

Wireless Biosensors in Everyday Life: Quantified Self meets the Internet of Things

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NeuroSky[®]
Body and Mind. Quantified.

Overview

- Wireless biosensors - Towards Quantified-self
- Internet of Things
- When Quantified-Self meets the Internet of Things

Quantified Self (QS)

- The "quantified self" movement aims to measure all aspects of our daily lives with the help of technology.
- Log our daily activities and health and body conditions could bring us a better understanding of ourselves, our nature, and may even benefit our health.



Why Quantified-Self

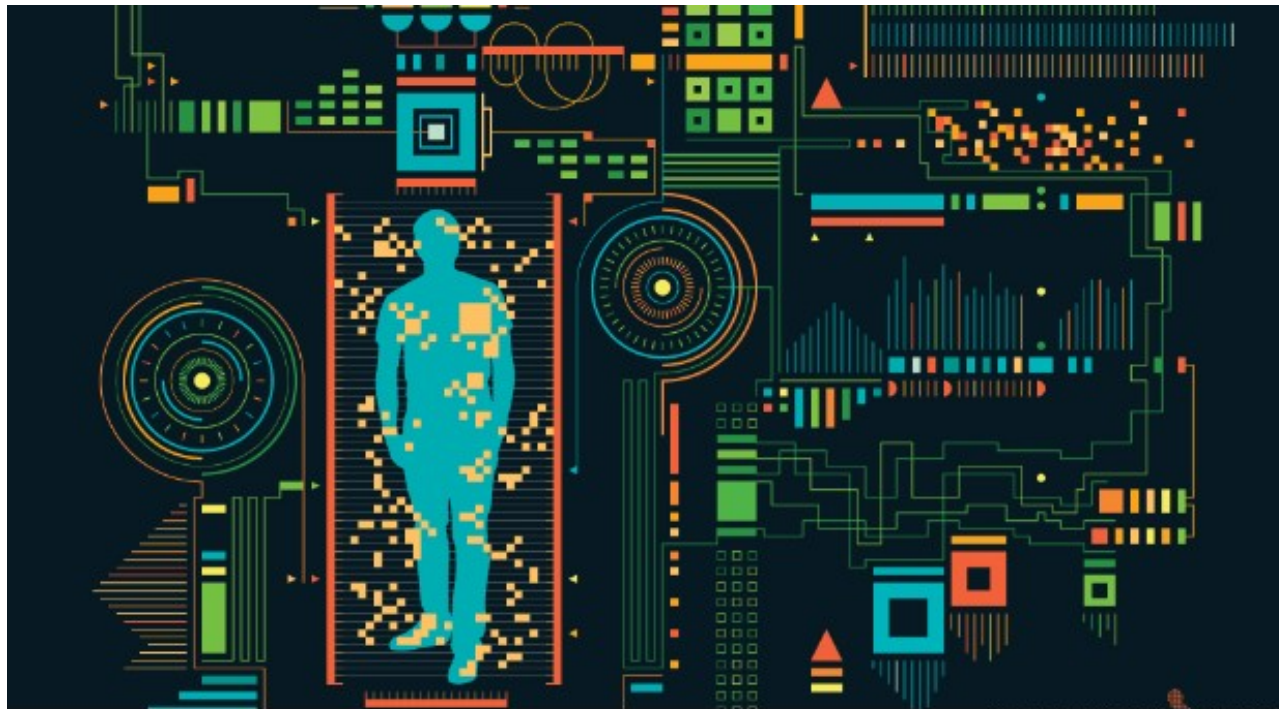


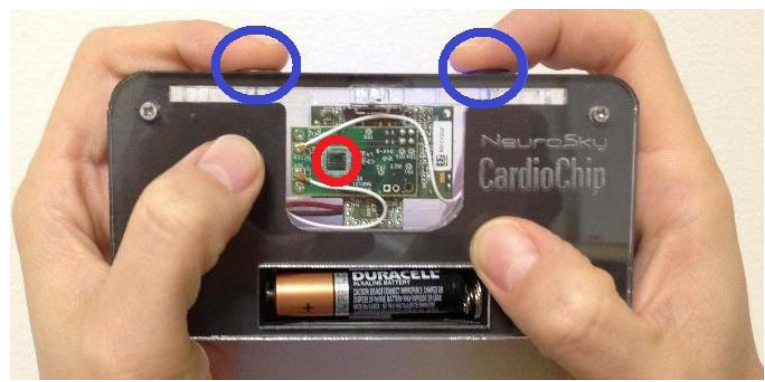
ILLUSTRATION: ERIC FROMMELT

- To track, quantify, and measure the body and its environment.
- Using wearable or portable sensors to detect heart rates, respiratory rate, glucose levels, steps taken, humidity, temperature, and turn them into electronic data.
- Biosensing technologies become part of everyday life.

