Telecommunication meets Super Natural Interaction - from SMS to M2M

Beyond Mobile Apps

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Lecture on Next Generation Media

September 2013

Smart something and alike

Developers predict that it is very likely that they will be building mobile applications for more than smartphones and tablets.

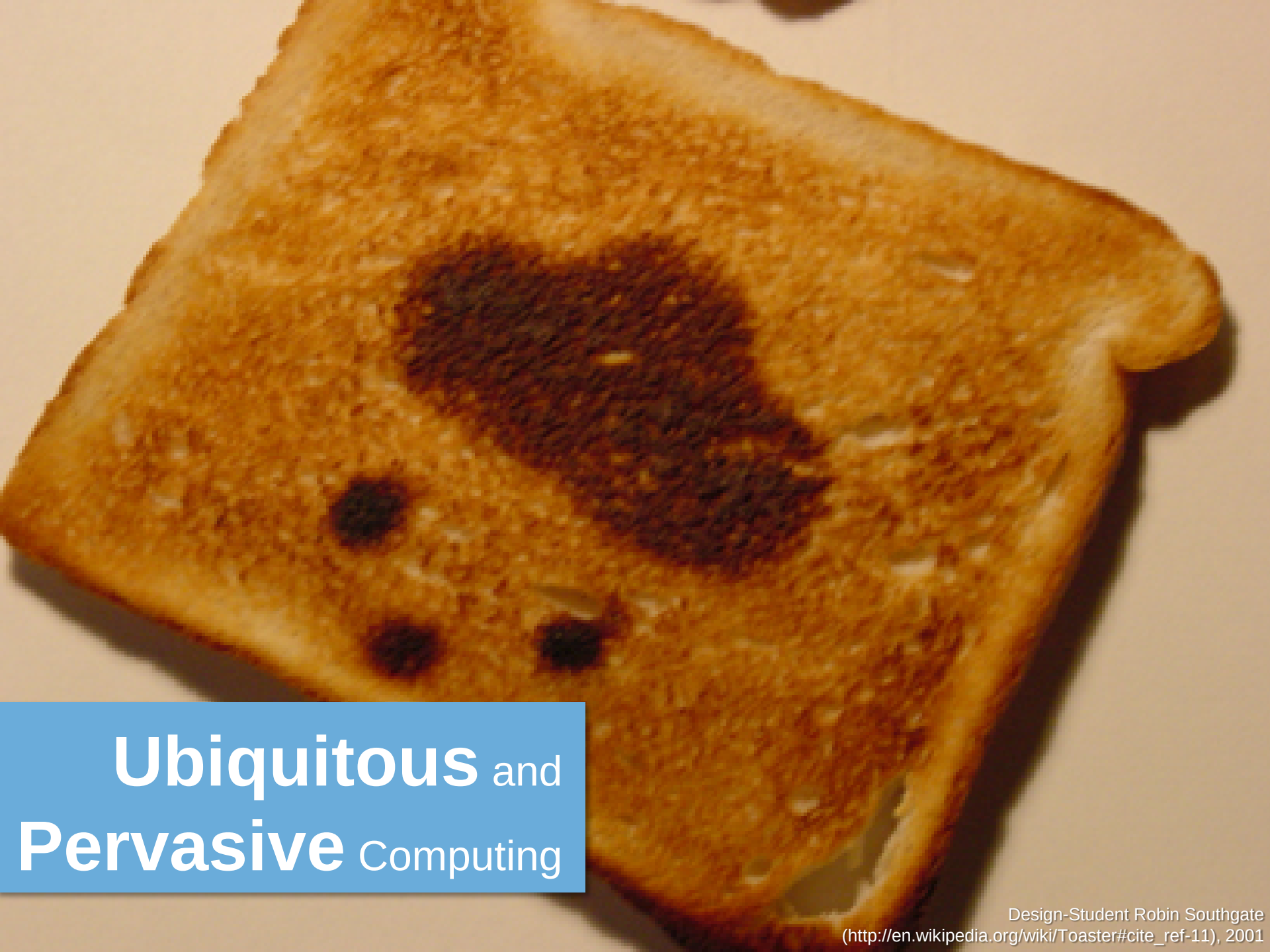
Super-Natural Interaction

- Only sometimes scary (but **not supernatural**)
- CLI, GUI, NUI, SNI: **Beyond Natural Interaction**
- Analog interactions
- **Society of devices**
- **Surface anywhere**/mixed reality

