Web and Physical Computing
-Forward to Reality-

TCNJ Dynamic Web

Week 14

Jean Chu

Trend of Digital Design

Analog
Real
Raw

→

Digital
Virtual
Mobile

→

Tangible
Engaging / Experiential
Mixed Reality
Merge to Real

In my personal opinion… you do not have to agree

Merging to Real Life

Example

Music played
by a band At a party

→

MP3 played on spotify
At a party

→

Spartify
(Guests choose song playlist)

Music Streamed By radio

→

→

Spotify box

Future of the Media
-Merge to Real-

Tangible, Engaging, Mixed Reality

In my personal opinion… you do not have to agree

Tangible / Fluid

Tangible Media Lab

http://tangible.media.mit.edu/

Fluid Interface Group

http://fluid.media.mit.edu/

Engaging / Experiential

Flashmob

http://en.wikipedia.org/wiki/Flash_mob

Using Web to enhance Participation to Events

http://www.spartify.com/

Mixed Reality

Augmented Reality Game

http://www.blasttheory.co.uk/bt/index.php

Machinima

http://en.wikipedia.org/wiki/Machinima

Facebook sitcom

http://www.facebooksitcom.com/

http://en.wikipedia.org/wiki/Mixed_reality

Why does this matter?

To enhance engagement and interactions,

and to make unforgettable content and experience, merging closer to our real lives!

So… let’s get started !

Web and Physical Computing

Spotify Box

SPOTIFY BOX
by Jordi Parra

So how do you give someone a mix tape in a world where all music is digital?
Spotify Box is a device and a way to interact with digital music in the physical world.

http://blog.zenona.com/

Botanicals

BOTANICALS
By Rob Faludi, Kate Hartman, and Kati London

The Botanicalls project is about communication between plants and people.

