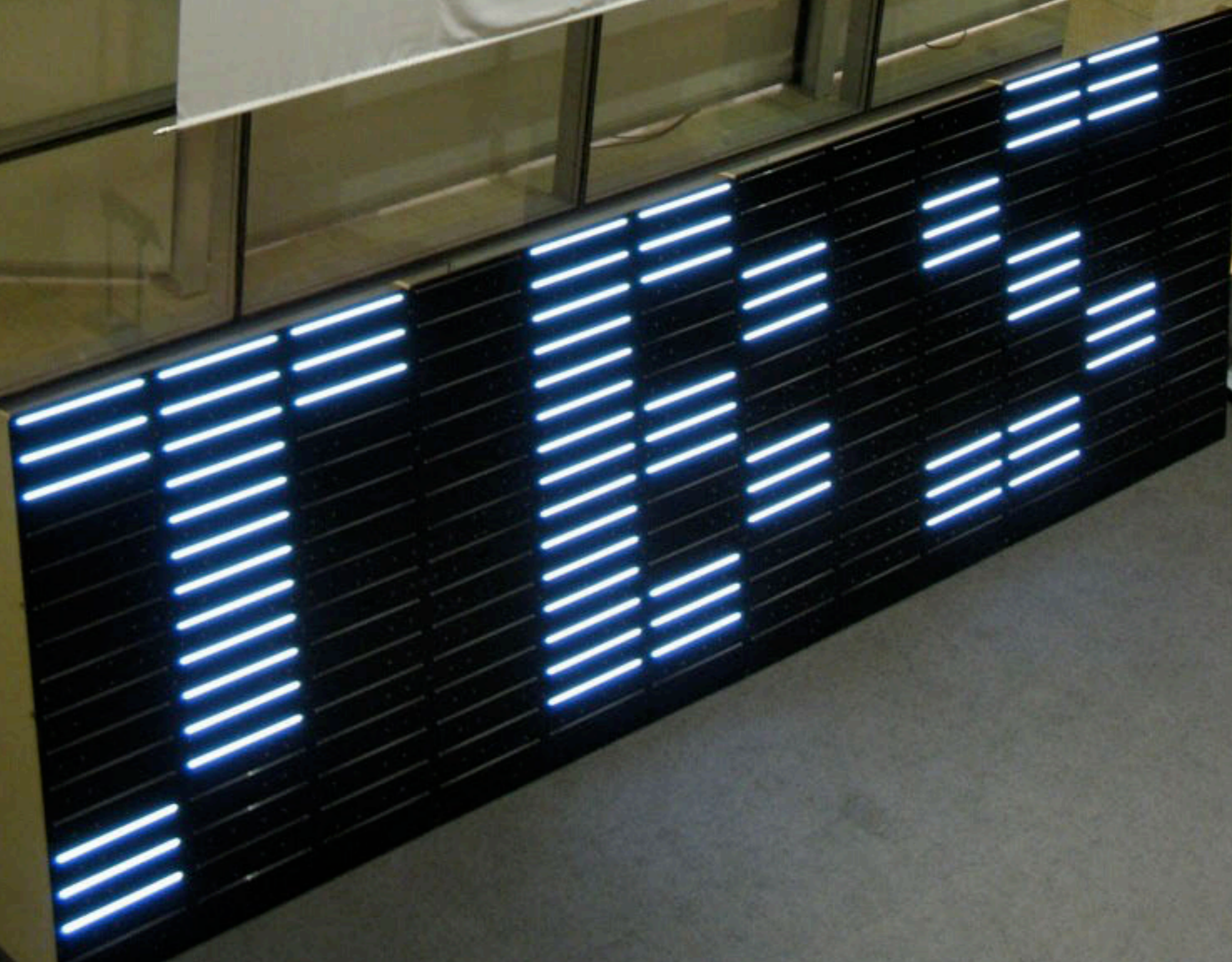
DESIGN  
INDABA

A BETTER WORLD THROUGH CREATIVITY



DESIGN  
INDABA

A BETTER WORLD THROUGH CREATIVITY



DESIGN  
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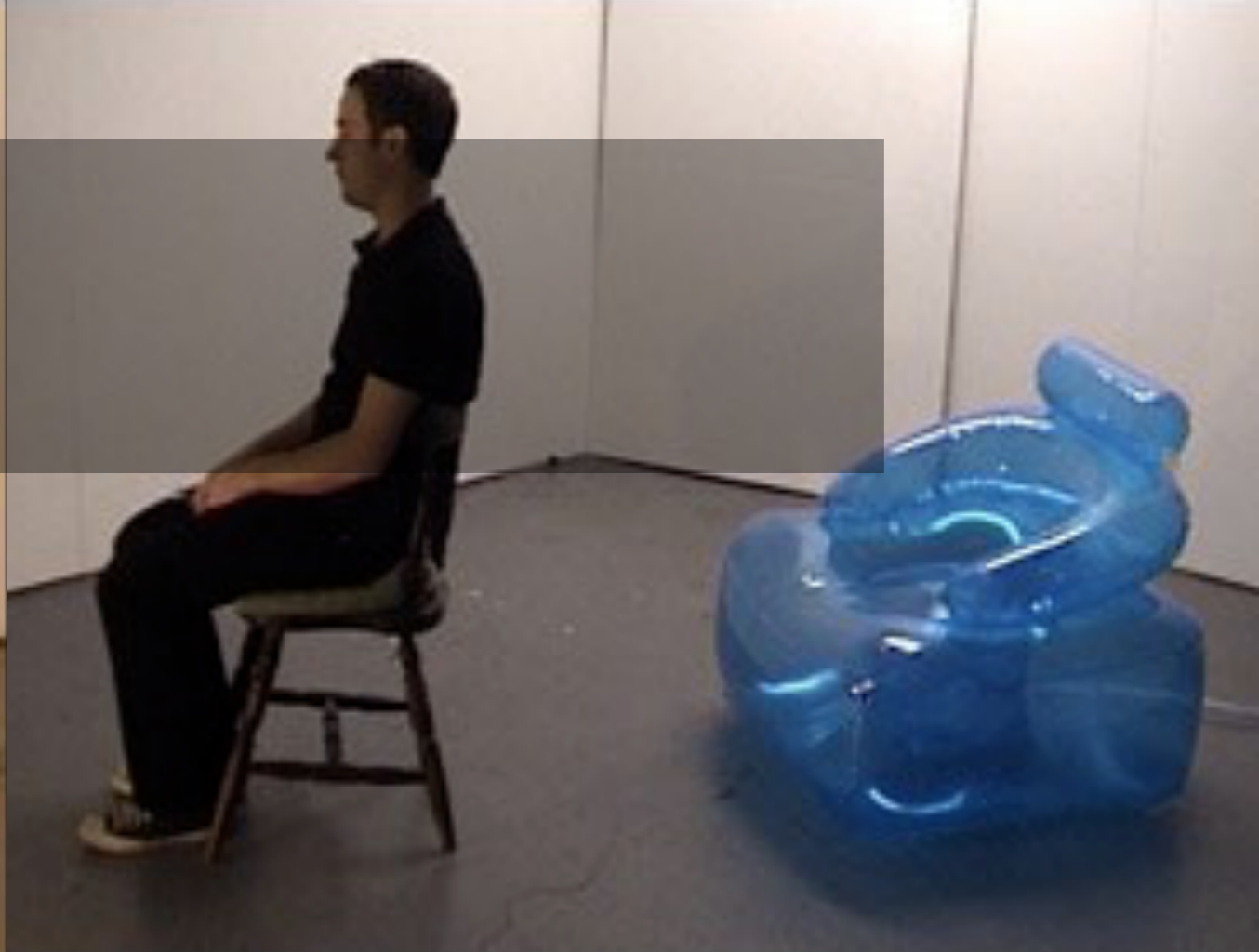