Images: Supernatural Series, http://www.kitd.com/

Emotion and Mind

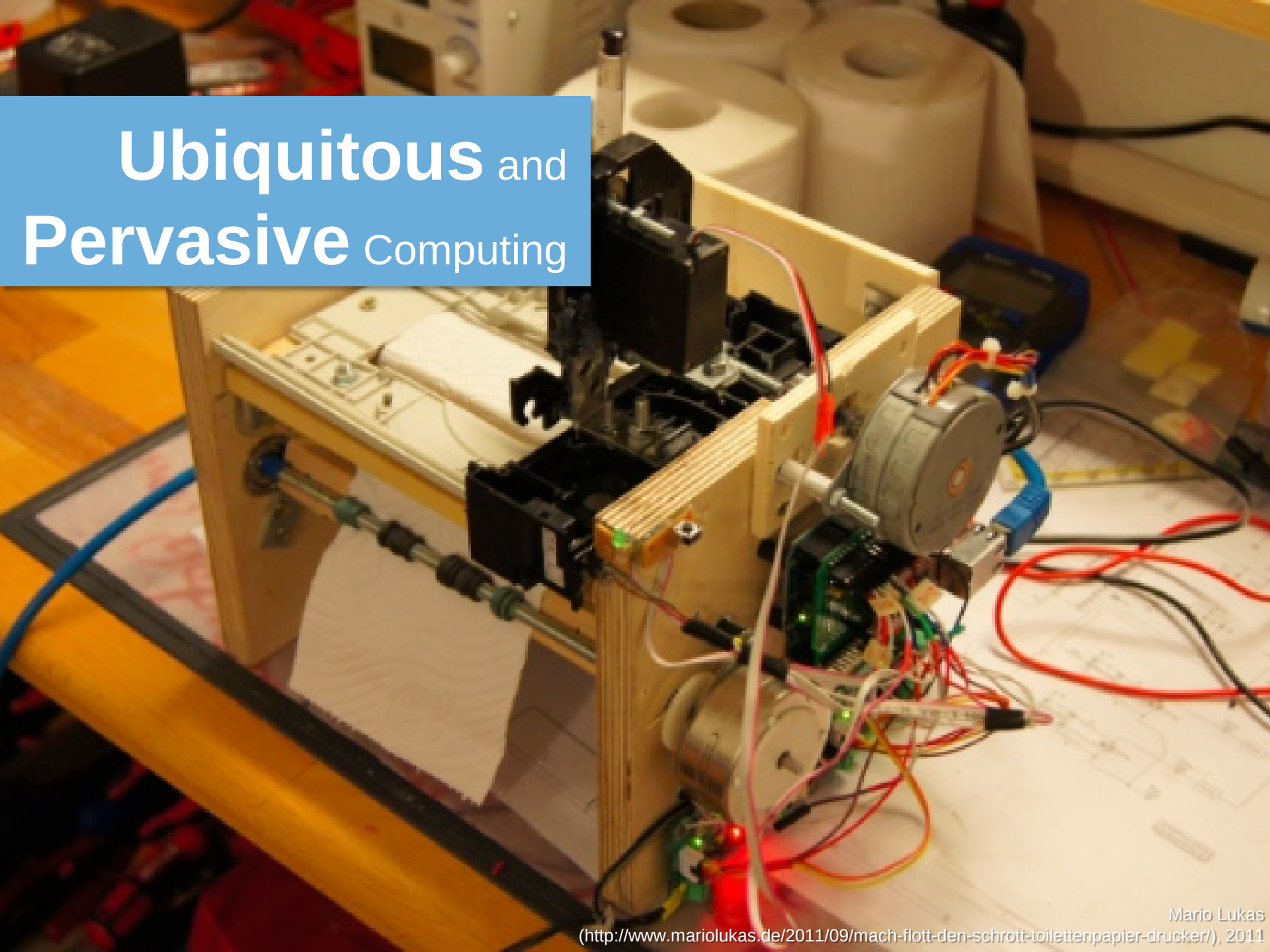
Image: Mindflex



Ubiquitous and **Pervasive** Computing

Design-Student Robin Southgate
(http://en.wikipedia.org/wiki/Toaster#cite_ref-11), 2001

Ubiquitous and **Pervasive** Computing



Mario Lukas
(http://www.mariolukas.de/2011/09/mach-flott-den-schrott-toilettenpapier-drucker/), 2011

Ambient Intelligence
Quantified Self
Privacy

Next Generation Media will support the user in a smart and connected way at his work and in his everyday life without noticing.

Image: http://mediacup.teco.edu/

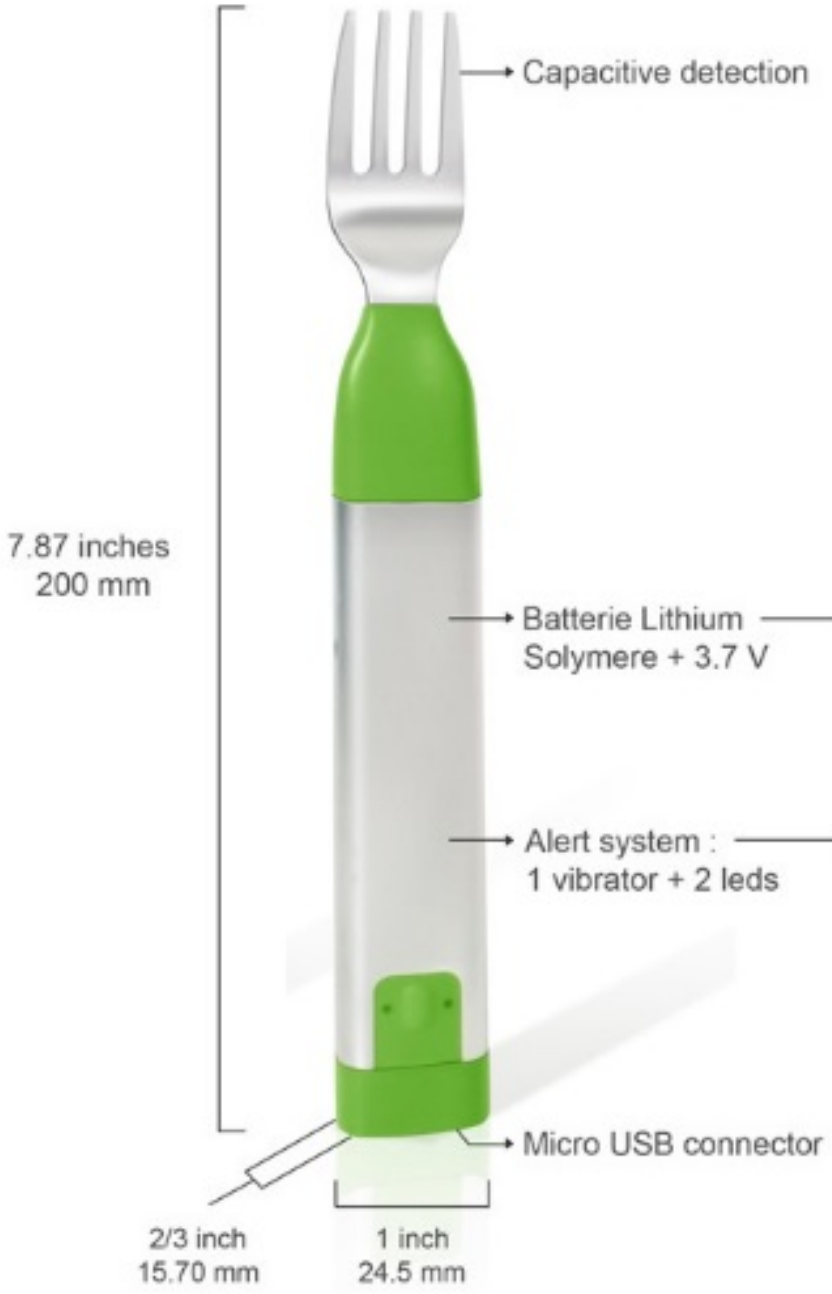
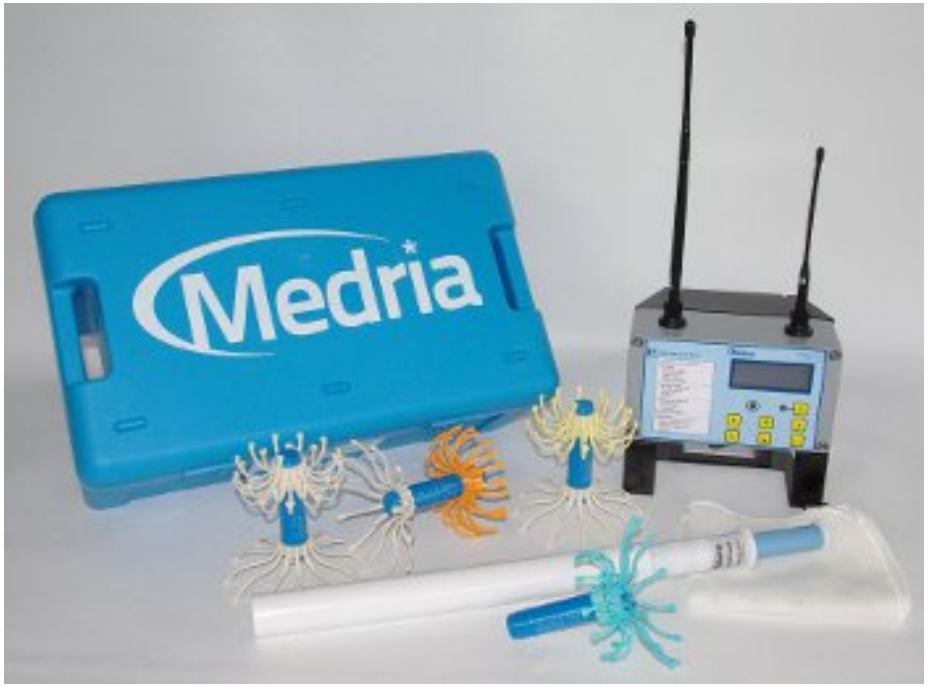


Image: HAPIfork

Cow can send SMS



Images: Nike, http://www.medria.fr

Bees like to text, too!