Conventional biosensors



Biosensors @ Quantified Self



Conventional biosensors	Biosensors @ Quantified Self
Invasive	Non-invasive
Special operation procedures	DIY / Plug n Play
Has to be interpreted by professionals	Easy to understand
Short term term / Intermittent measurement	Long term / Continuous measurement

Sensor, Algorithm, and App Turn-Key Solution



Chip & Sensor

Chip and
Sensor Design
Technology

Custom
Product

Device

Wrist band
Key-Chain
Headsets

Plug & Play

Analytics

Heart Rate
Stress
Mental States

App

Phone Apps
Web Apps
Cloud

Cardiowave (ECG)

Life Beat™



CardioStik™



Brainwave (EEG)

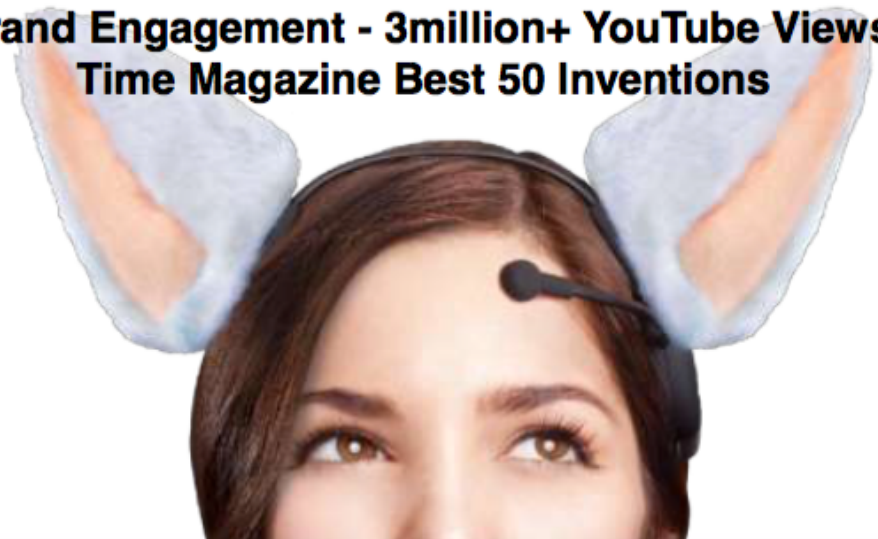
mindwave™
MOBILE

Education, ALS, ADHD, Etc.