Blue Chair  
CaptinCaptin  
<http://tintarts.org>



Wooden Mirror, 1999

Danny Rozin

<http://www.smoothware.com/danny/>





Weave Mirror, 2007

Danny Rozin

<http://www.smoothware.com/danny/>



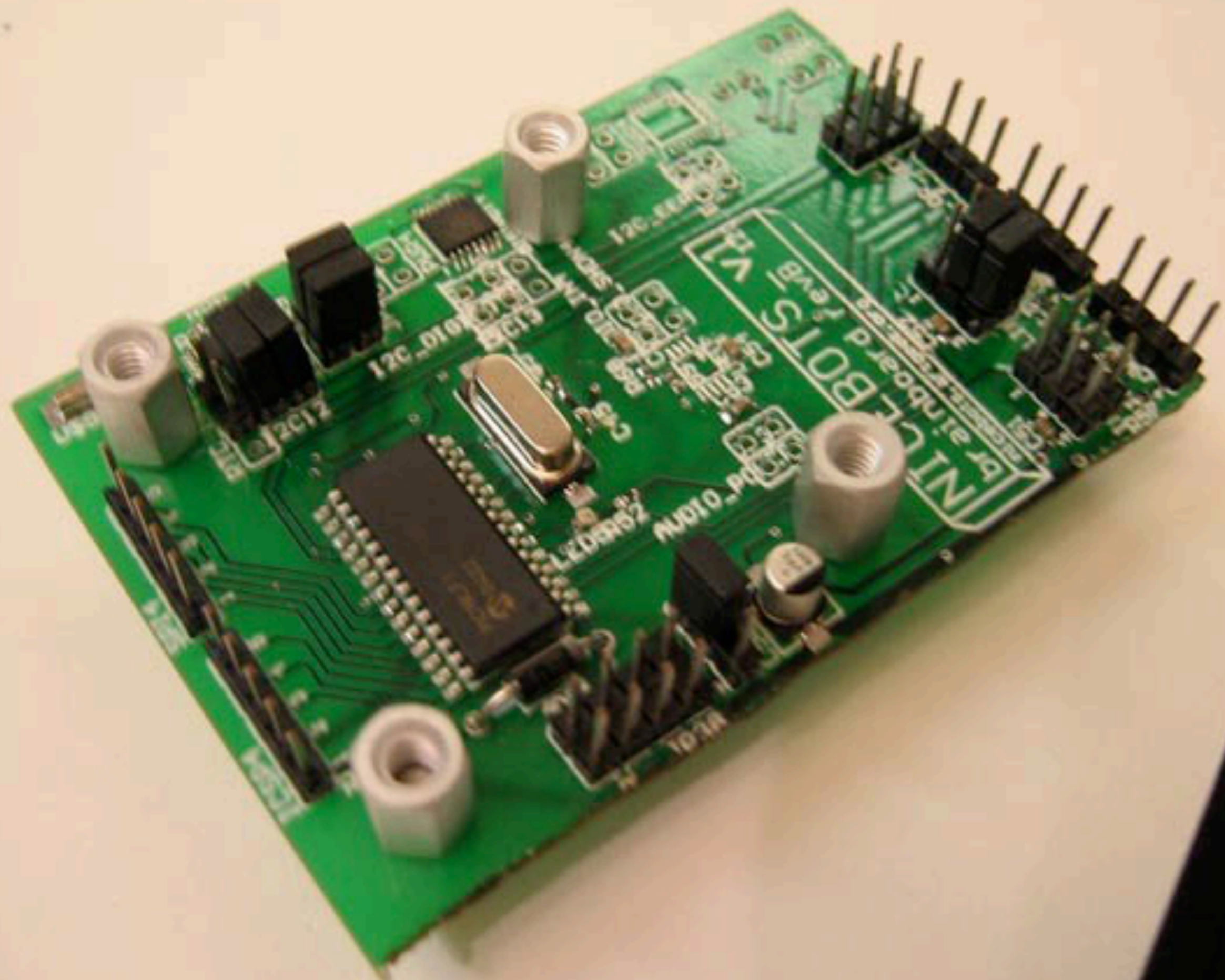
Nicebots, MAMAC, Nice, 2004

Daniel Hirschmann, Mark Argo, Ann Poochareon

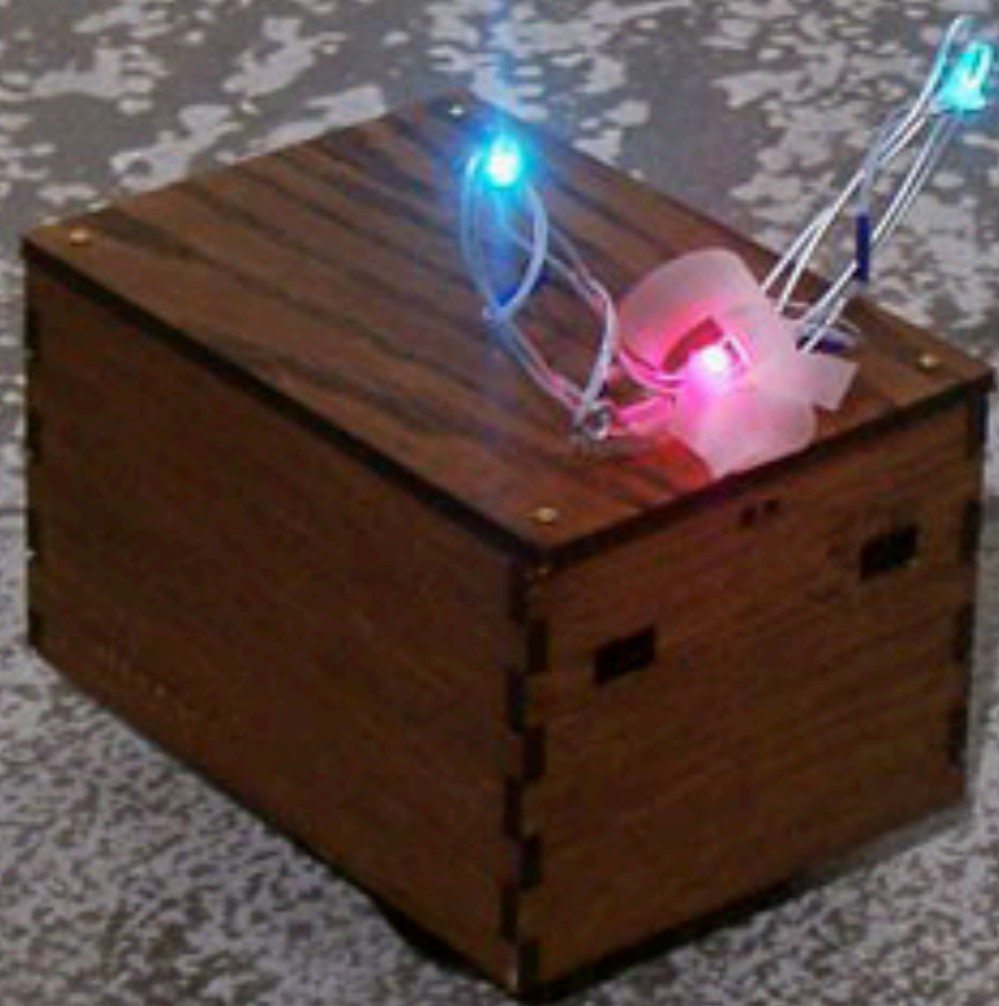
<http://nicebots.artgeek.org>

<http://plankman.com/projects/nicebots>



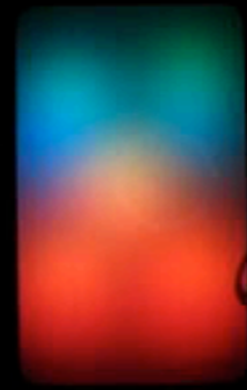
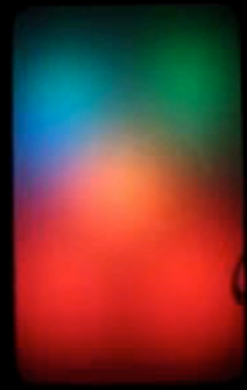
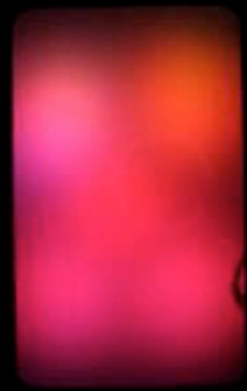
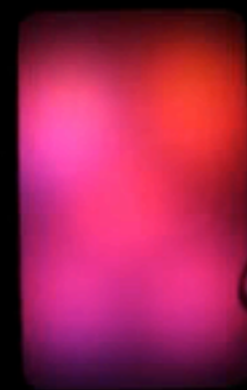
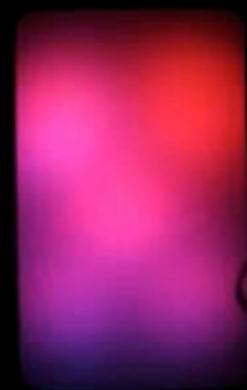


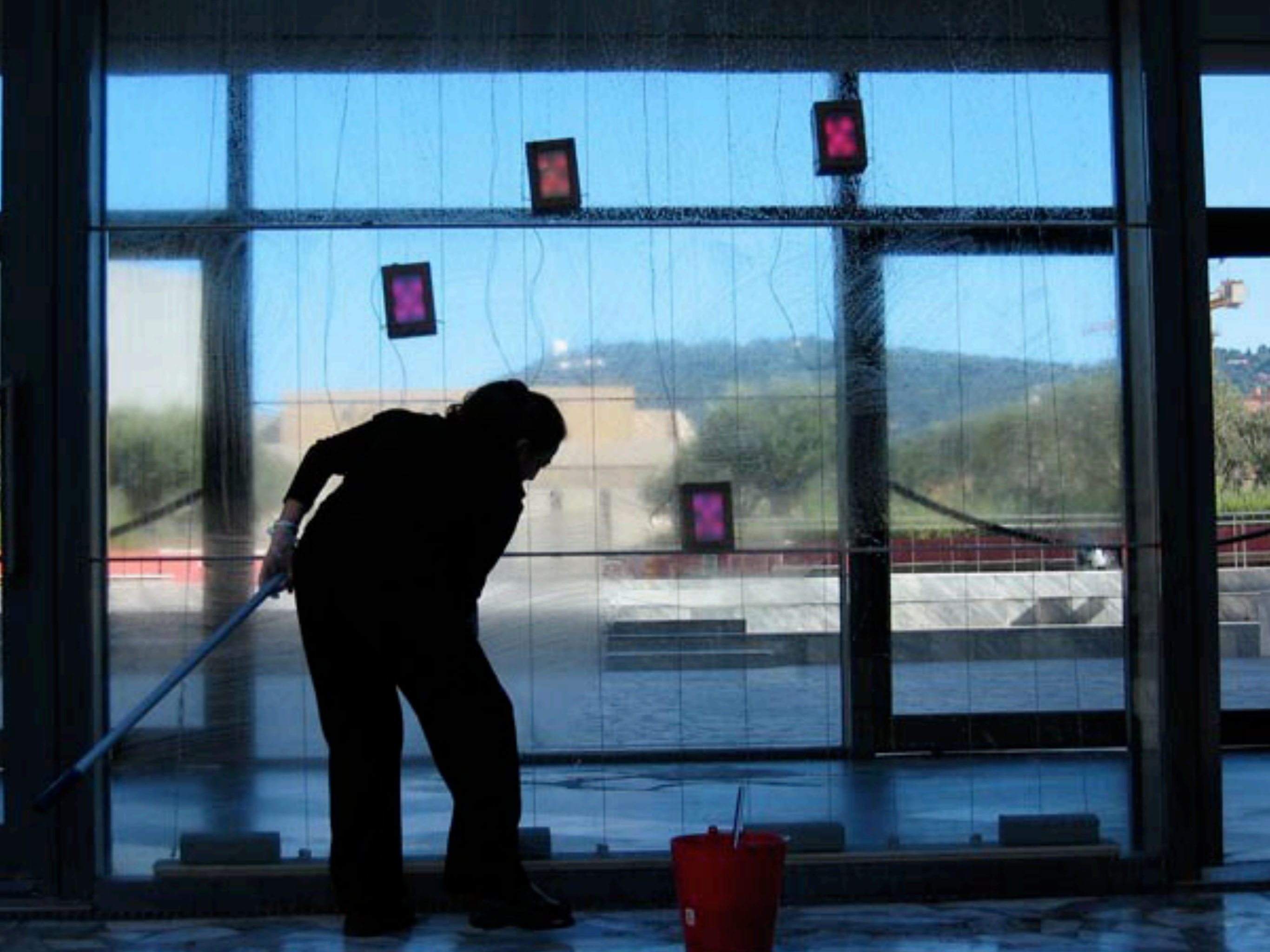












Tuned Stairs, Centre Pompidou, Paris 2006  
Daniel Hirschmann, Federico Urdaneta, Hansi Raber,  
Carlo Zorati, Andy Cameron  
[http://plankman.com/projects/tuned\\_stairs](http://plankman.com/projects/tuned_stairs)





ctait

SA  
SAMUEL  
BECKETT  
Lectures  
14 mars - 25 juin 2007





























SENSORS SENSORS  
EVERYWHERE

# Physical / Tangible Computing

...they're everywhere...

...they're everywhere...

- RFID reader at the underground

...they're everywhere...

- RFID reader at the underground
- Anti Crushing sensor on the train doors

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- RFID reader at the underground
- Anti Crushing sensor on the train doors
- iPod / Nike running sensors etc