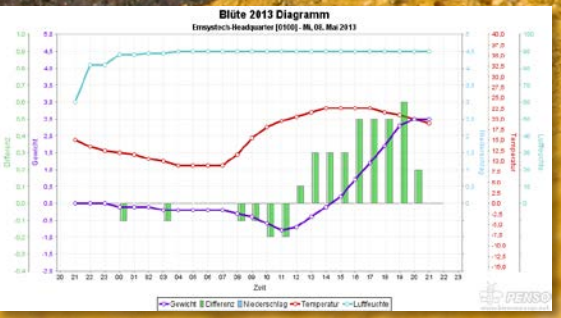


Image: http://commons.wikimedia.org/wiki/File:Honeybee-cooling_cropped.jpg / http://www.emsystech.de/

SUBSTITUTE

starting point
and inspiration

Images: Lego, http://www.telekom.com/innovation/connectedcar/80306

eCall/Hello World!

- Initiate your first text message (SMS) via HTTP
  1. Sign-in
  2. Activate Telekom Tropo
  3. Add an application
  4. Create your code

```
message("Developer Garden rocks!",
 {
  to:"+14075550100",
  channel:"text",
  network:"SMS"
 }
);
```

5. Run your application

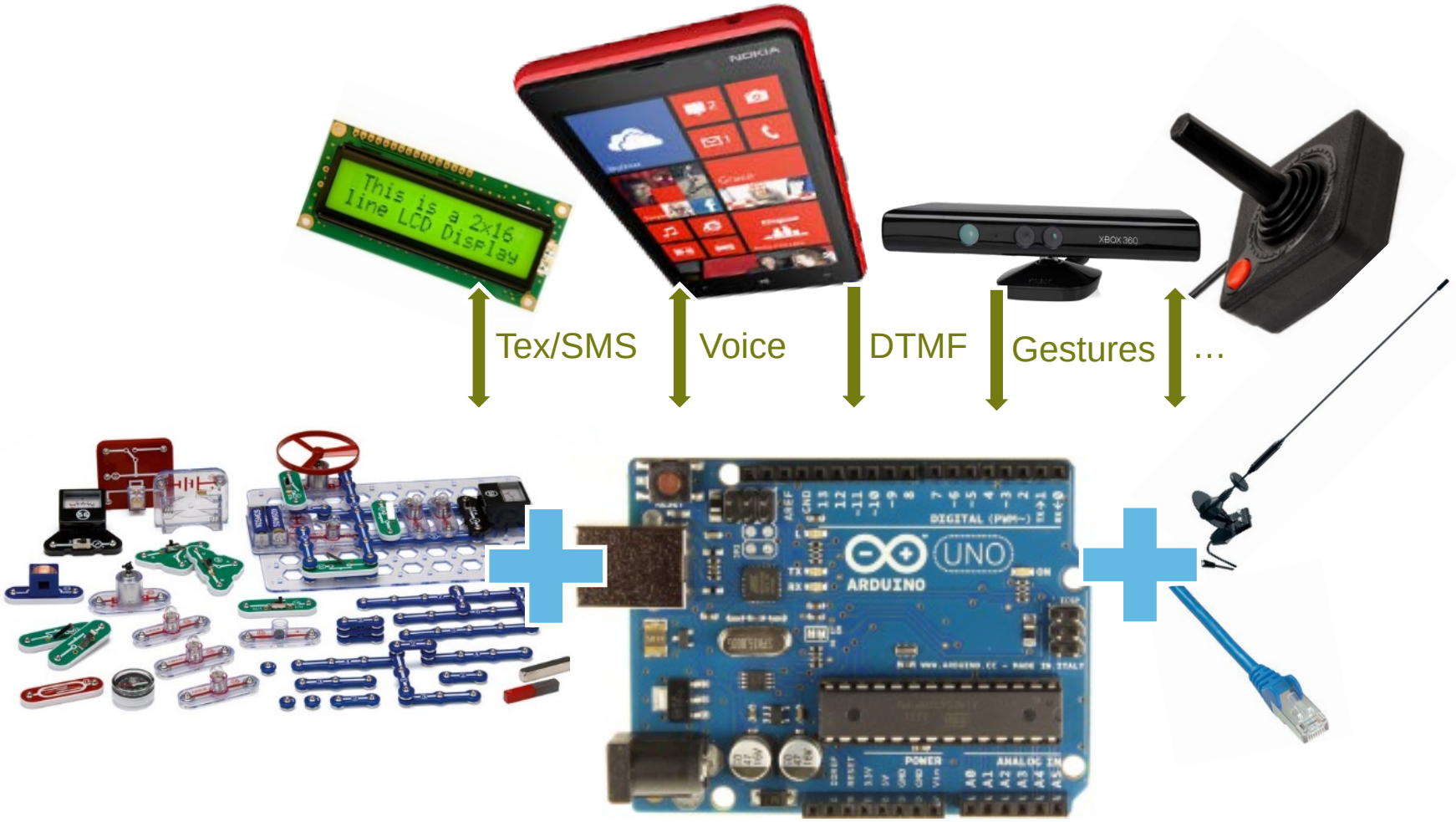
```
https://tropo.developergarden.com/
api/sessions?action=create&token=T
OKEN
```

