

JITTER HACKATHON

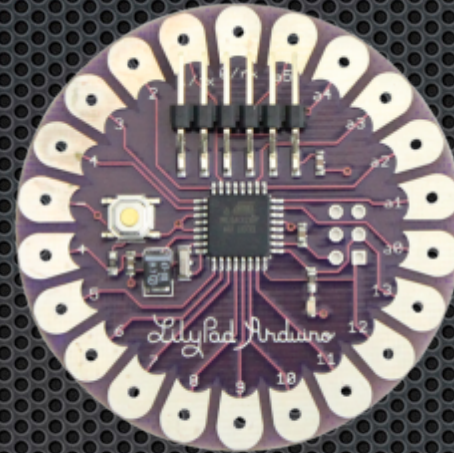
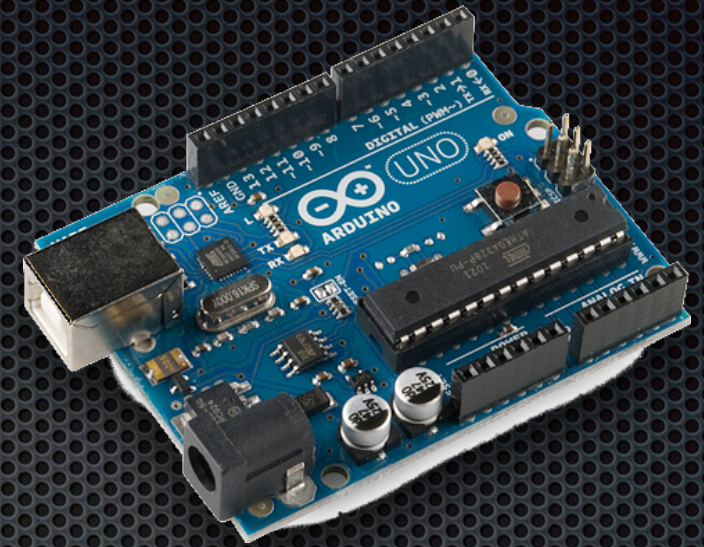


Centrum Nauki im. Mikołaja Kopernika



Jitter Workshops

- ✦ Arduino
- ✦ Arduino Lilypad
- ✦ Rapid 3D prototyping
- ✦ Estimote
- ✦ Google Glass
- ✦ Nao Robots