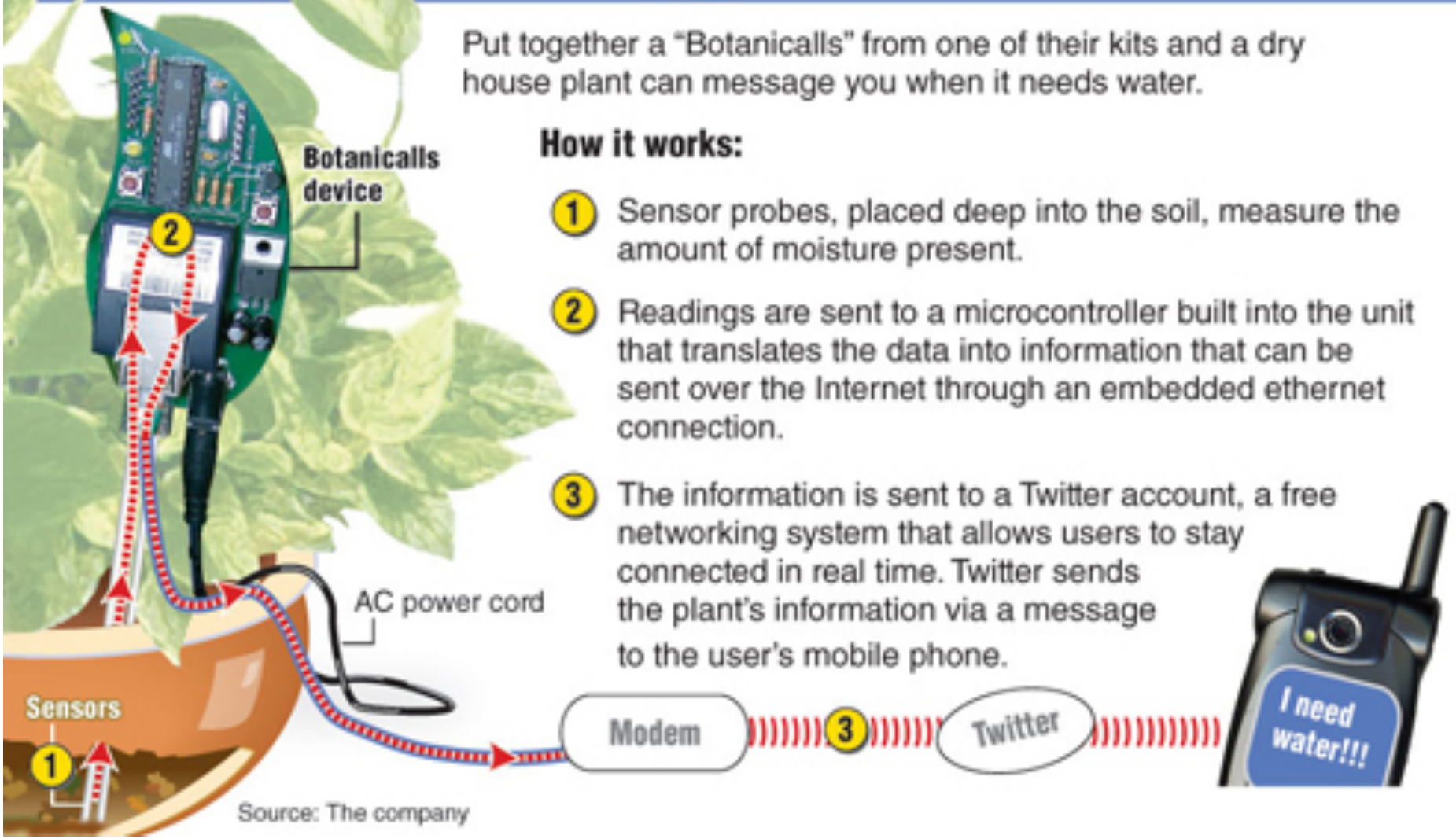
http://www.botanicalls.com/

Talking plants?

Put together a "Botanicalls" from one of their kits and a dry house plant can message you when it needs water.

How it works:

1. Sensor probes, placed deep into the soil, measure the amount of moisture present.
2. Readings are sent to a microcontroller built into the unit that translates the data into information that can be sent over the Internet through an embedded ethernet connection.
3. The information is sent to a Twitter account, a free networking system that allows users to stay connected in real time. Twitter sends the plant's information via a message to the user's mobile phone.



Source: The company

Twitter Mood Light

TWITTER MOOD LIGHT
By Random Matrix

The Twitter Mood Light shows the current mood of Twitter.The lamp monitors certain keywords, such as “love”,“hate”,“surprising” andsoon,ontwitter.com and lights up different colors depending on the mood of the tweets.

http://www.instructables.com/id/Twitter-Mood-Light-The-Worlds-Mood-in-a-Box/

Paypal Vending Machine

PAYPAL VENDING MACHINE
by PayPalLabs

PayPal made a experimental system utilizing QR codes, Arduino and smart-phones to let their users pay with their PayPal account in the physical world.

http://blog.makezine.com/2010/10/27/paypal-vending-machine/

THE VERBALIZER

THE VERBALIZER
by Breakfast

The Verbalizer connects wirelessly to your computer and triggers google voice search.

http://breakfastny.com/2011/06/verbalizer-open-source-toy-googles-voice-search/

INSTAPRINTER

INSTAPRINT by Breakfast

Instaprinter is a digital photobooth tapping into the mobile photo-sharing service, Instagram, and in real time prints out every picture taken at a specific location.

http://breakfastny.com/projects/2011/instaprint/

Candy Grabber

CANDY GRABBER
by odvratno.zgodan

The Candy Grabber is controlled by an Arduino which lets online users remotely interact with the machine via a website.

http://www.instructables.com/id/Arduino-Candygrabber/

Examples Referneced from

- http://www.slideshare.net/MediaFront/forward-to-reality-physical-computing-the-next-level-of-web-interaction

- http://breakfastny.com/projects/

Let’s Try it!

HOW TO DO PHYSICAL COMPUTING

Physical Computing

Physical computing, in the broadest sense, means building interactive physical systems by the use of software and hardware that can sense and respond to the analog world.