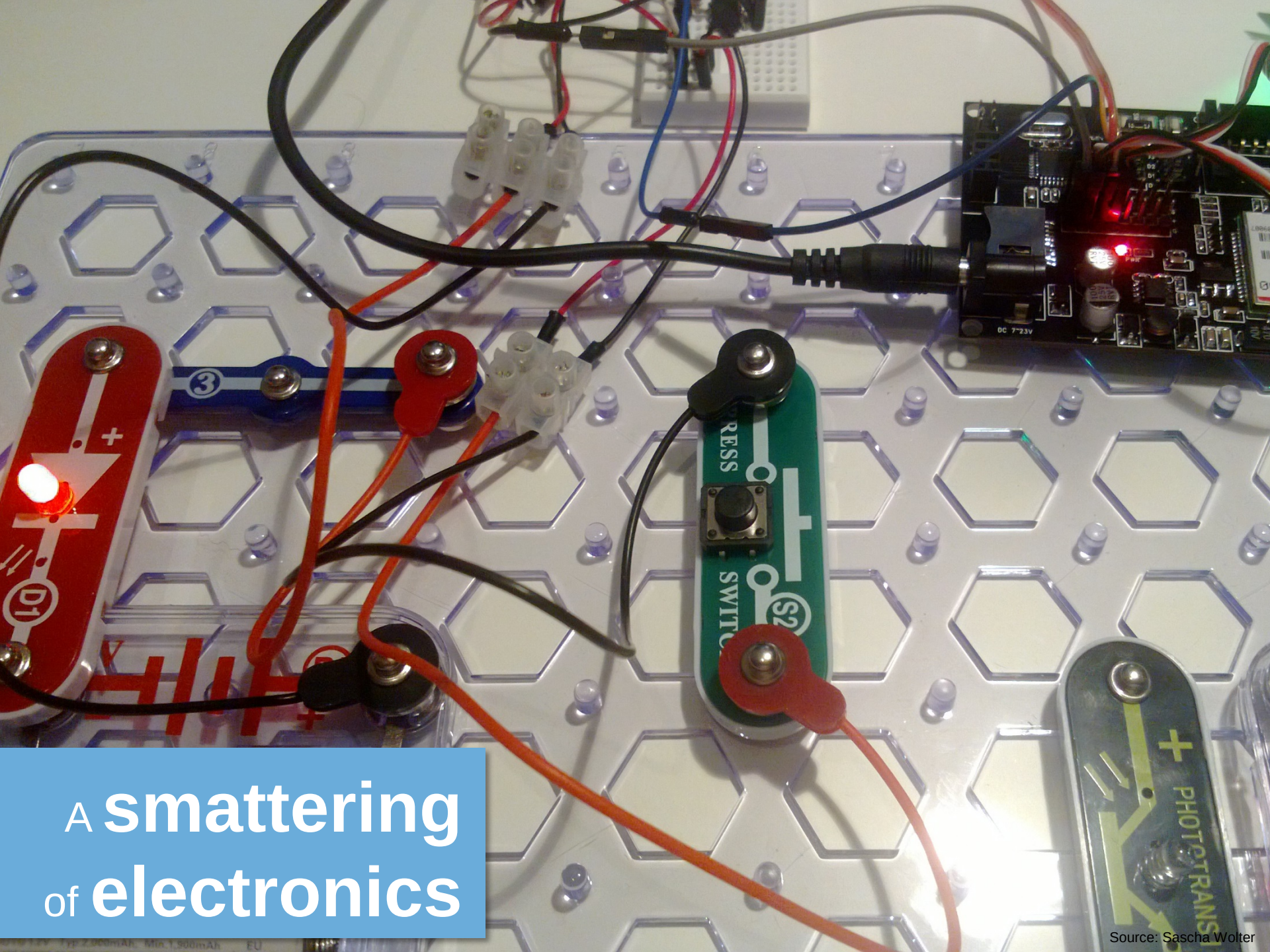
6. Extend

ask, call, conference, record, redirect, say, startRecording, transscripe, transfer…

Details at http://www.wolter.biz/?p=1337 (English)

Interactive System



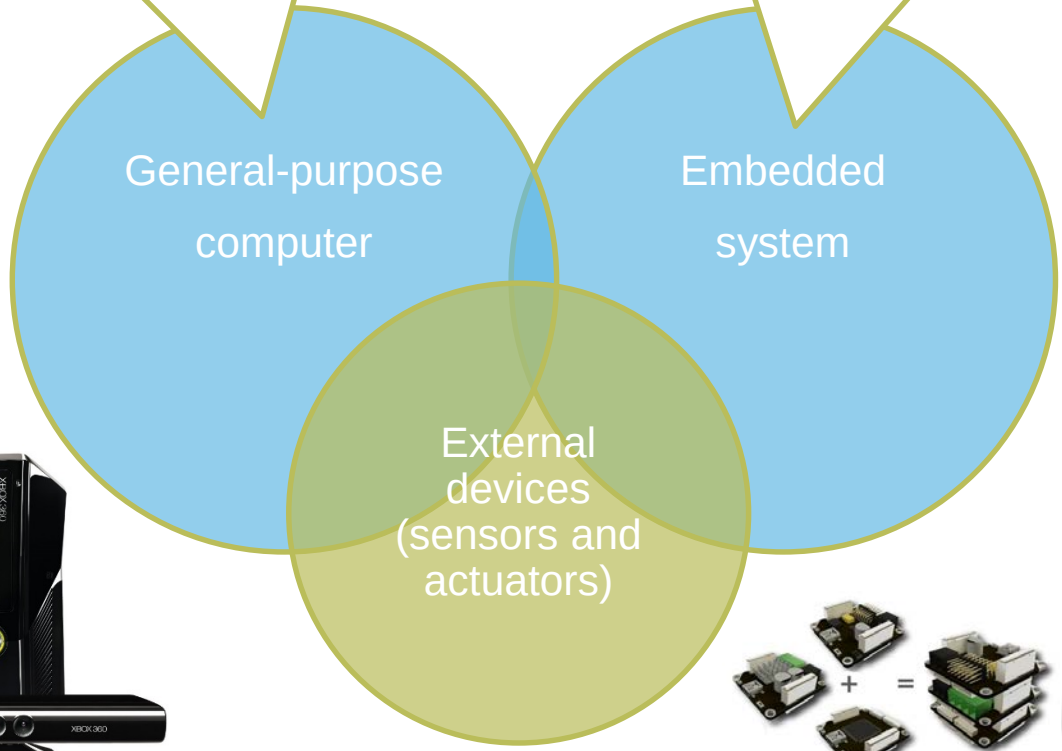

A smattering
of electronics
Source: Sascha Wolter

A smattering
of electronics
Sourc: Sascha Wolter

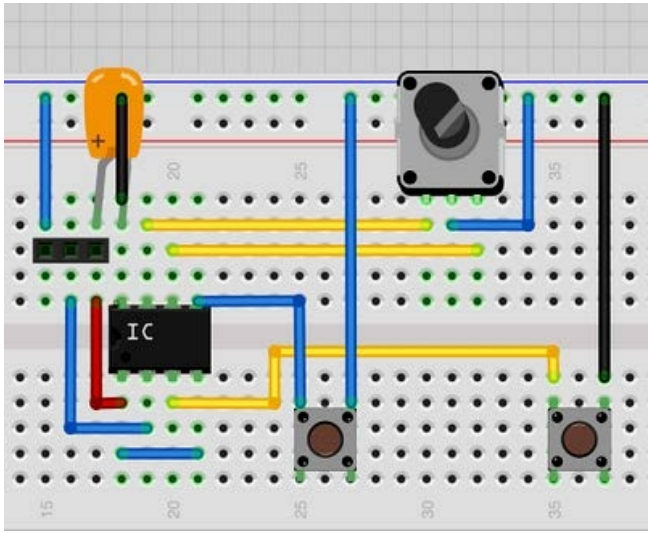
Embedded and General-purpose

A **general-purpose computer**, such as a personal computer (PC), is designed to be flexible and to meet a wide range of end-user needs. (Wikipedia)