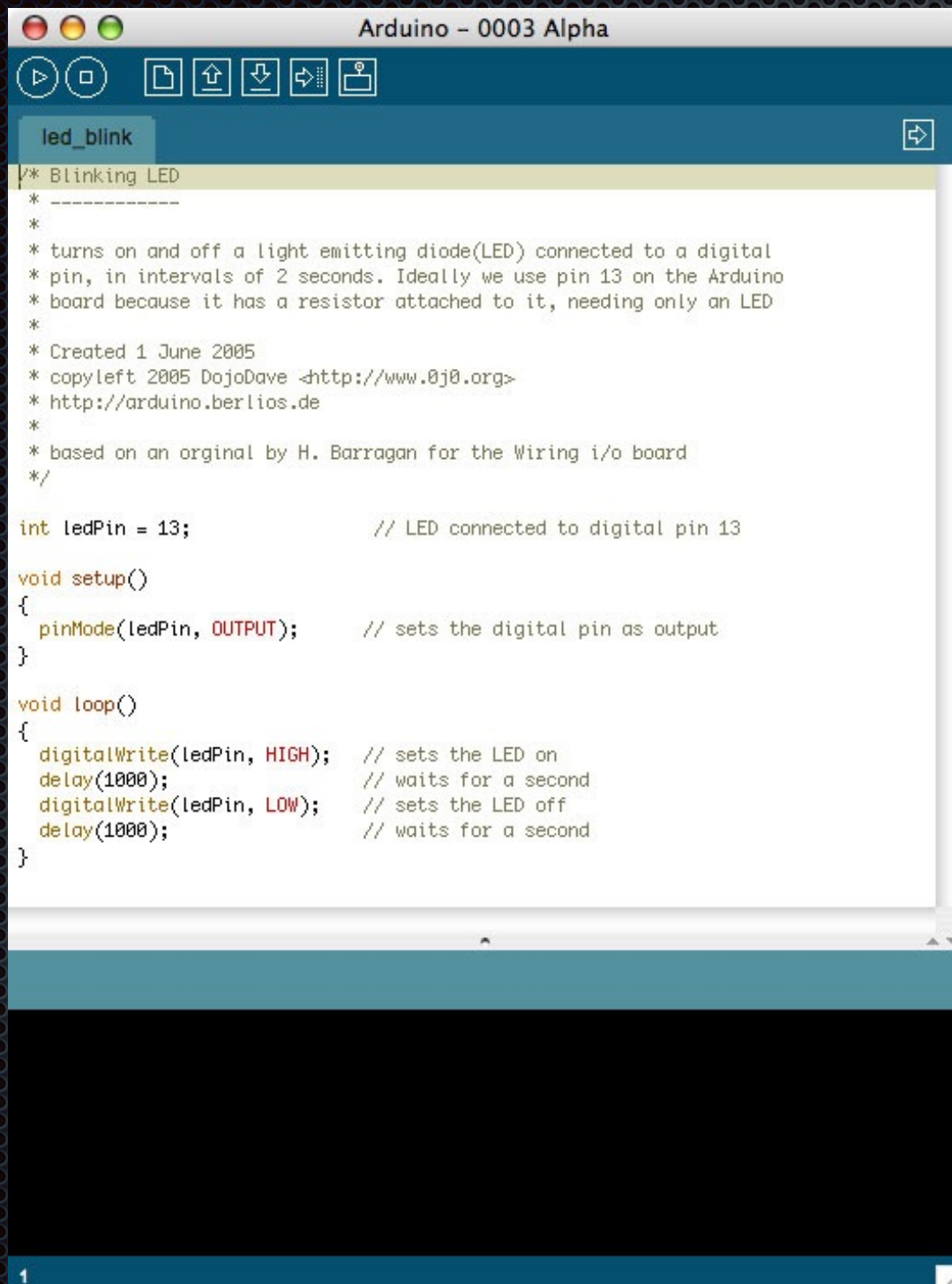
ARDUINO

What is it?

- Based on open-source hardware, single-board microcontroller,
- Tool for making computers that can sense and control the physical world,
- INPUT: variety of switches or sensors,
- OUTPUT: variety of lights, motors, and other physical outputs.



ARDUINO



```
Arduino - 0003 Alpha

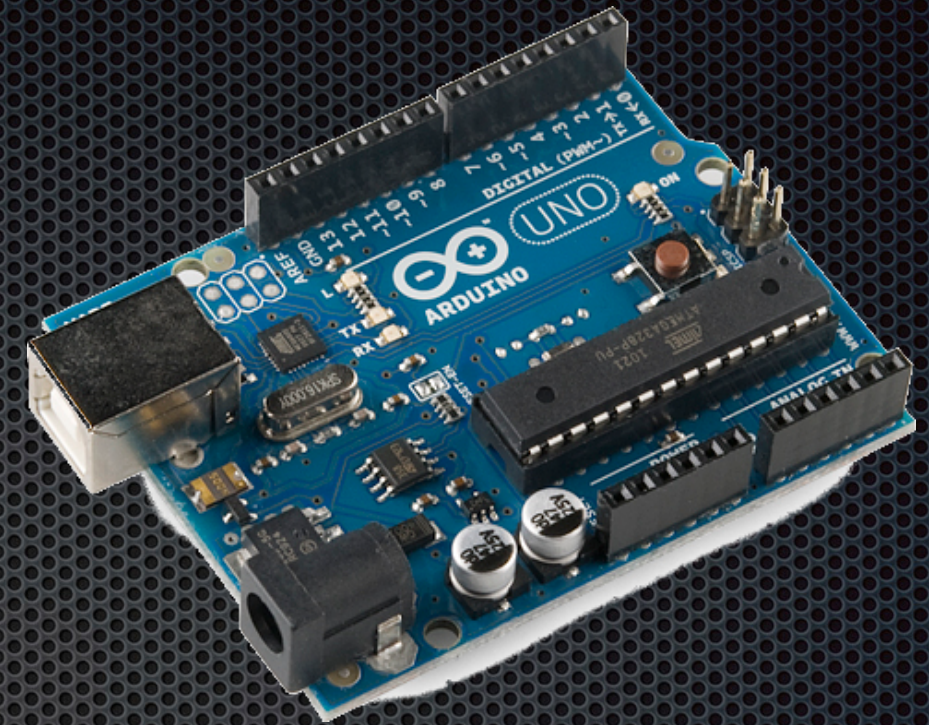
led_blink

/* Blinking LED
 * -----
 *
 * turns on and off a light emitting diode(LED) connected to a digital
 * pin, in intervals of 2 seconds. Ideally we use pin 13 on the Arduino
 * board because it has a resistor attached to it, needing only an LED
 *
 * Created 1 June 2005
 * copyleft 2005 DojoDave <http://www.0j0.org>
 * http://arduino.berlios.de
 *
 * based on an original by H. Barragan for the Wiring i/o board
 */

int ledPin = 13;           // LED connected to digital pin 13

void setup()
{
  pinMode(ledPin, OUTPUT); // sets the digital pin as output
}

void loop()
{
  digitalWrite(ledPin, HIGH); // sets the LED on
  delay(1000);                // waits for a second
  digitalWrite(ledPin, LOW);  // sets the LED off
  delay(1000);                // waits for a second
}
```