necomimi™
Brainwave Cat Ears

Brand Engagement - 3million+ YouTube Views
Time Magazine Best 50 Inventions



**Body and Mind
Biosensors**

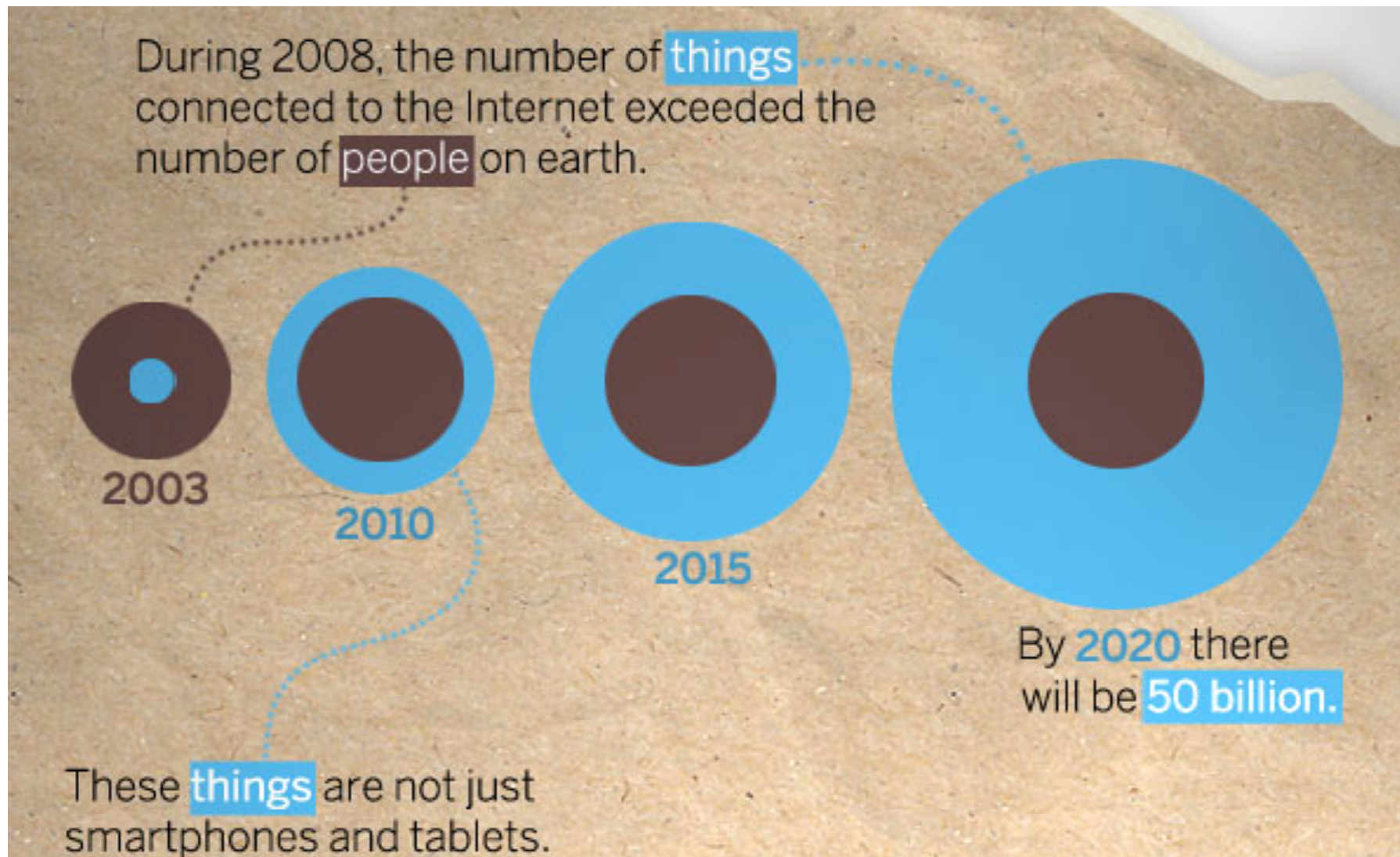
Interpretive Algorithms

Data Analytics API / SDK's

Wearable Technology Products

Applications for
Health & Wellness

Internet of Things (IoT)



Internet of Things (IoT)

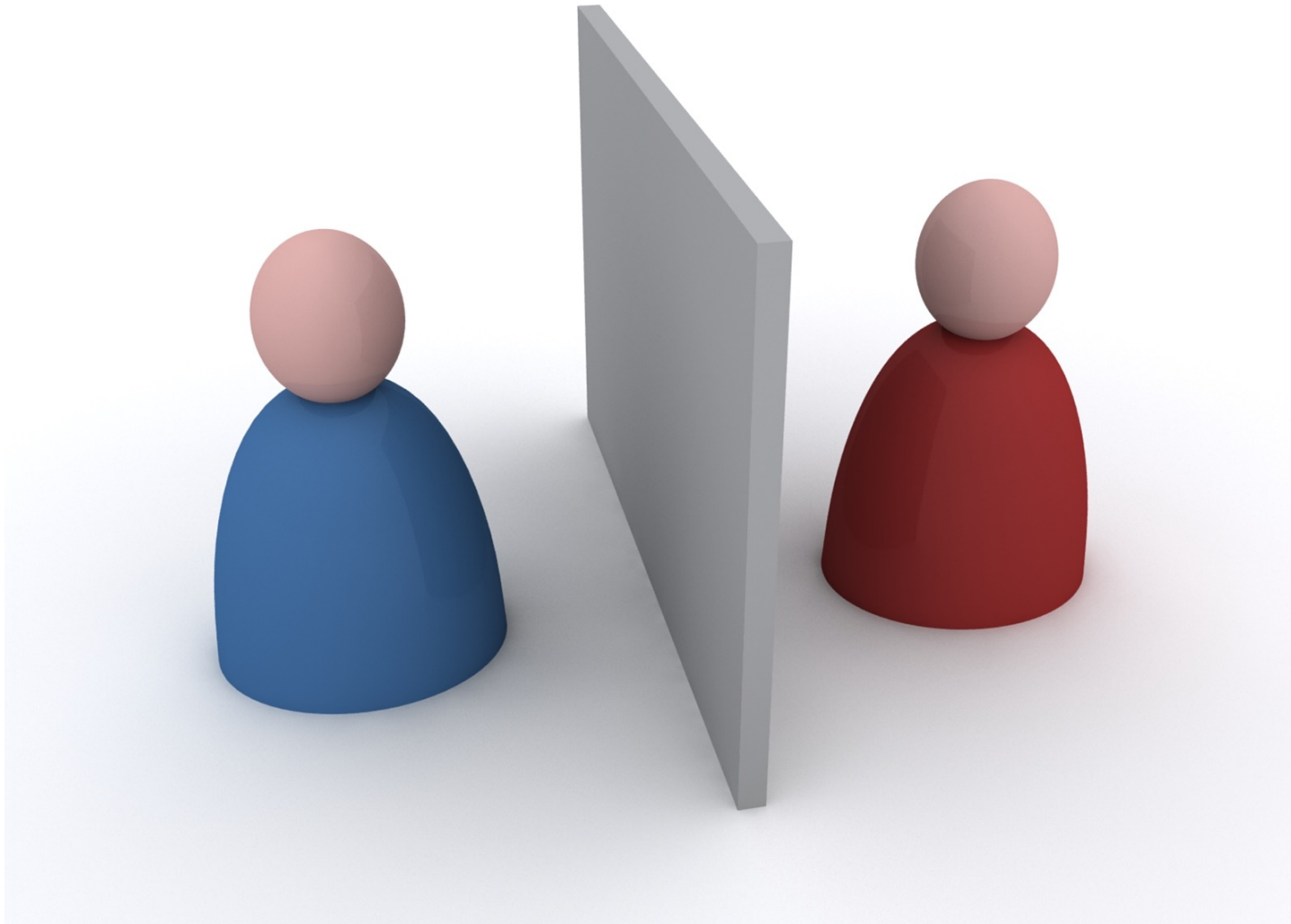
- digital networks of physical objects linked by the internet that interact through web services