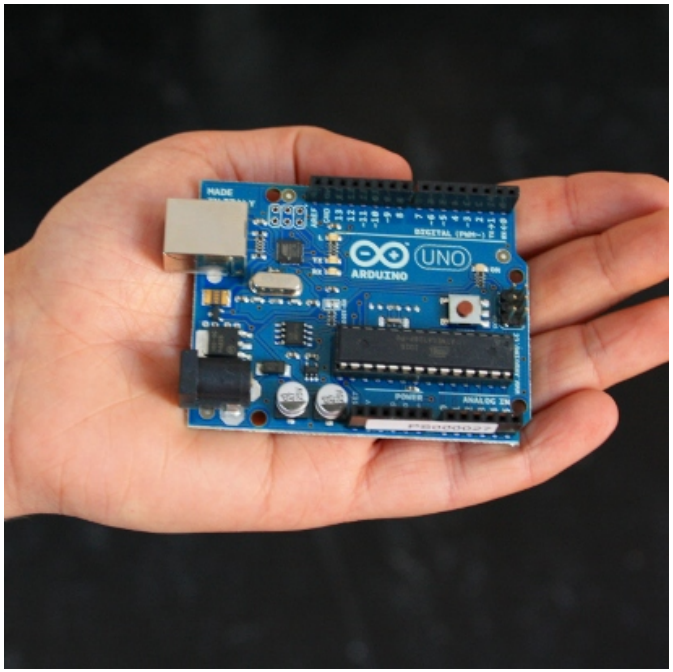
-wikipedia-

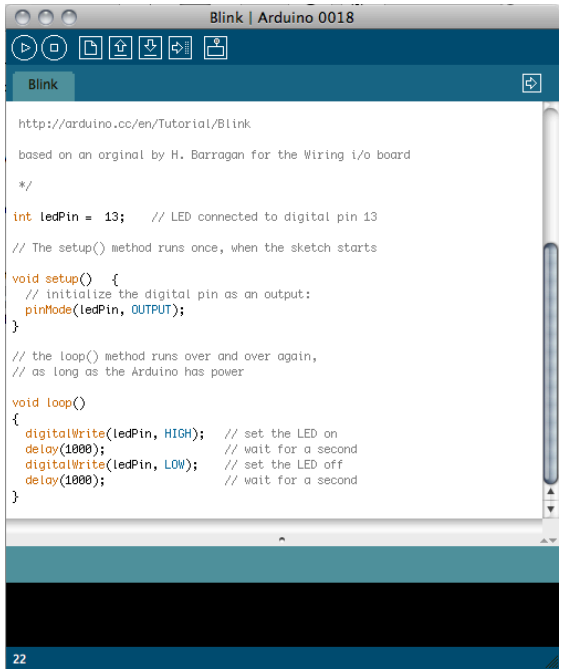
http://en.wikipedia.org/wiki/Physical_computing

Why Arduino?