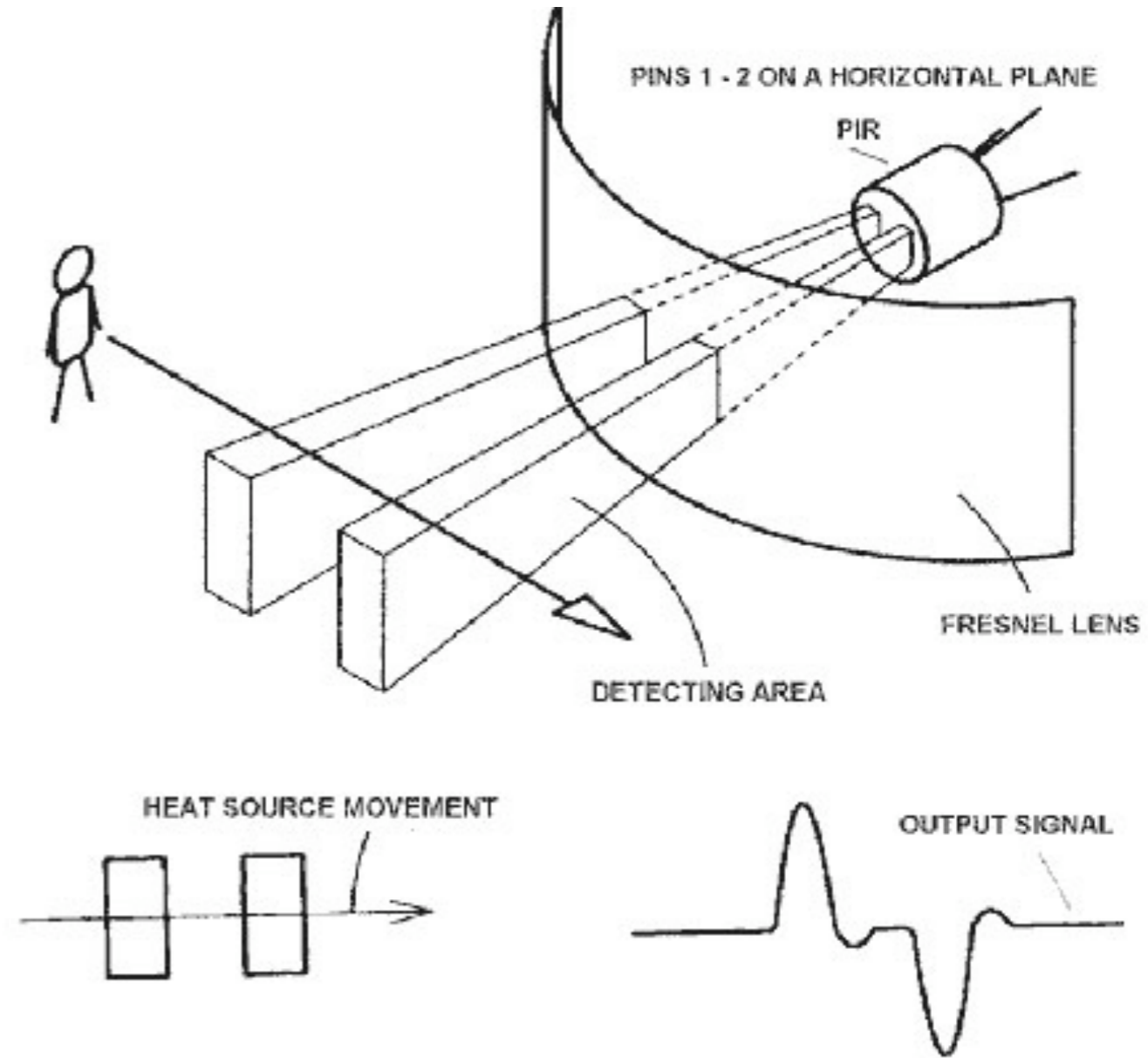
...they're everywhere...

- RFID reader at the underground
- Anti Crushing sensor on the train doors
- iPod / Nike running sensors etc
- Entering and exiting buildings
- The cameras picking up our daily lives in Seoul
- Doors opening / closing for you
- Fire alarms / smoke detectors
- 7/11 or convenience store -> bar code readers
- Street lights -> LDR's
- Motion detectors turning on lights
- SMS in your Macbook Pro
- Thermostats in buildings / fridges / cars
- Switches on buses to notify driver that you're getting off
- Heart rate monitors in gym
- Cel phone (gps, accelerometer, LDR, motion)