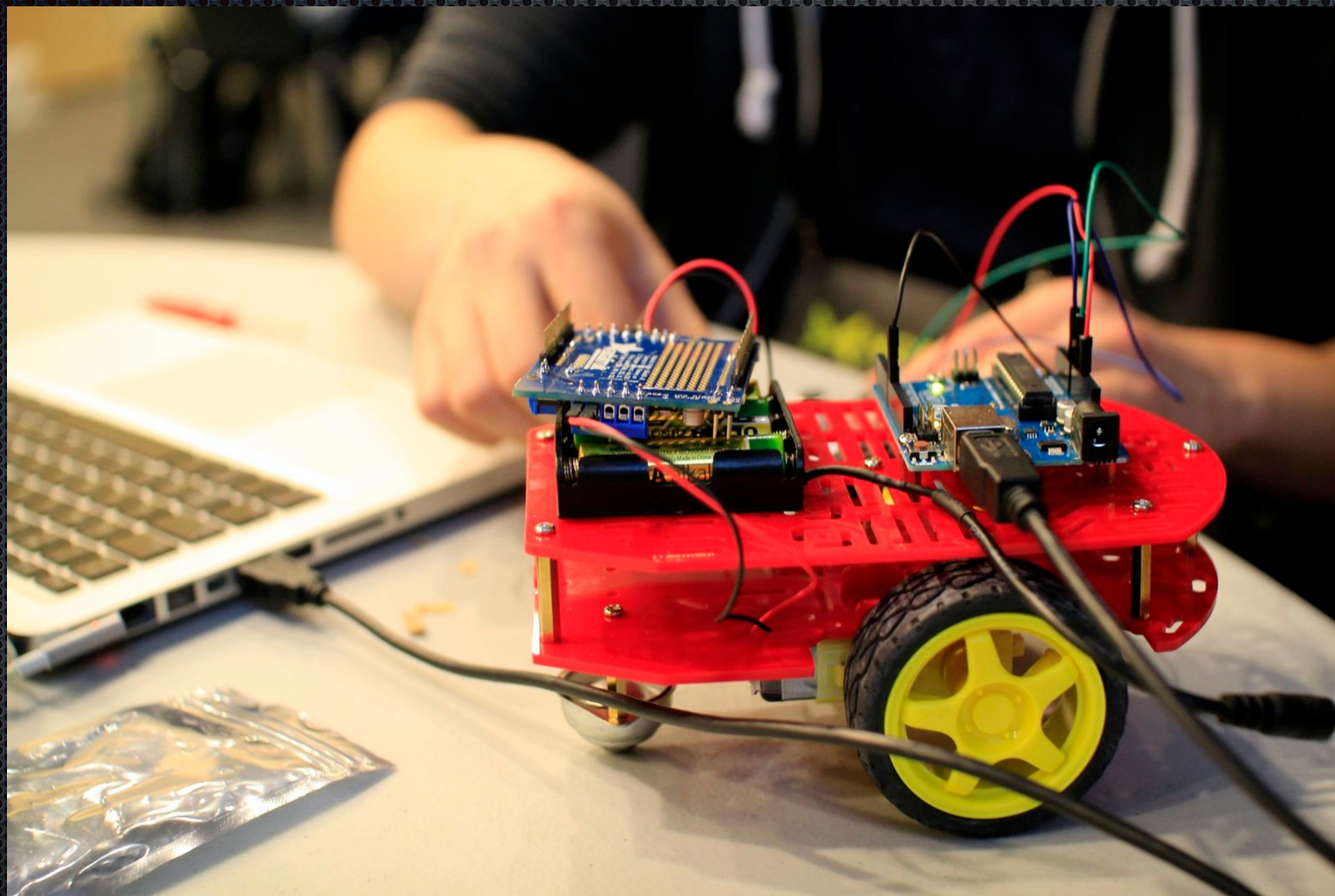
- Arduino development environment is based on Processing.