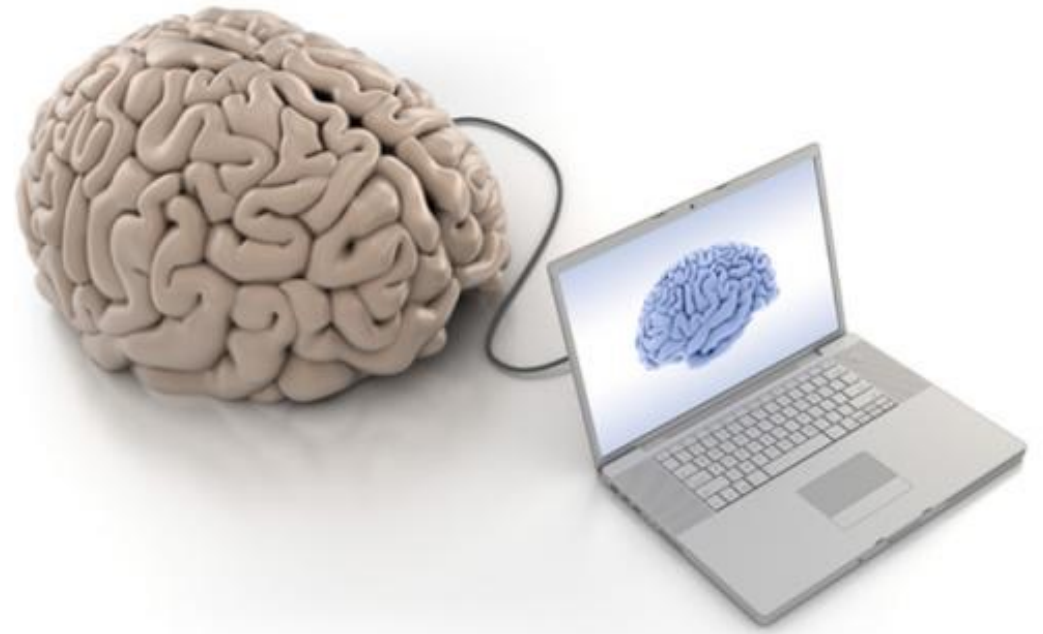
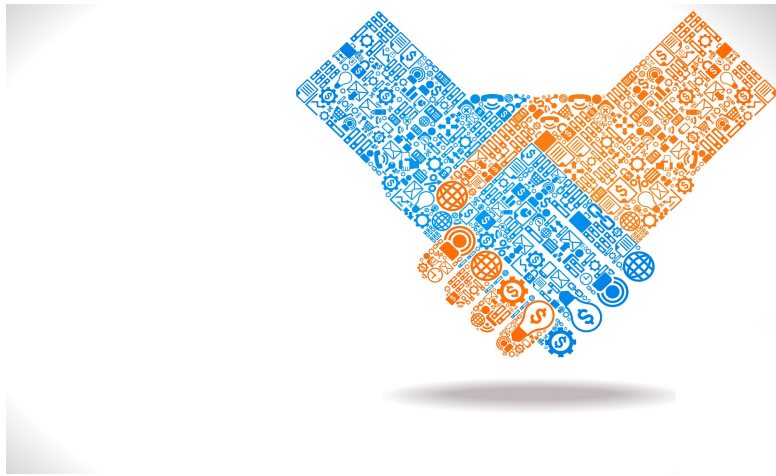
Billions of wirelessly interconnected devices will communicate directly