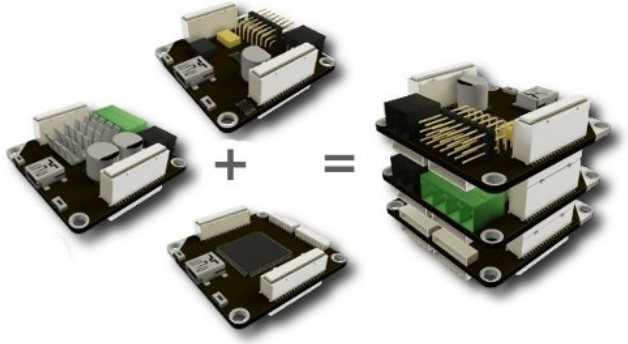
An **embedded system** is a computer system designed for specific control functions within a larger system. (Wikipedia)



Seperation of Concerns



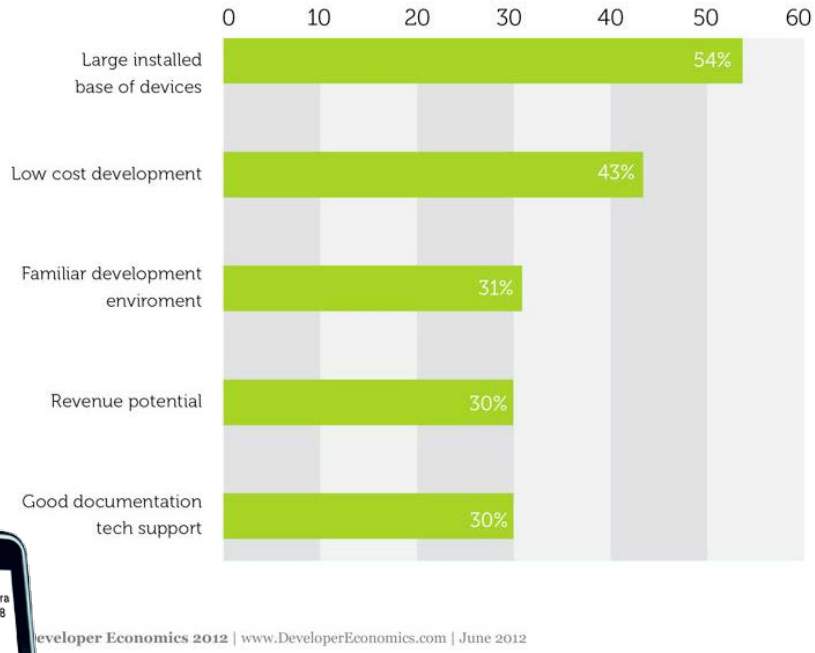
VS



```
// the loop routine runs over and over again forever:
void loop() {
  // read the input on analog pin 0:
  int sensorValue = analogRead(A0);
  // print out the value you read:
  Serial.println(sensorValue);
  // delay in between reads for stability
  delay(1);
}
```

Top platform selection criteria: Reach

- **Reach is top platform selection criteria** for the majority of developers



- 7.0 Billion humans on earth
- 5.2 Billion (100%) mobile phone subscribers world wide
- 4.2 Billion (79%) active users for SMS
  - most widely used data application in the world
  - **more active users of SMS than total number of FM radios in the world**
- 2.1 Billion (39%) active users for MMS
- 1.2 Billion (26%) users with mobile browsing (WAP/HTML)

Source: http://communities-dominate.blogs.com/brands/2011/01/time-to-confirm-some-mobile-user-numbers-sms-mms-mobile-internet-m-news.html

How it works

- JSON Objects:
  - ask
  - call
  - conference
  - hangup
  - message
  - on
  - record
  - redirect
  - reject
  - result
  - say
  - session
  - startRecording
  - stopRecording
  - transfer

```
// Telekom Tropo API (JSON)
{
  "tropo":[
    {
      "say":[
        {
          "value":"Hello World!",
          "voice":"Simon"
        }
      ]
    }
  ]
}
```

Latte Macchiato Architecture

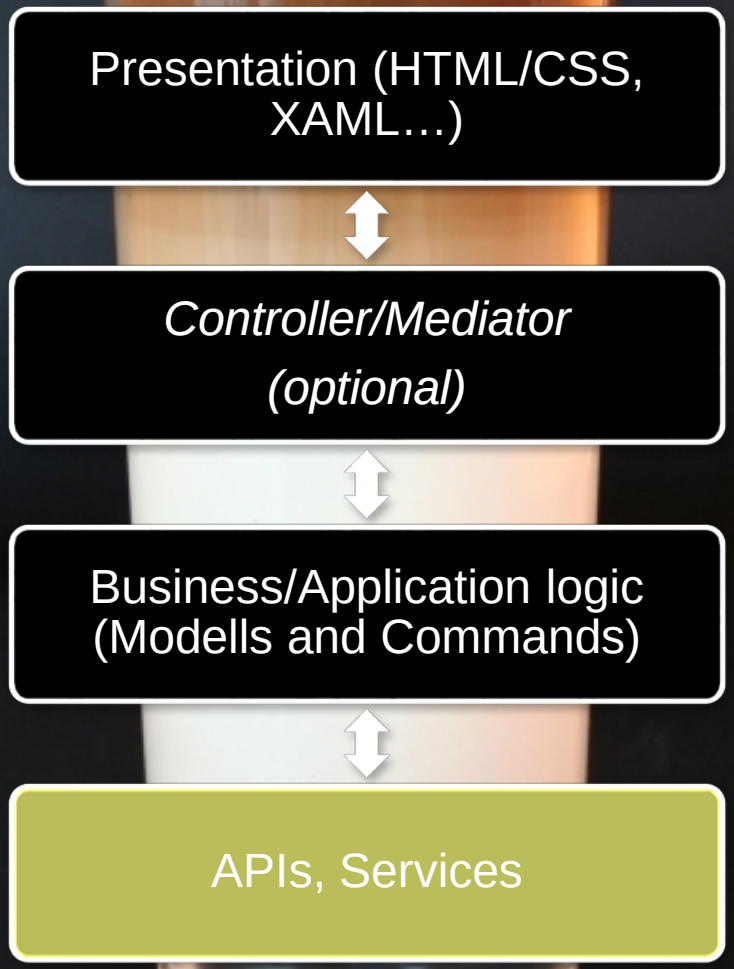


Image: Coffeefellow (Wikimedia Commons)