- Creativity, Sharing and Collaboration

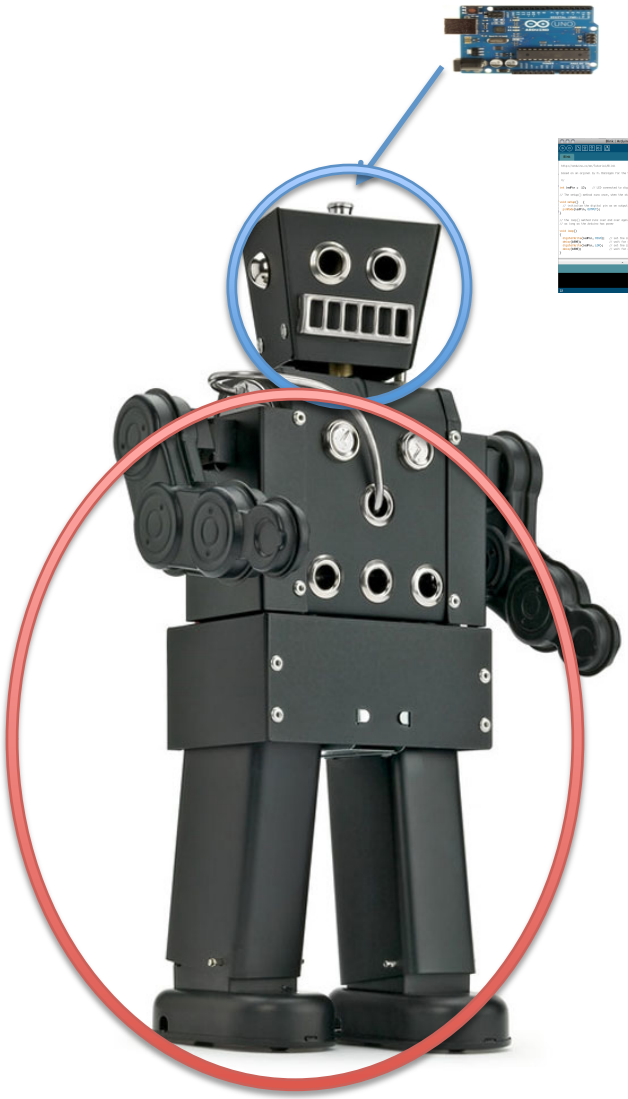
Arduino





open-source electronics prototyping platform based on flexible, easy-to-use **hardware** and **software**

http://www.arduino.cc/



Brain : Hardware- Arduino Board (Micro Contoller)

+

Knowledge : Software - Arduino Program and Codes

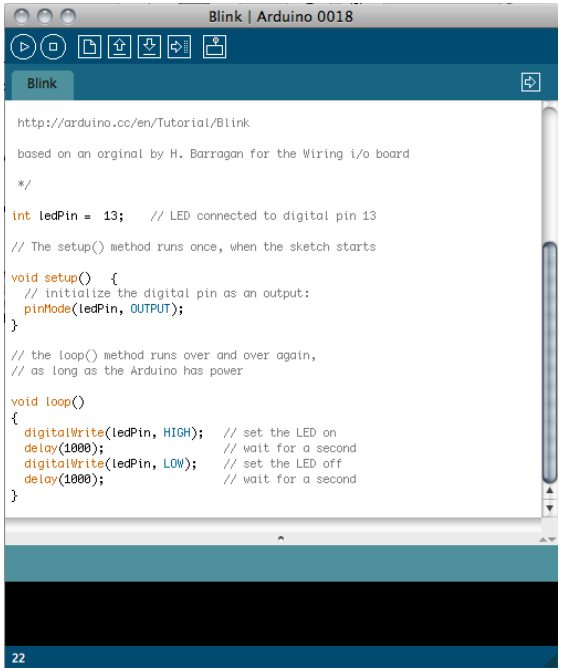
Energy : Power – 5v power supplied via USB Cable

or

External 5v Power Supply

Body Part : physical Computing (Wires, LED, Motors, ETC)

How to connect Arduino and the Web



- 1. Download the Software. It is Free

http://arduino.cc/en/Main/Software

How to connect Arduino and the Web

- 2. Buy the basic Hardware for Arduino

Arduino Board

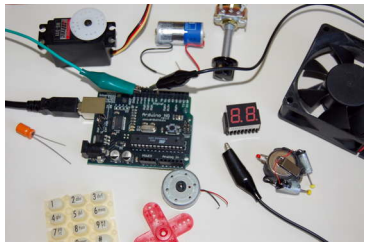
Micro Controller

Standard A-B USB Cable

To Connect the Arduino Board to the Computer

More for physical computing…

(Wires, LED lights, Sensors, Switches, LCD Panel, etc)



For Physical Computing

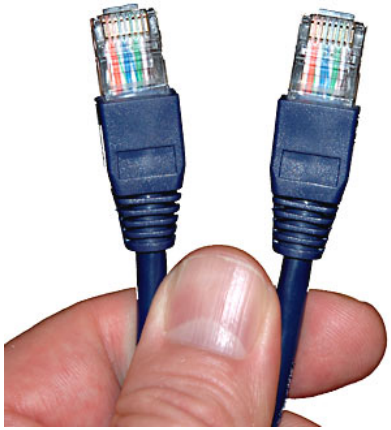
http://arduino.cc/en/Main/ArduinoBoardUno

How to connect Arduino and the Web

- 2. Buy more for Arduino to connect to Web

Ethernet Shield

Ethernt Cable



http://arduino.cc/en/Main/ArduinoEthernetShield

Where to buy?

- Arduino stuffs :
  - Arduino Store
    - Official Arduino store (Not stable yet. Europe. I don't recommend.)
      http://store.arduino.cc/ww/index.php
  - Distributors
    - Sparkfun (More Stable. USA I recommend here)
      - http://www.sparkfun.com/categories/103

- General electronics stuffs can be found at Radio Shack or Sparkfun