QS & IoT



Amazing things happen when QS & IoT married

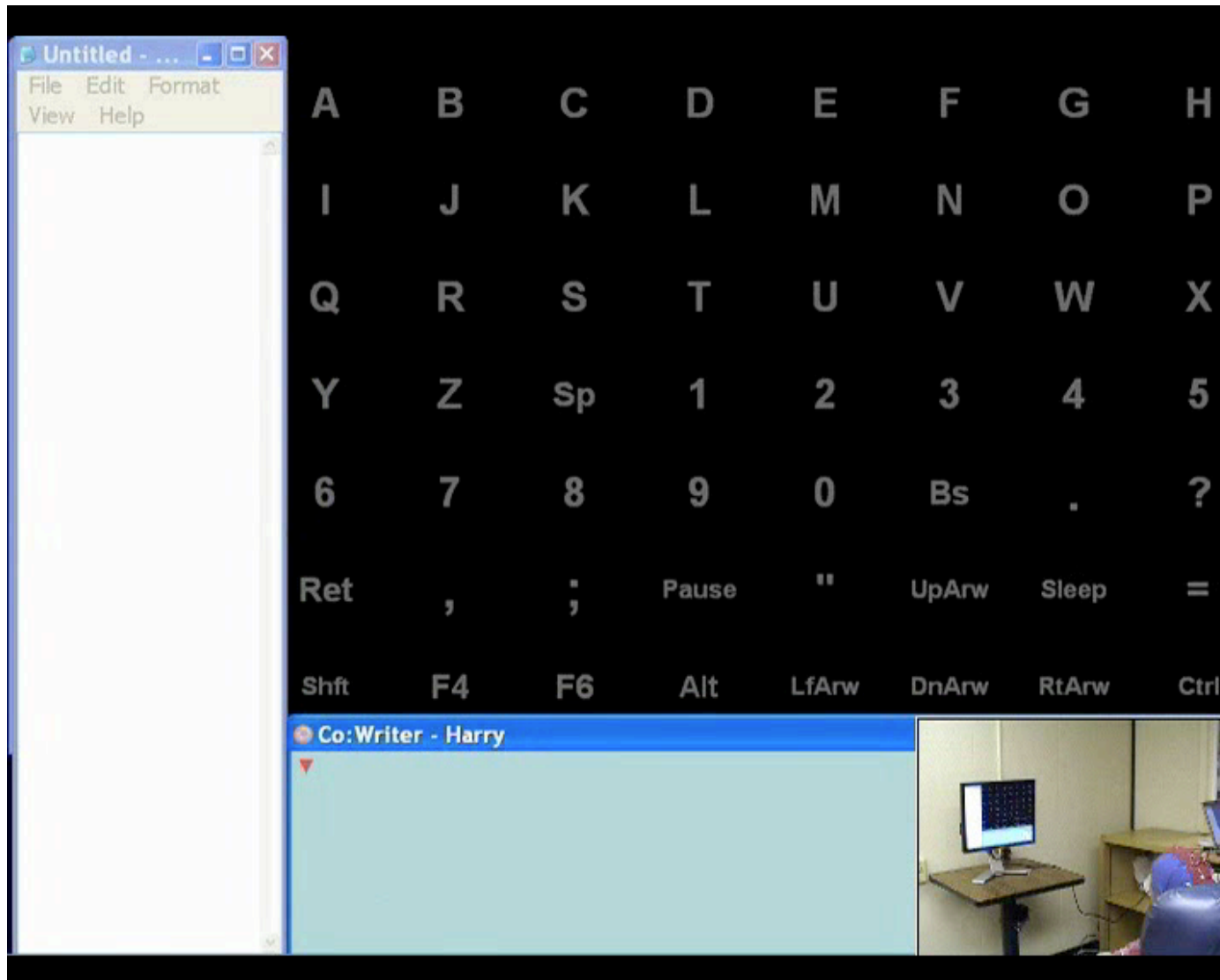


Project #1

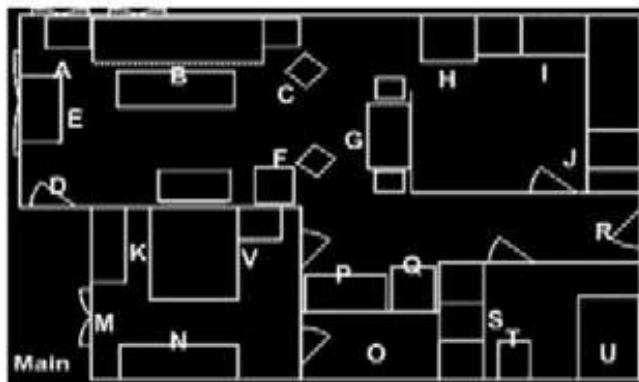
- Restore communication and control ability to ALS patients with Brain-Computer Interface (BCI) Technology
- Enable smart home control by thought alone