Used as software sketchbook and to teach computer programming fundamentals within a visual context, which evolved into a development tool for professionals.

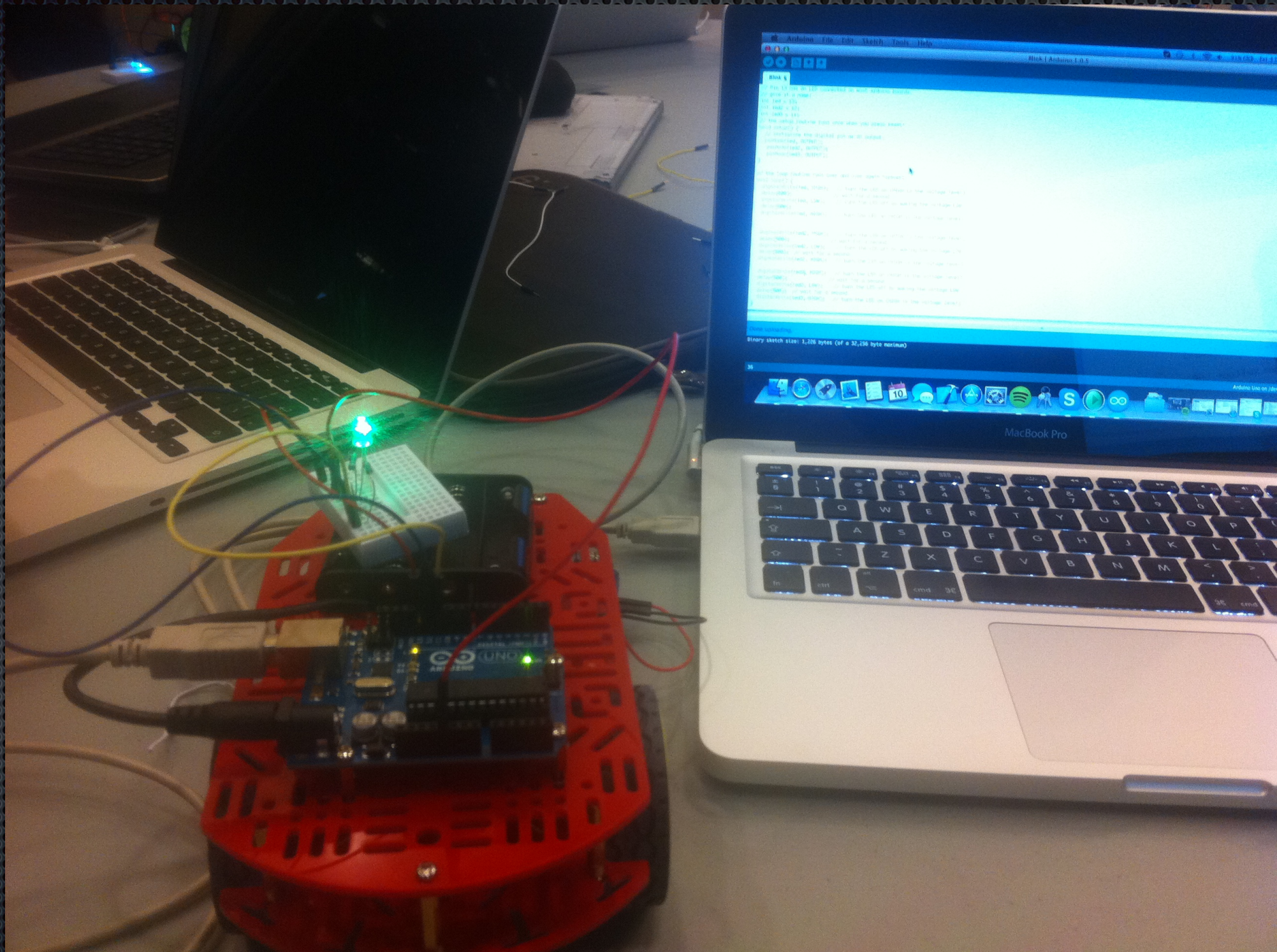
- Arduino programming language is based on Wiring.