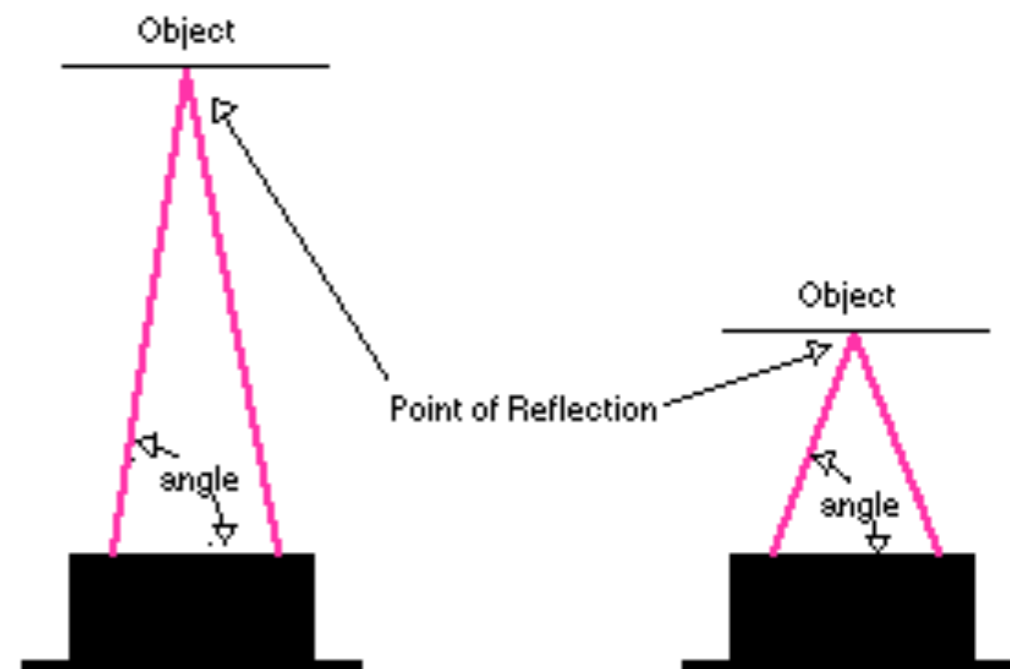
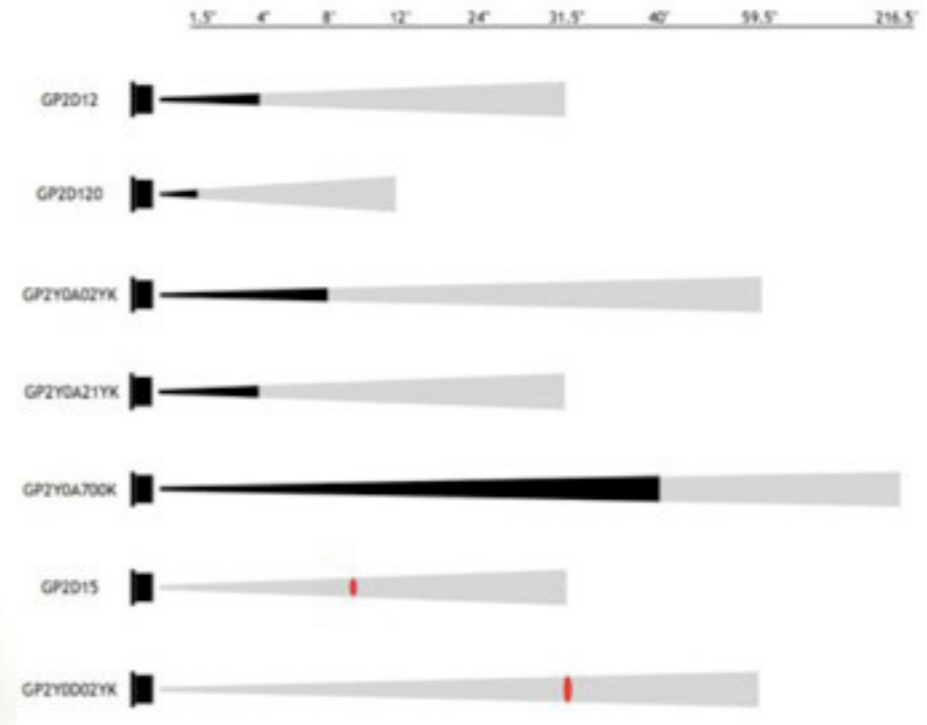
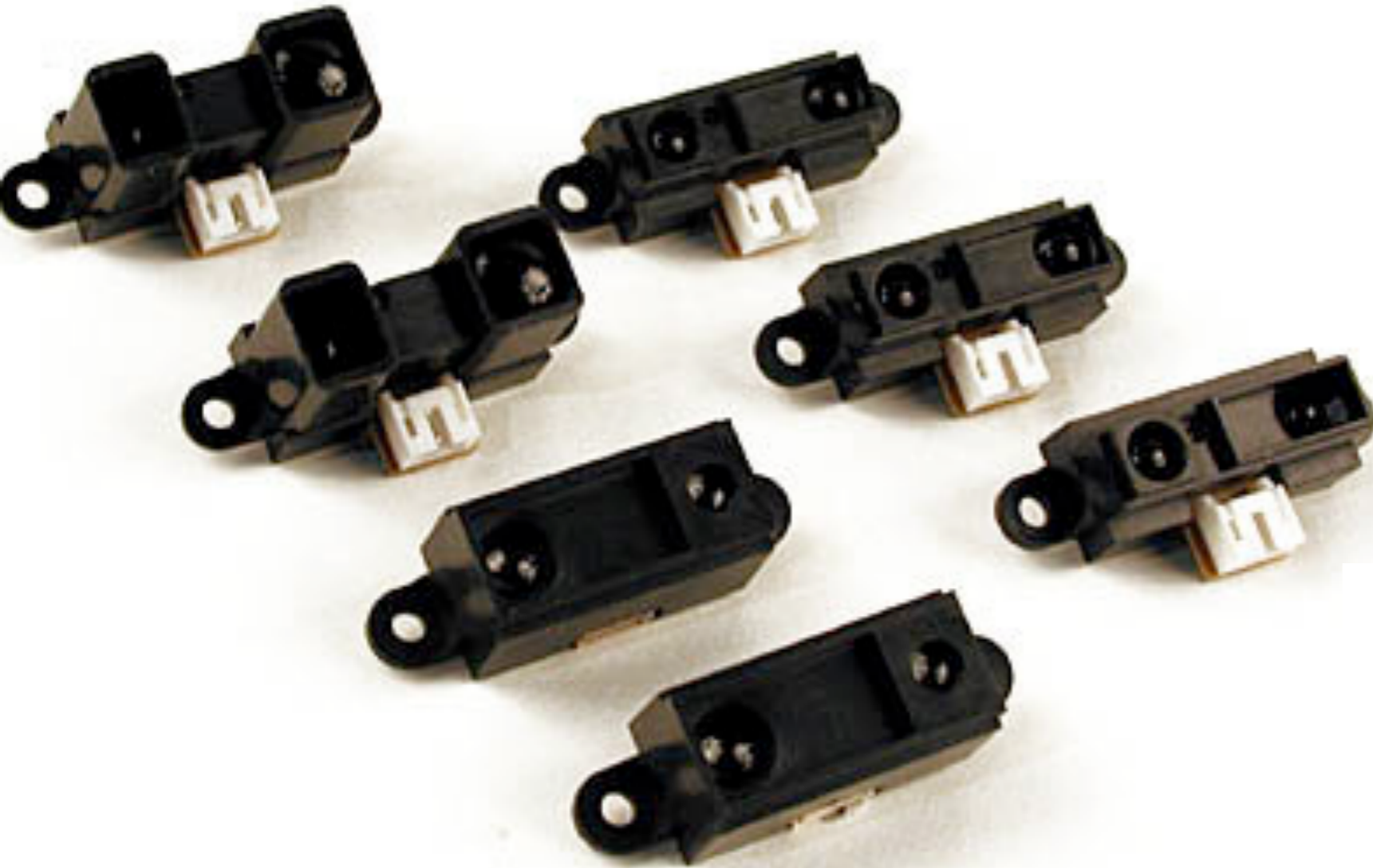
# SENSORS -> Presence & Motion

Passive IR - PIR (Motion)



# SENSORS -> Presence & Motion

## IR Ranger (Distance)



# SENSORS -> Presence & Motion

Ultrasonic (Distance)



<http://www.parallax.com/>



<http://www.phidgets.com/>

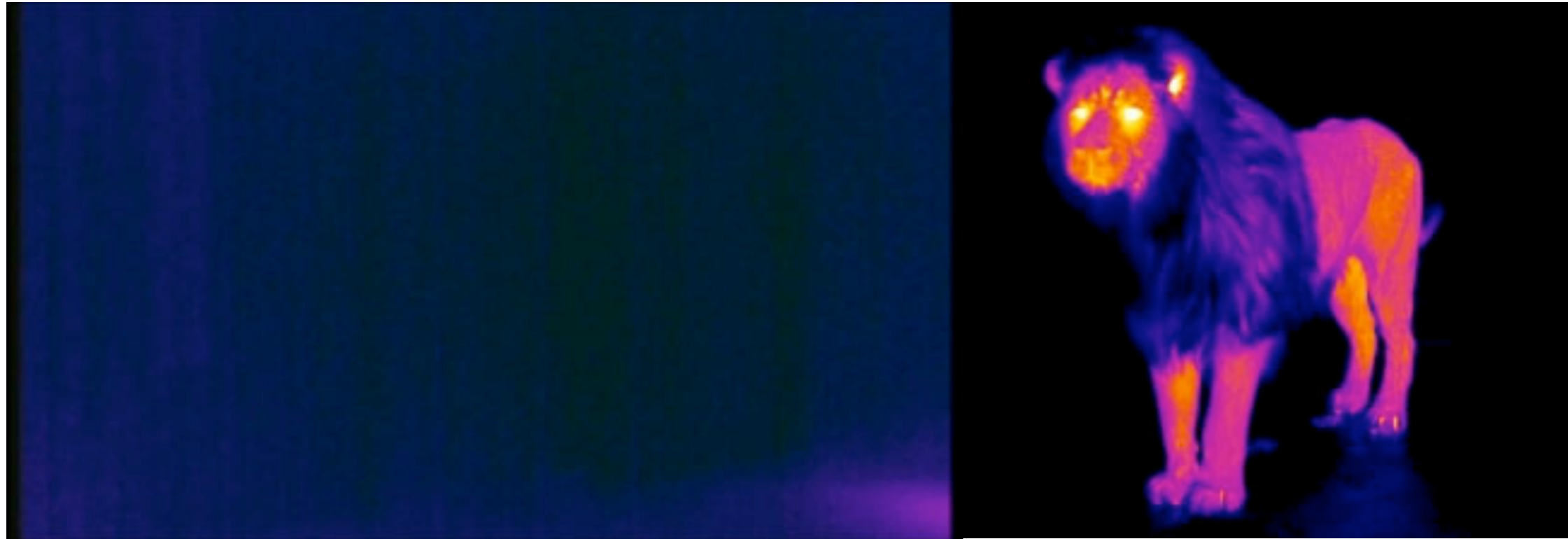
# SENSORS -> Vision

Thermal Camera (Live Video Monitoring)