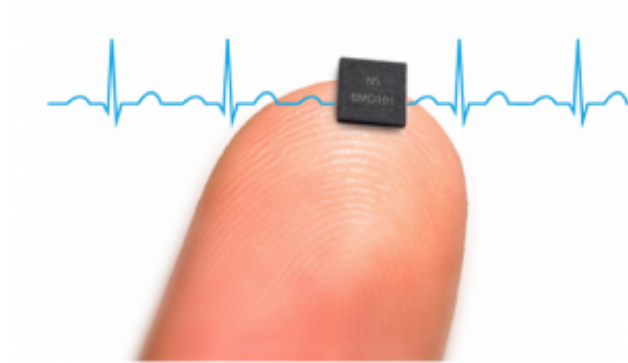
Type by thoughts alone



BCI smart home control



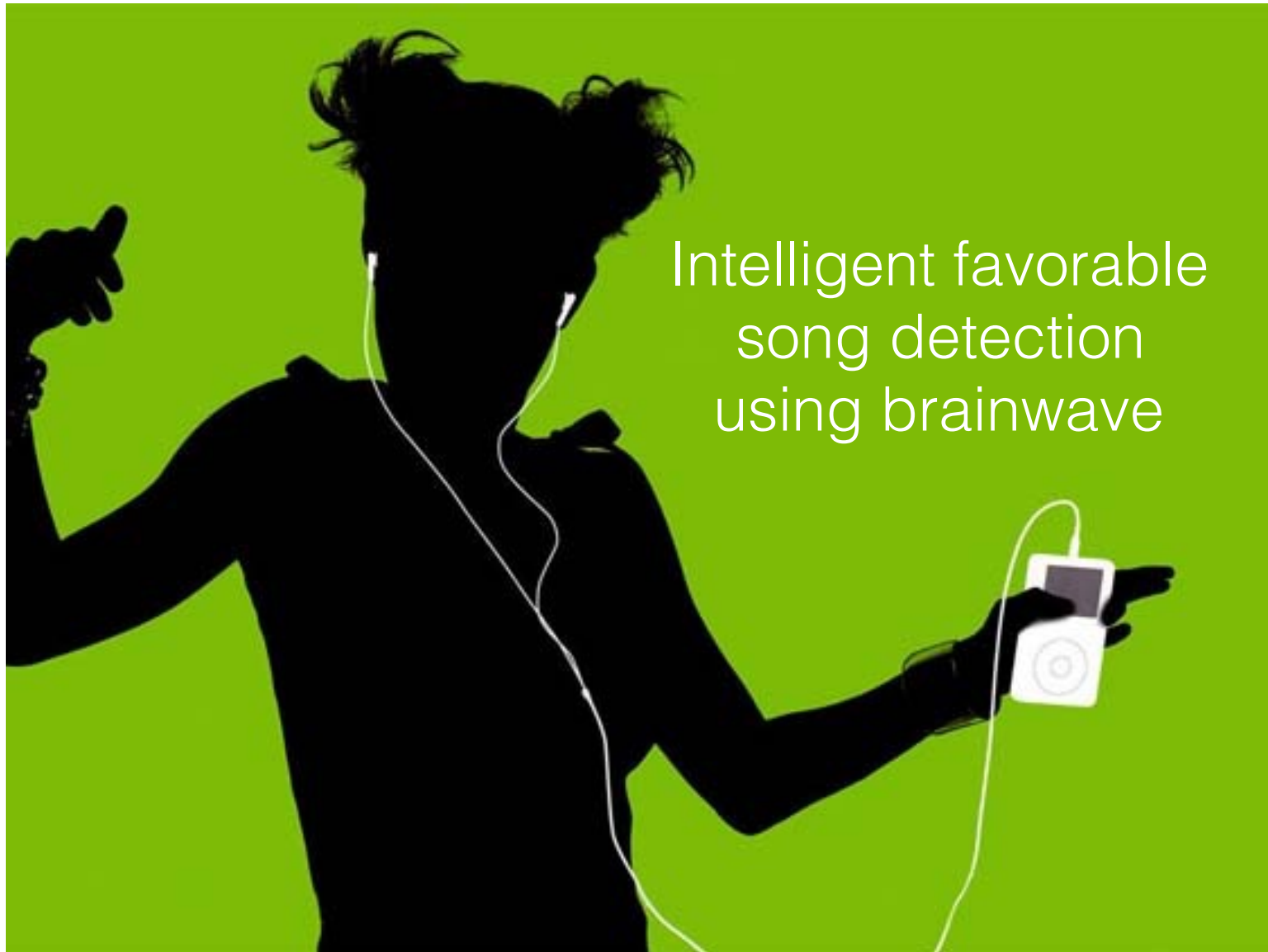