Image: Bundesarchiv

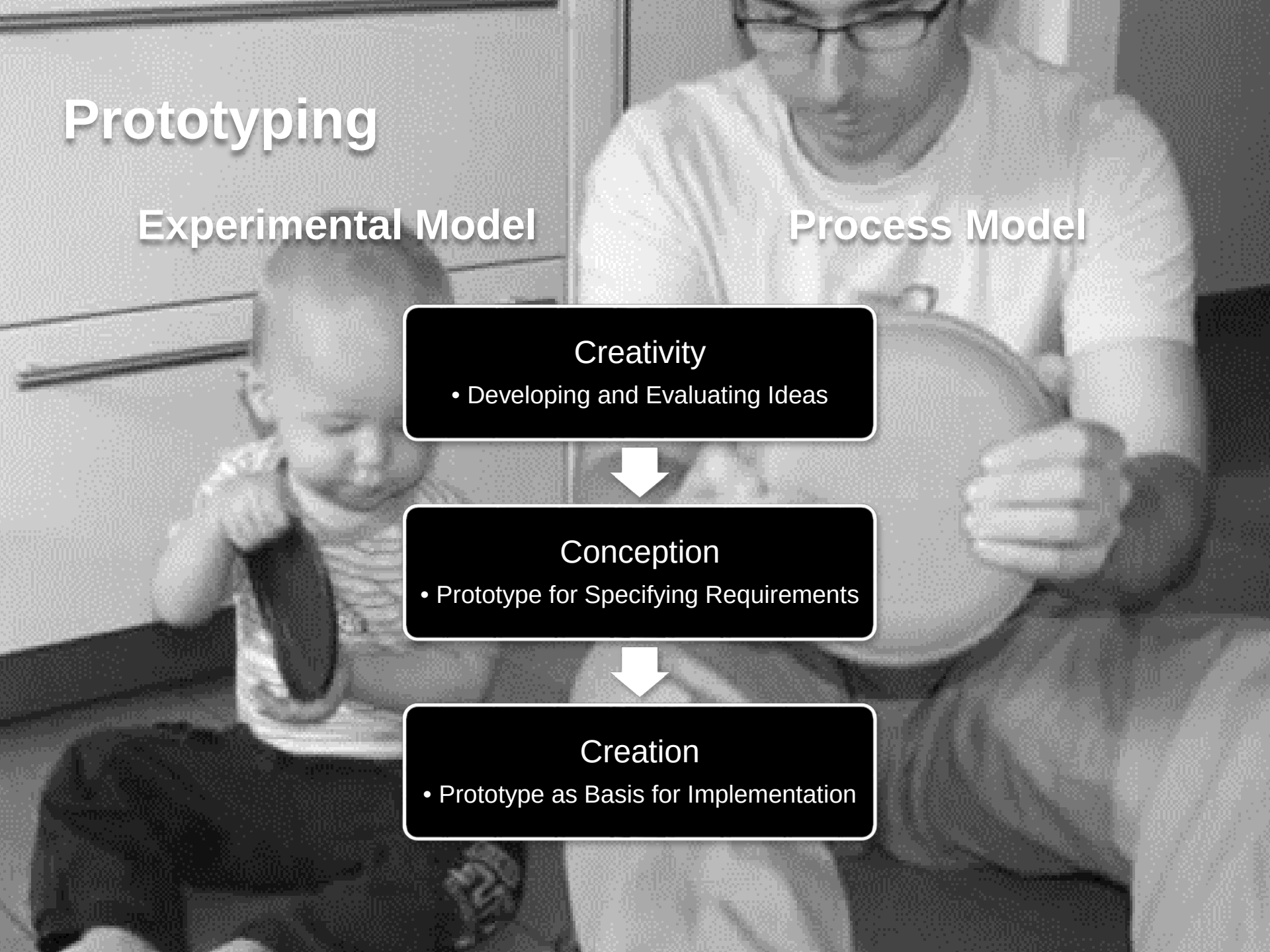
About me

Sascha is a **craftsman for pervasive computing, rich applications and mobile apps**. He also works as **consultant, trainer and author** and contributes articles to a number of magazines. His books are best selling publications. He has been giving lectures at conferences for several few years now. Sascha is also the founder of the German user group flashforum.de with **more than 100,000 members** and cofounder of the renowned conference “beyond tellerrand”. He works as **developer evangelist** for Developer Garden enabling developers to efficiently build solutions. If he is not tinkering with new soft- and hardware, he likes playing Lego with his kids in his spare time.