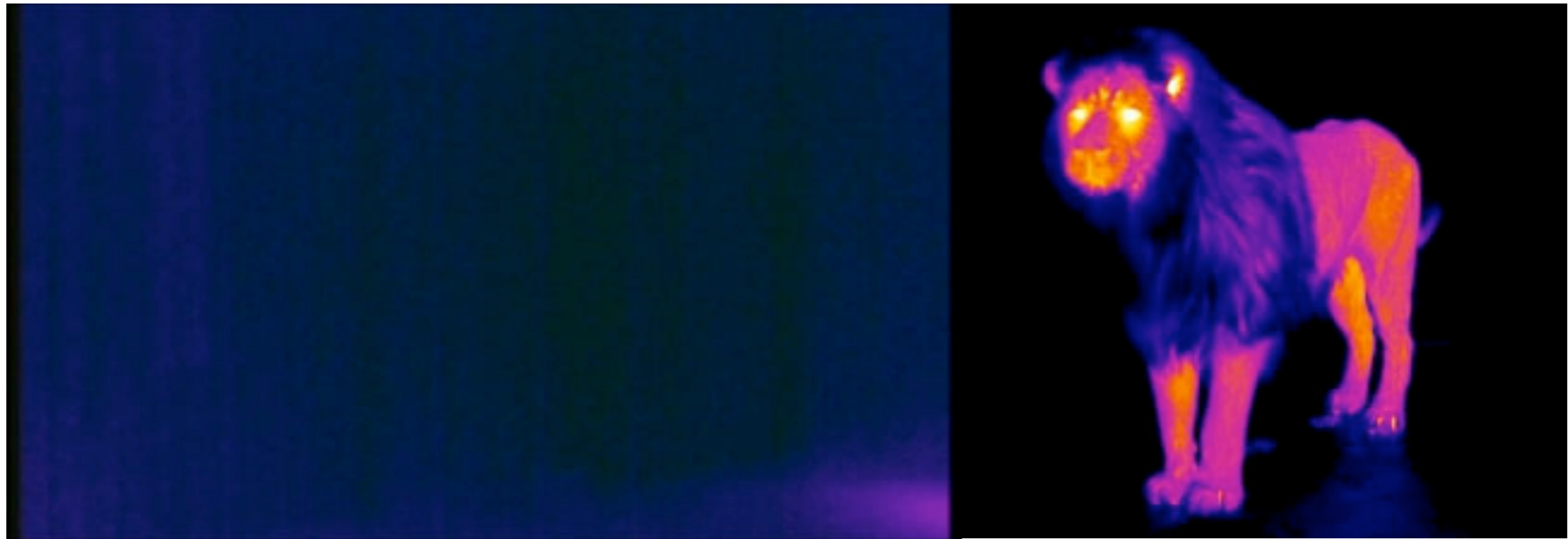
# SENSORS -> Vision

Thermal Camera (Live Video Monitoring)



# SENSORS -> Vision

Thermal Camera (Live Video Monitoring)



# SENSORS -> Vision

## Light & Colour Sensors



Colour

<http://www.taosinc.com/>



LDR

<http://www.rswww.com>

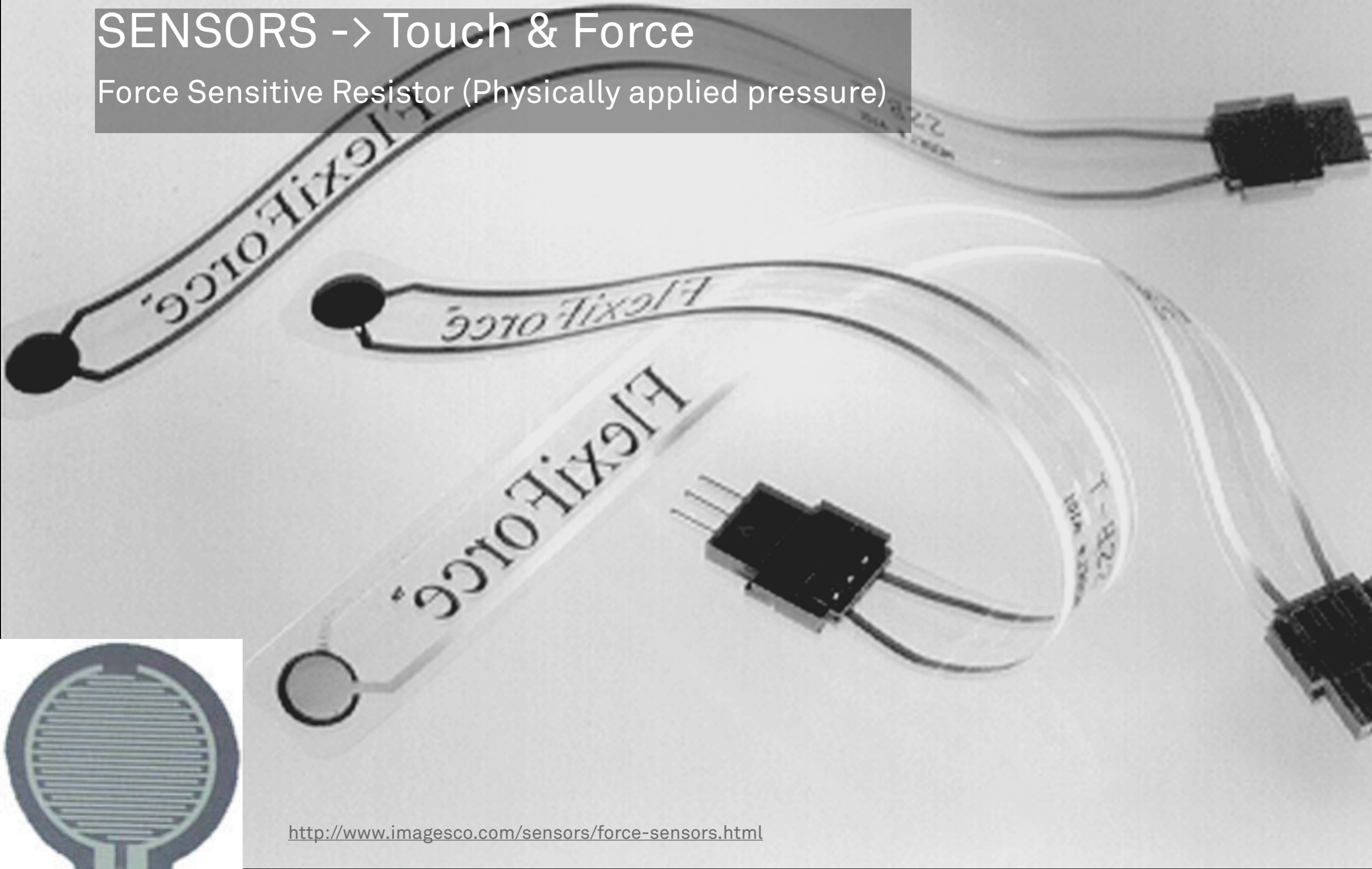


Light to Freq

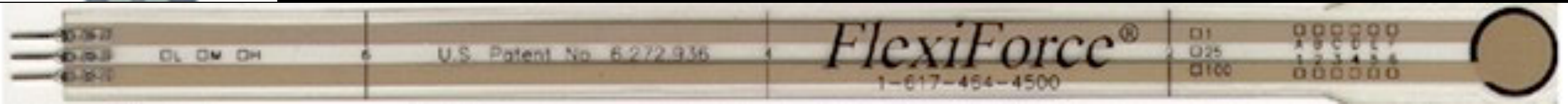
<http://www.taosinc.com/>

# SENSORS -> Touch & Force

Force Sensitive Resistor (Physically applied pressure)