Project #2



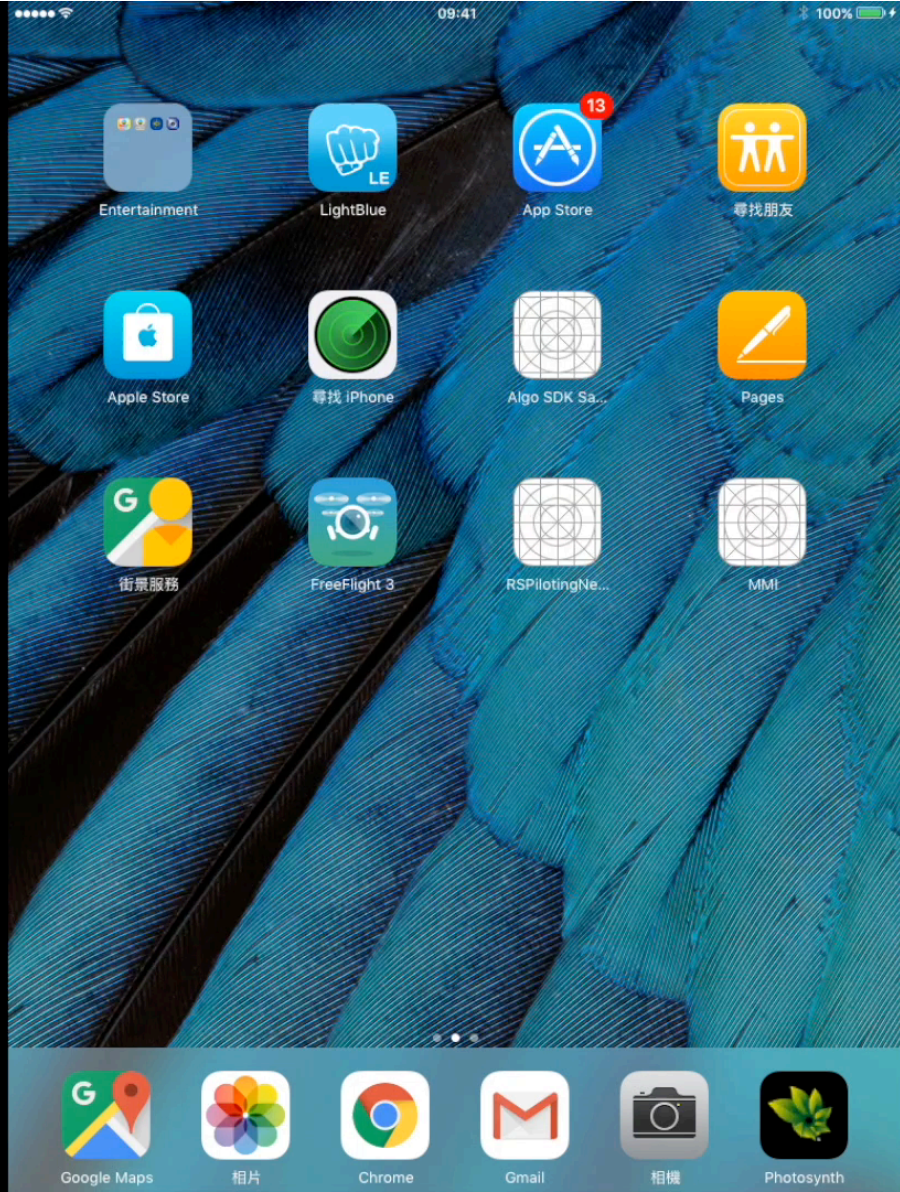
Stress measurement and management system