Wiring is an open-source programming framework for microcontrollers

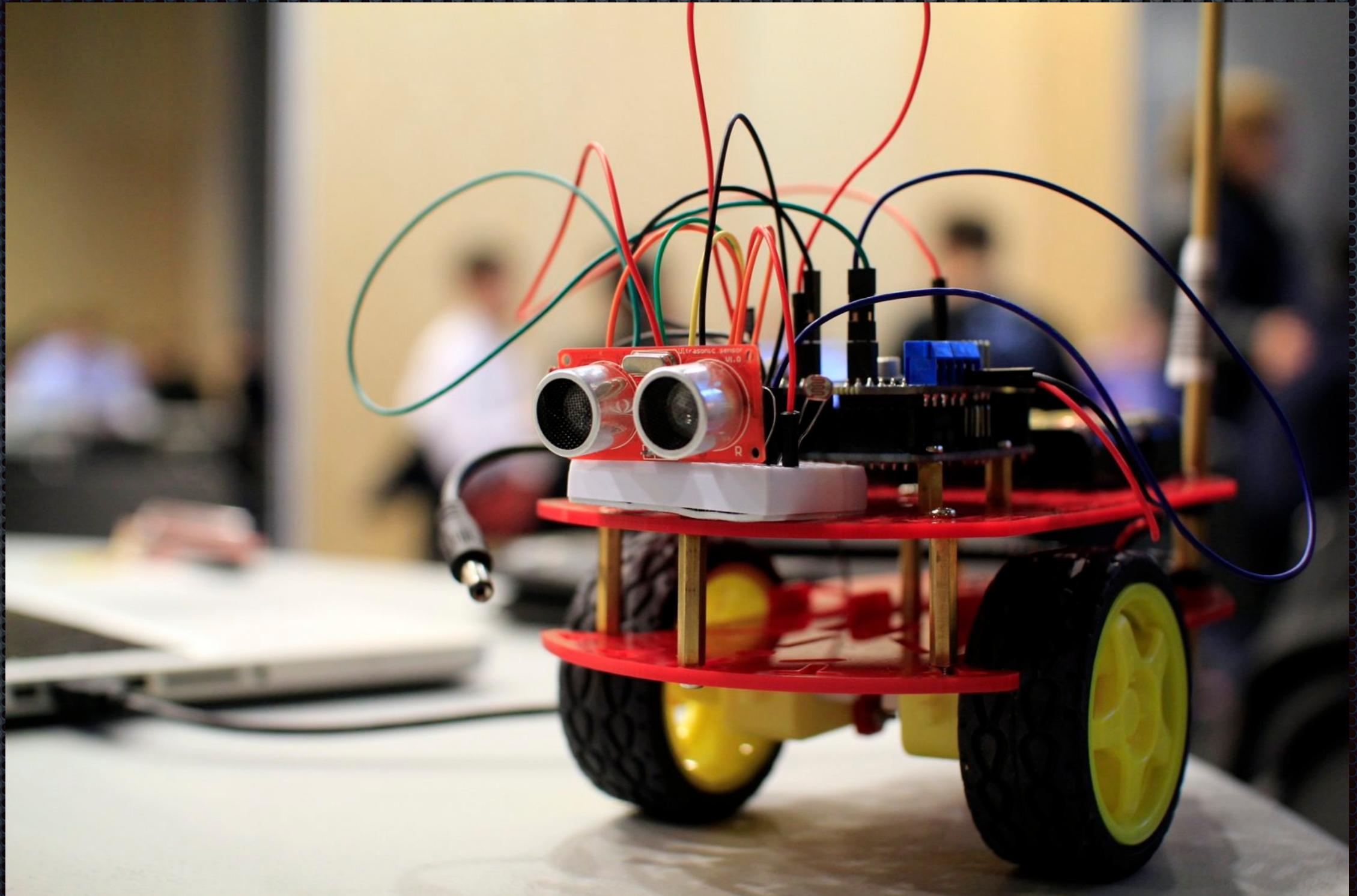