Prototyping

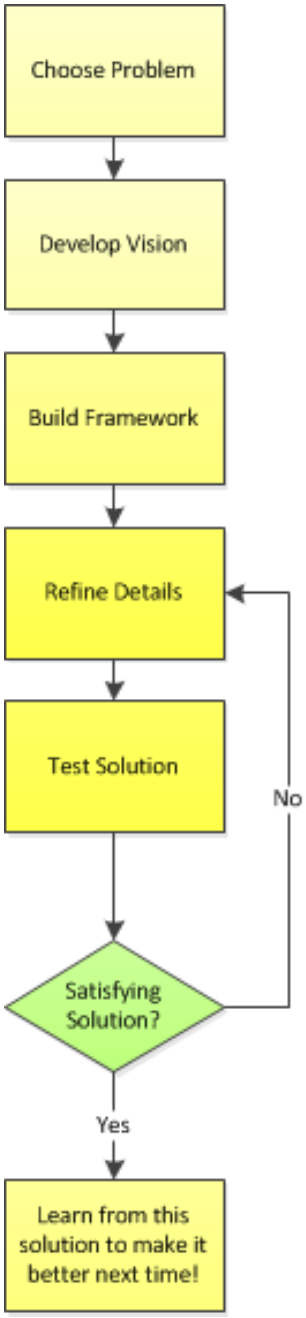
Experimental Model

Process Model



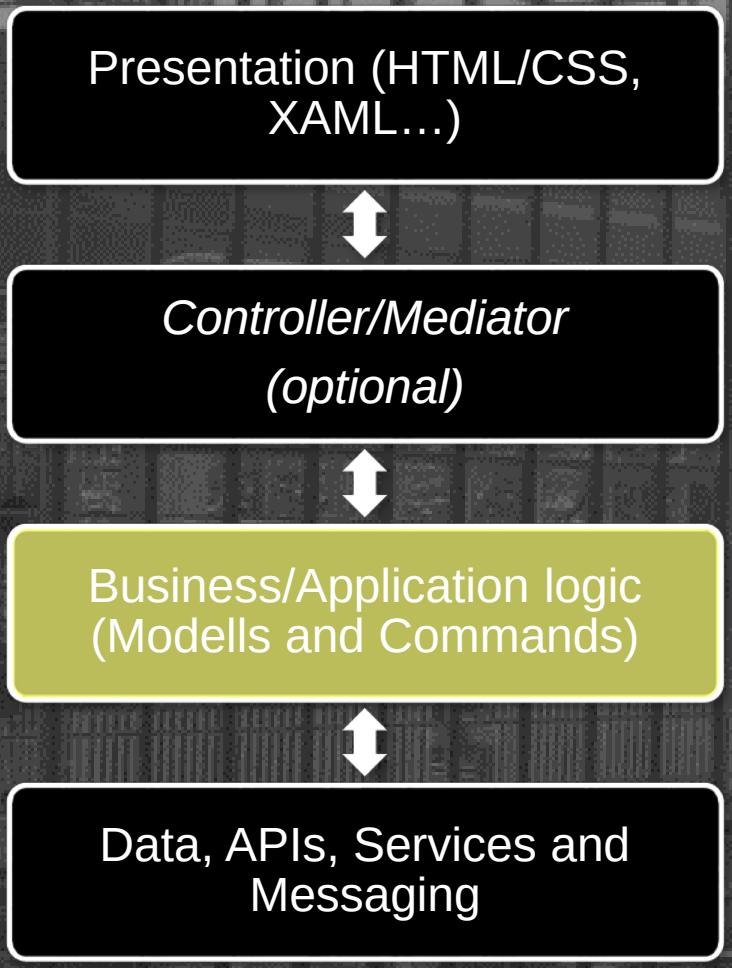
LEGO-based Design Process

1. Choose a problem: Build a LEGO ship.
2. Develop a vision: What sort of ship will it be? How big will it be? What will it carry?
3. Build: Build the framework of the ship.
4. Fill in the details: Design and build the details of the ship, ramps, doors, etc.
5. Test: Drive the cars around the ship and sail the ship while exploring the house.
6. Refine: Take parts of the ship apart and make them better.
7. Learn: Take what you learned from building this ship and use it to build a better one next time.



Source: http://www.adobe.com/macromedia/events/john_gay/

Curtain Wall Pattern



Prototyping / FedEX Days

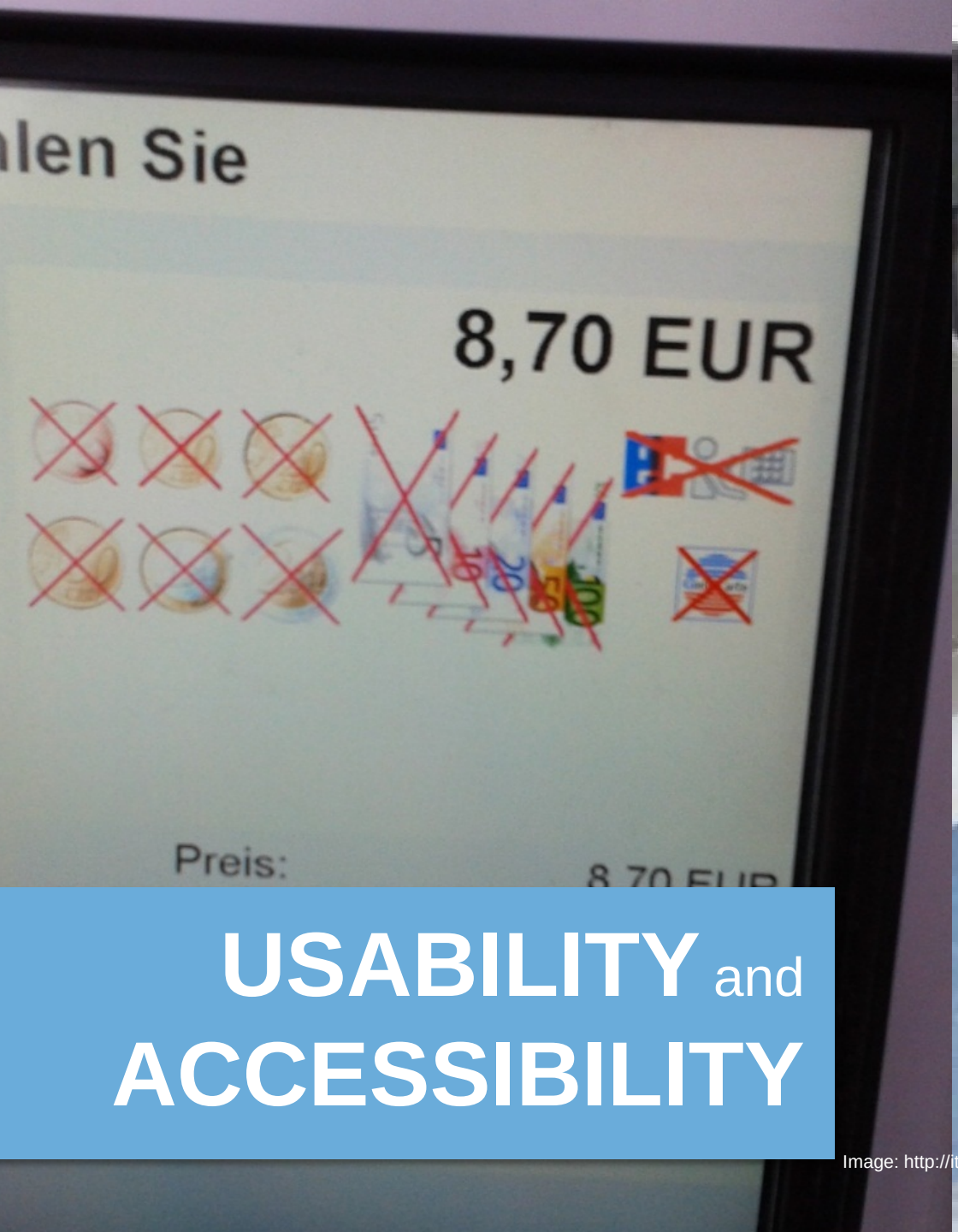
- http://www.wolter.biz/2012/11/the-voice-controlled-coffee-machine/
- http://www.wolter.biz/2013/01/talk-to-your-vending-machine-in-the-cloud/