Project #3

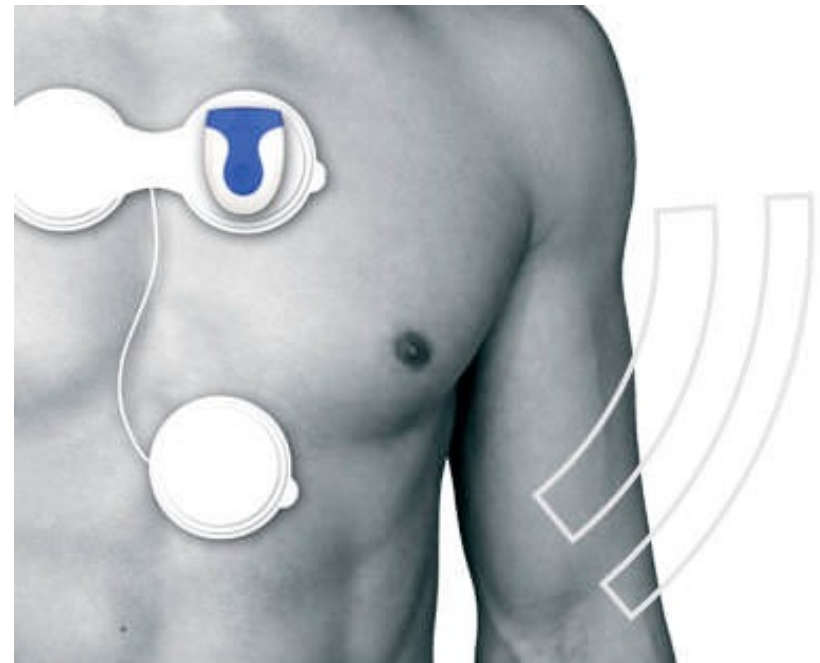


Intelligent favorable
song detection
using brainwave



NeuroSky®
Body and Mind. Quantified.

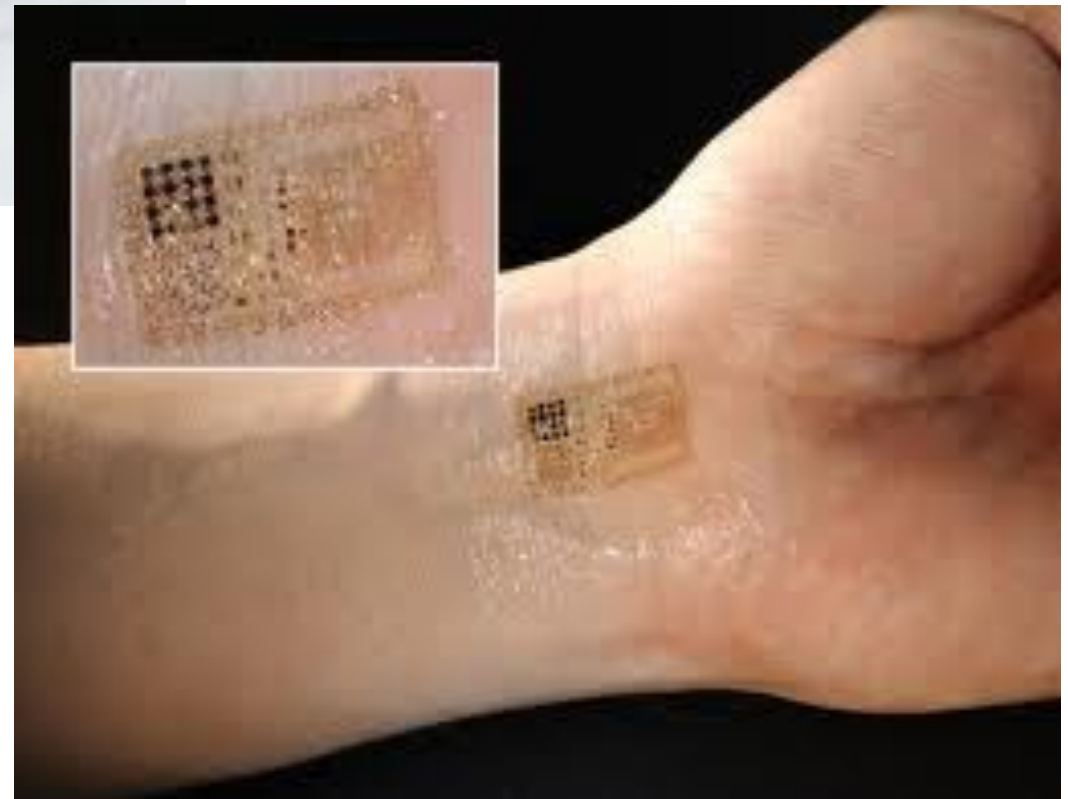
Future challenge and development @ sensor wearability





Continuous measurement
with Smart-clothing





24-7 measurement
with E-skin

Future challenge and development @ Connectivity



> 7 Bluetooth wearable devices?





Huge Demand In Multi-User Applications







THANK YOU
VERY MUCH!