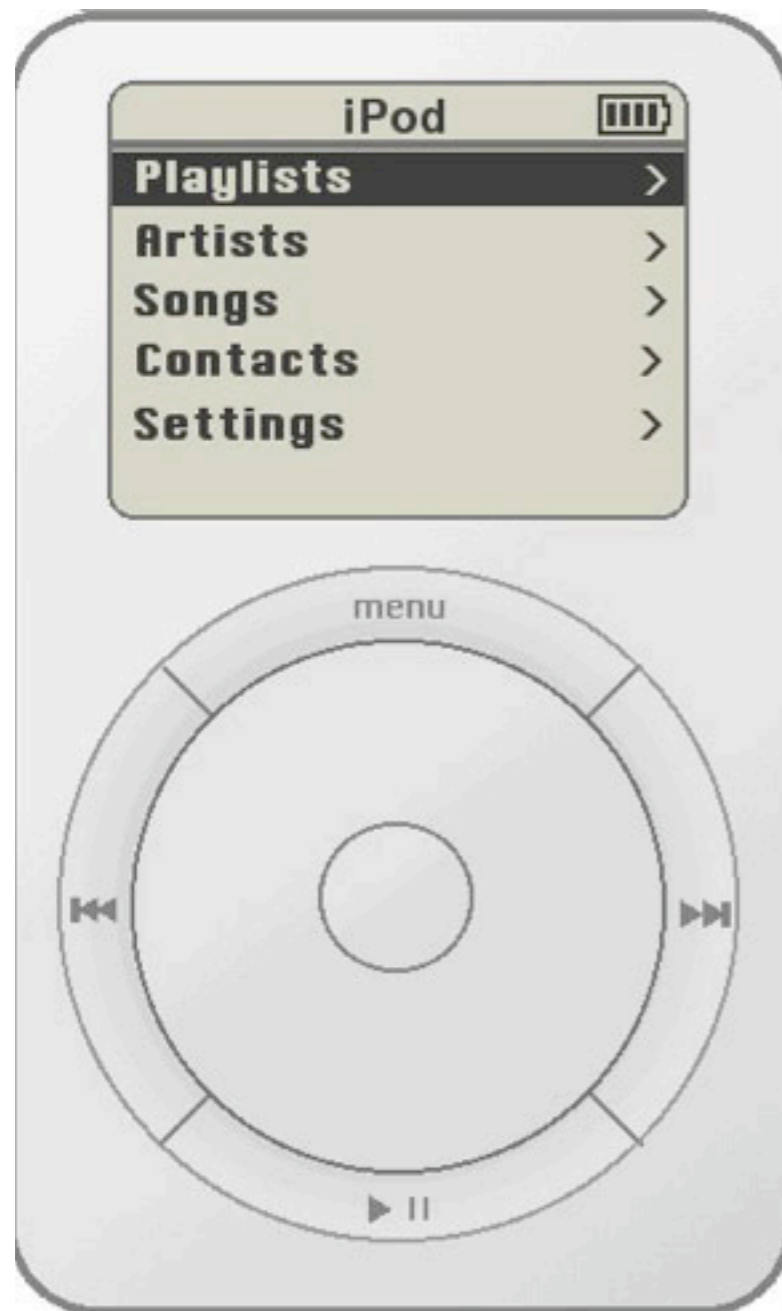
<http://www.imagesco.com/sensors/force-sensors.html>





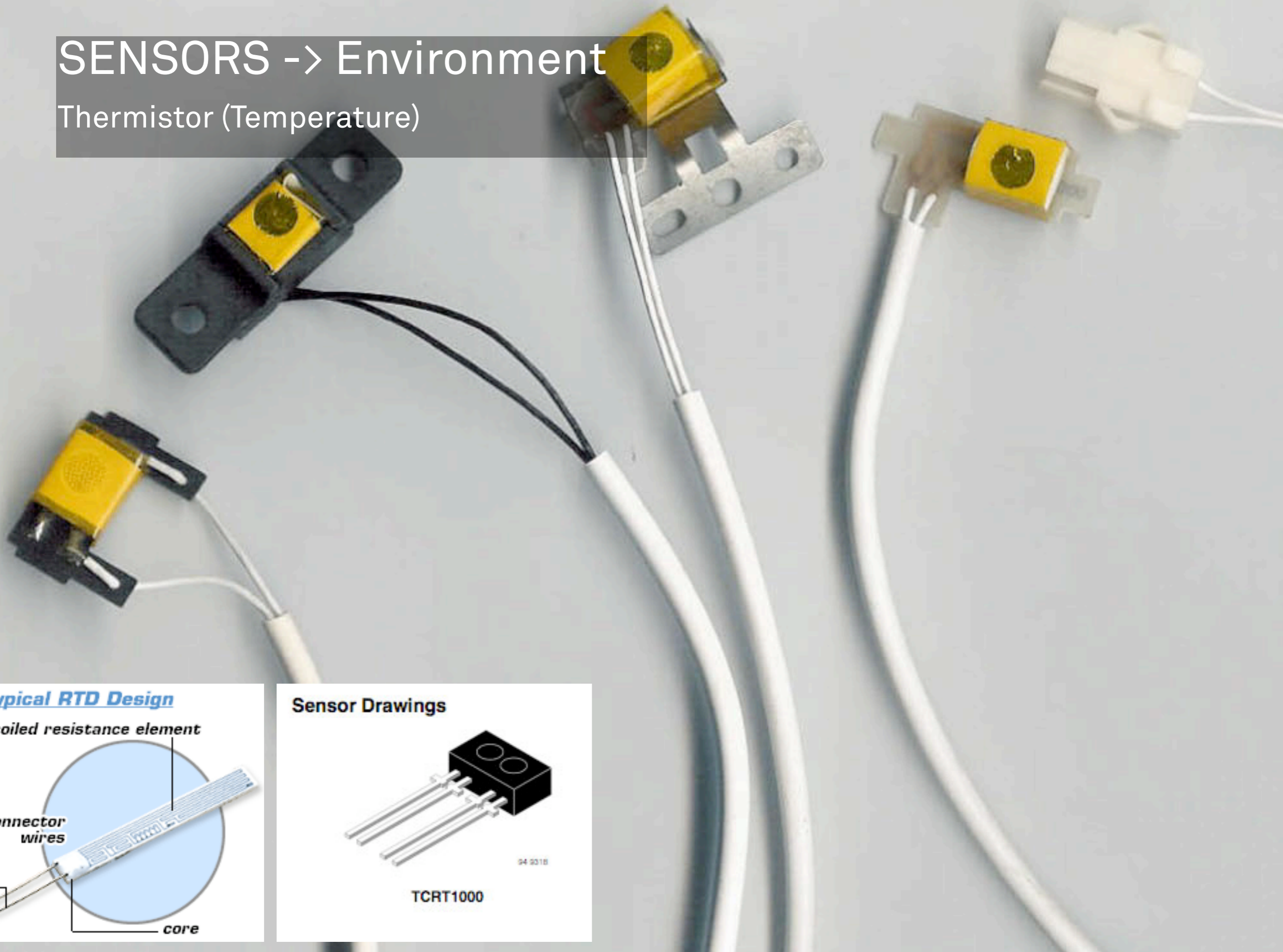
# SENSORS -> Touch & Force

Capacitance (contactless touch)