TOYS

think outside the box

THE POWER OF
Volker Zota
COMPUTERMAGAZIN C'T

Gorilla arm syndrome and Ape factor



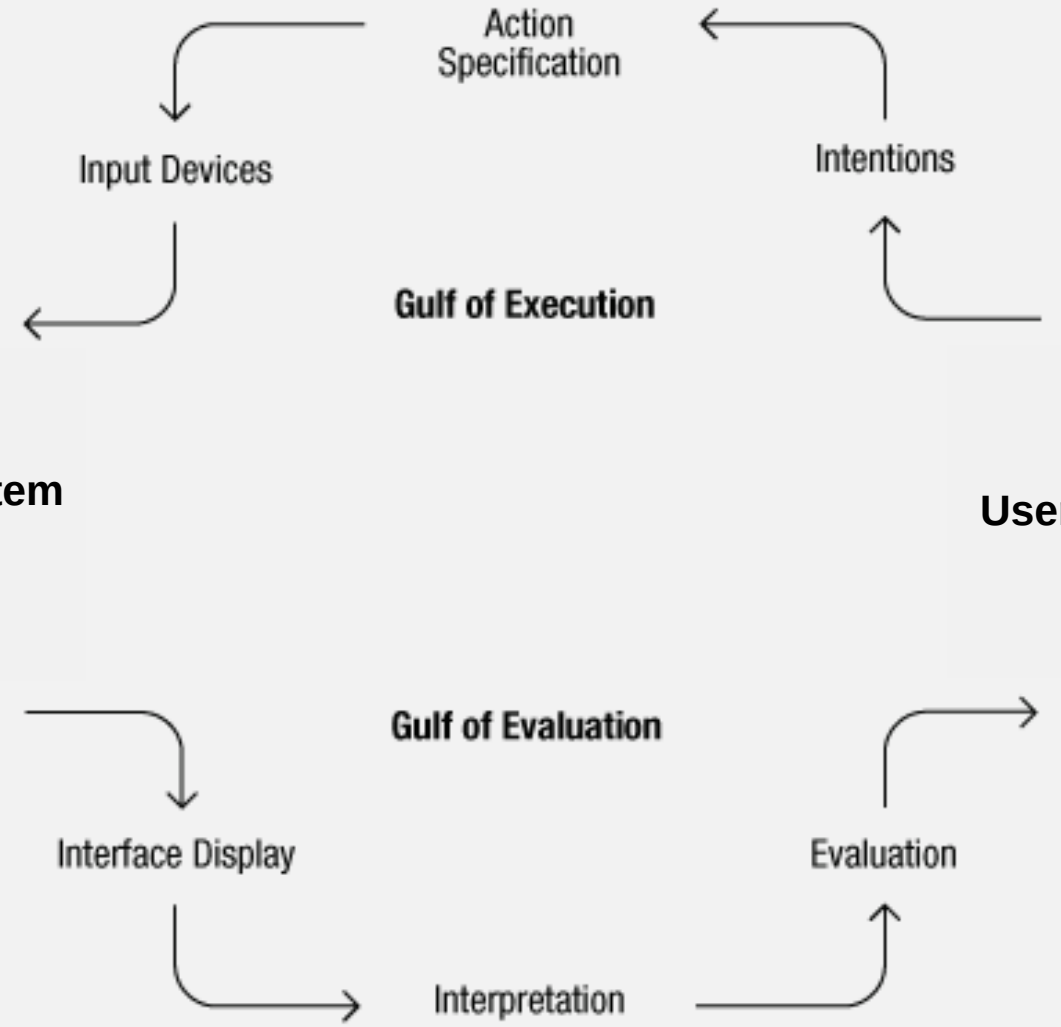
USABILITY and ACCESSIBILITY

Image: http://itnews.inews24.com/php/news_view.php?g_serial=474508&g_menu=022600

It can´t be easier: Makey Makey

- JavaScript Madness: Keyboard Events
  - http://unixpapa.com/js/key.html
- Document Object Model (DOM) Level 3 Events Specification
  - http://www.w3.org/TR/DOM-Level-3-Events/
- jQuery Keyboard Events
  - http://api.jquery.com/category/events/keyboard-events/

Conclusion: Gulf between Human and Machine



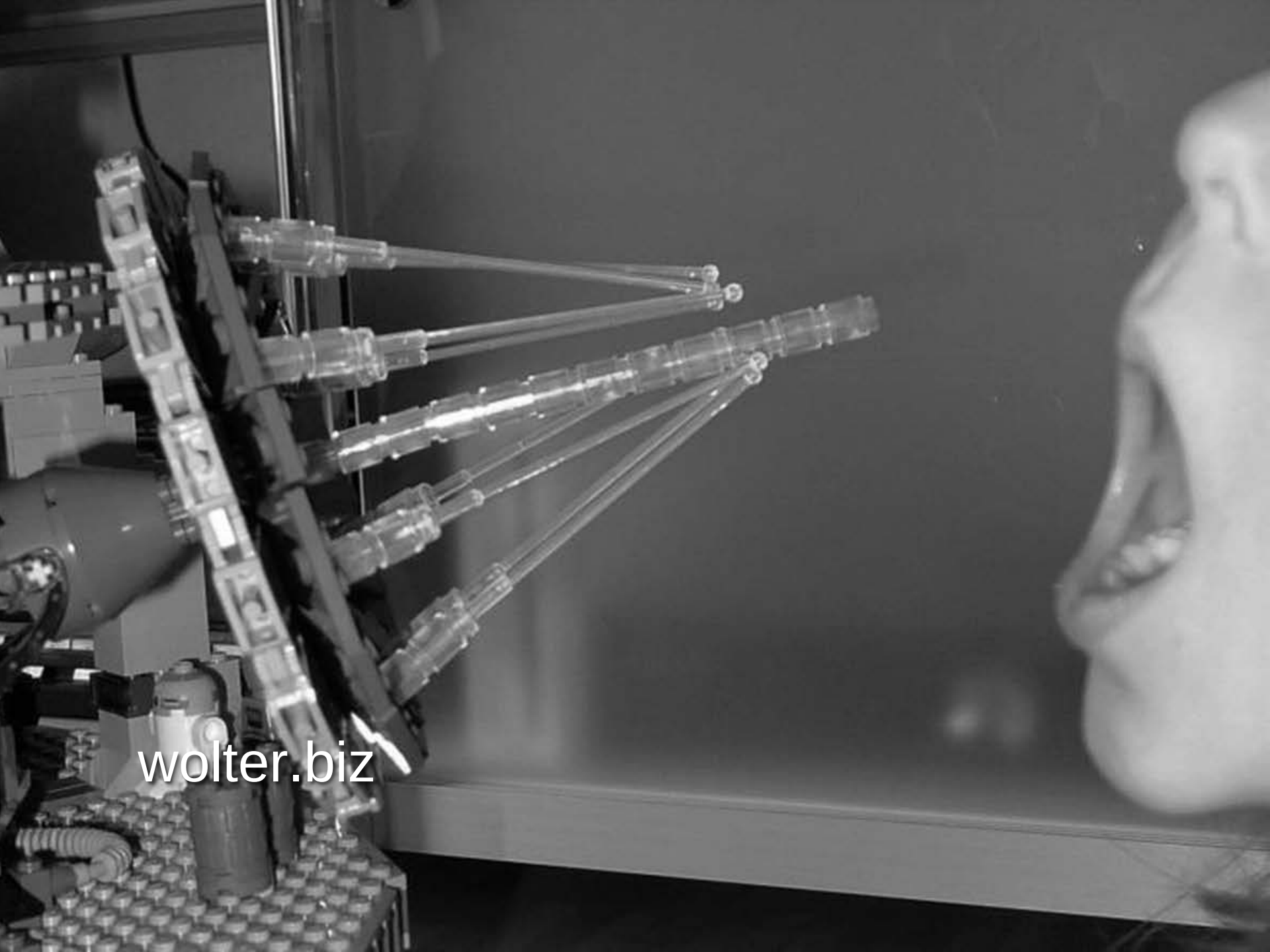
Source: Norman, D. (1986). "User Centered System Design: New Perspectives on Human-computer Interaction". CRC. ISBN 978-0-89859-872-8

Gulf of Evaluation (Interface Feedback)

Source: http://www.youtube.com/watch?v=JZge0Avr8ZU

Gulf of Evaluation (Interface Feedback)

Image: Big Bang Theory


wolter.biz