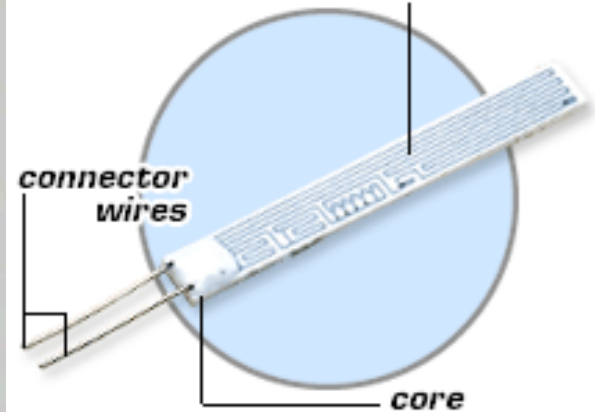
# SENSORS -> Environment

Thermistor (Temperature)

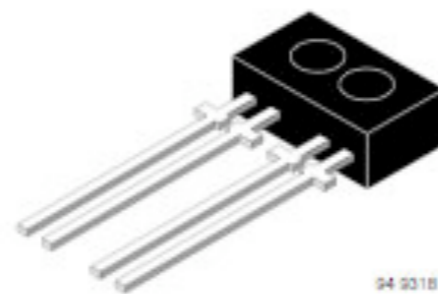


## Typical RTD Design

*coiled resistance element*



## Sensor Drawings



TCRT1000

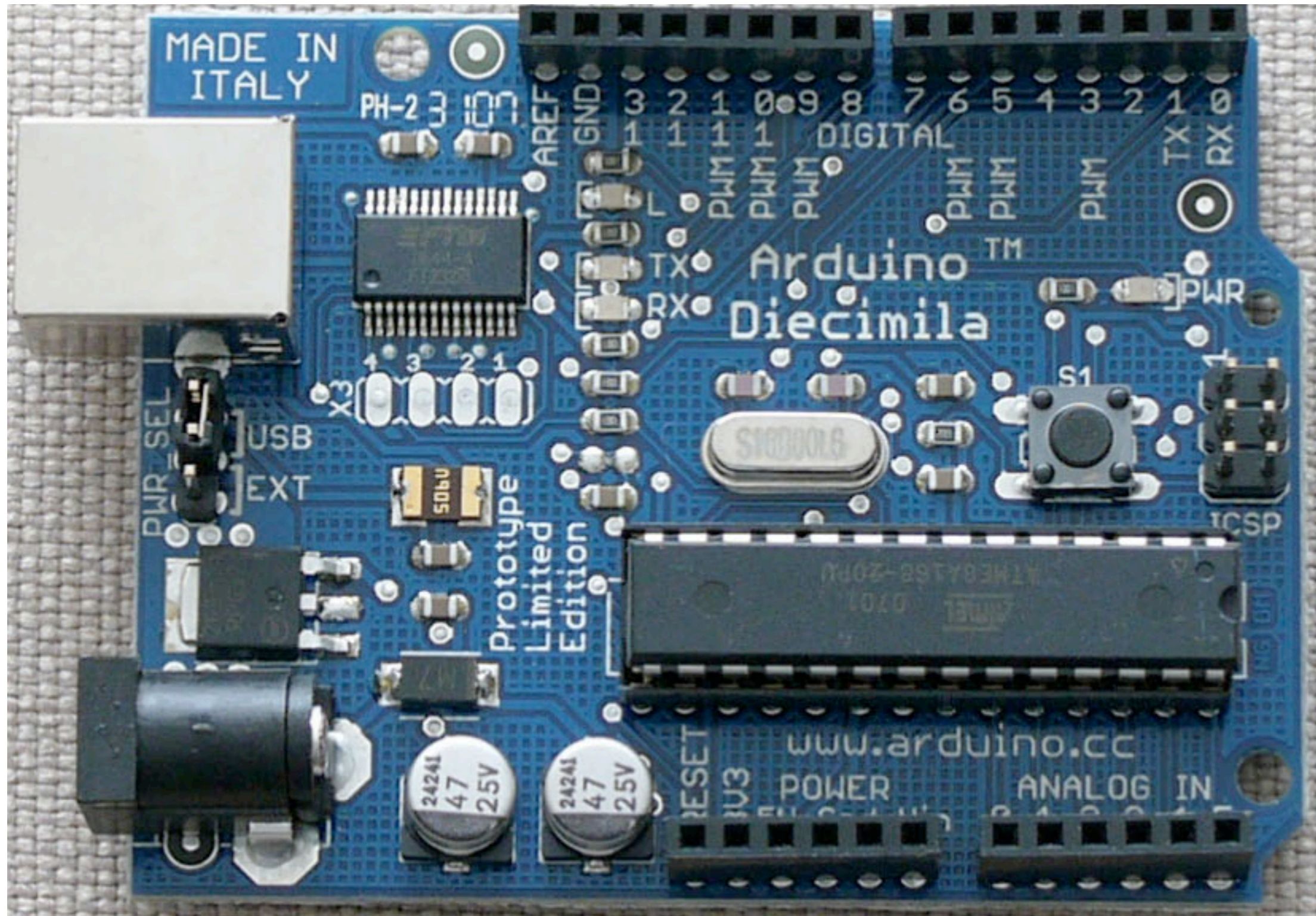
# SENSORS -> Acoustic

Microphone (Wind / Presence)



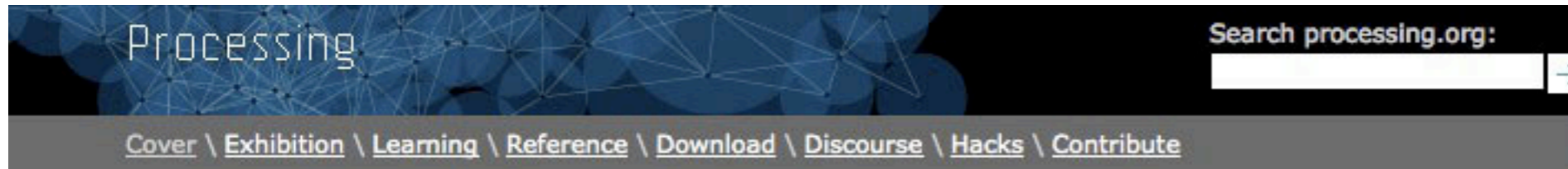
# Prototyping (hardware)

Arduino (<http://www.arduino.cc>)



# Prototyping (software)

## Processing & OpenFrameworks




Processing


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### Exhibition



[YMYI](#)  
by Joao Martinho Moura and Jorge Sousa




### » Download Processing

Processing is an open source programming language and environment for people who want to program images, animation and interactions. It is used by students, artists, designers, researchers, and hobbyists for learning, prototyping, and production. It is created to teach fundamentals of computer programming within a visual context and to serve as a software sketchbook and professional production tool. Processing is an alternative to proprietary software tools in the same domain.

Processing is free to [download](#) and available for GNU/Linux, Mac OS X, and Windows. [Please help to release the next version!](#)

Processing is an open project initiated by [Ben Fry](#) and [Casey Reas](#). It evolved from ideas explored in the Aesthetics and Computation Group at the MIT Media Lab.



openFrameworks is a C++ library for creative coding.

We are currently in pre-release, and heading towards a public release. If you want to participate in the pre-release, or be notified when we release the library, please join the mailing list.

thanks! -- OFteam

ofMedia:

- [openFrameworks on vimeo](#)
- [openFrameworks on youtube](#)
- [openFrameworks on flickr](#)

ofFriends:

- [eyebeam](#)

<http://www.processing.org>

<http://www.openframeworks.cc>