Arduino Workshop



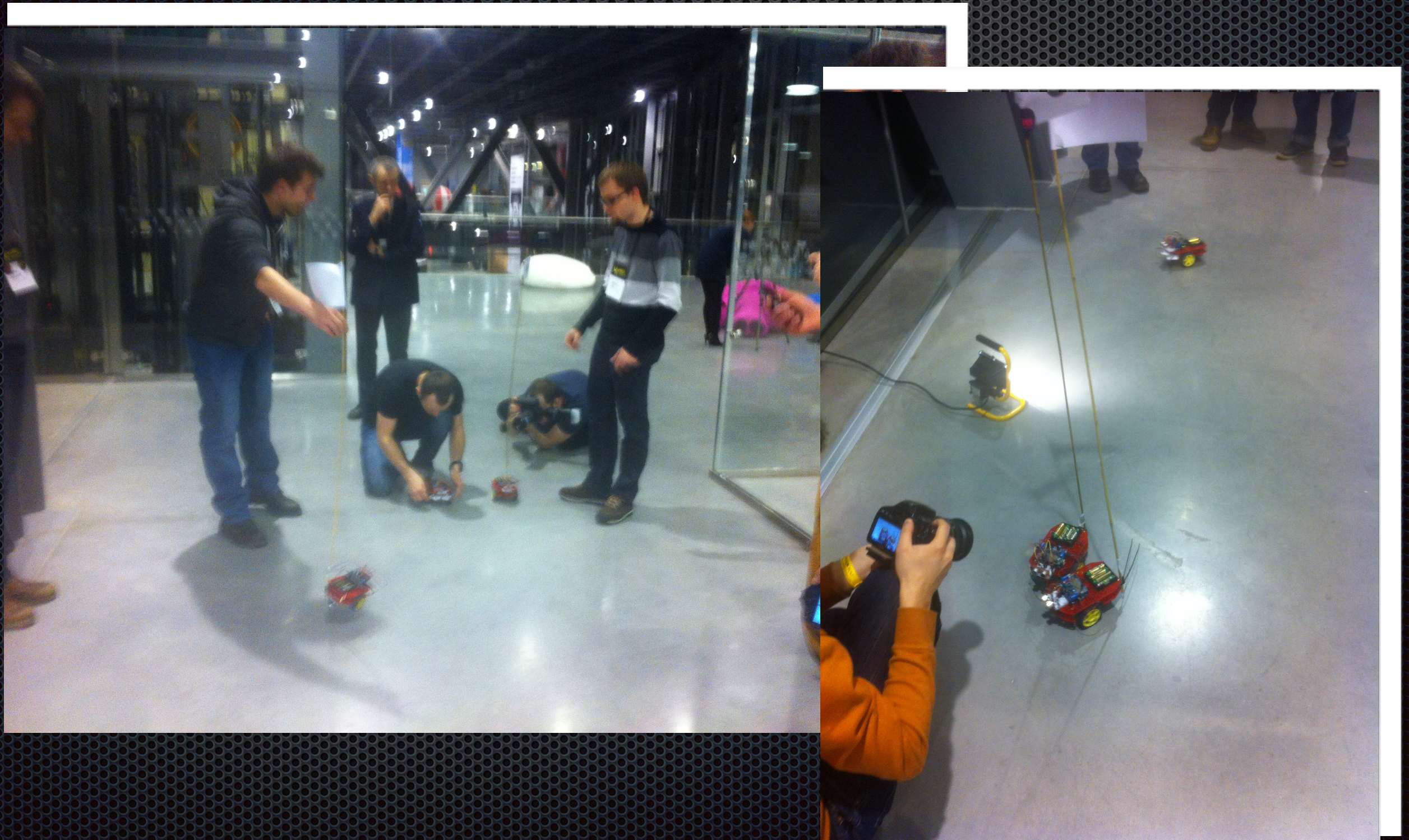
Arduino Workshop



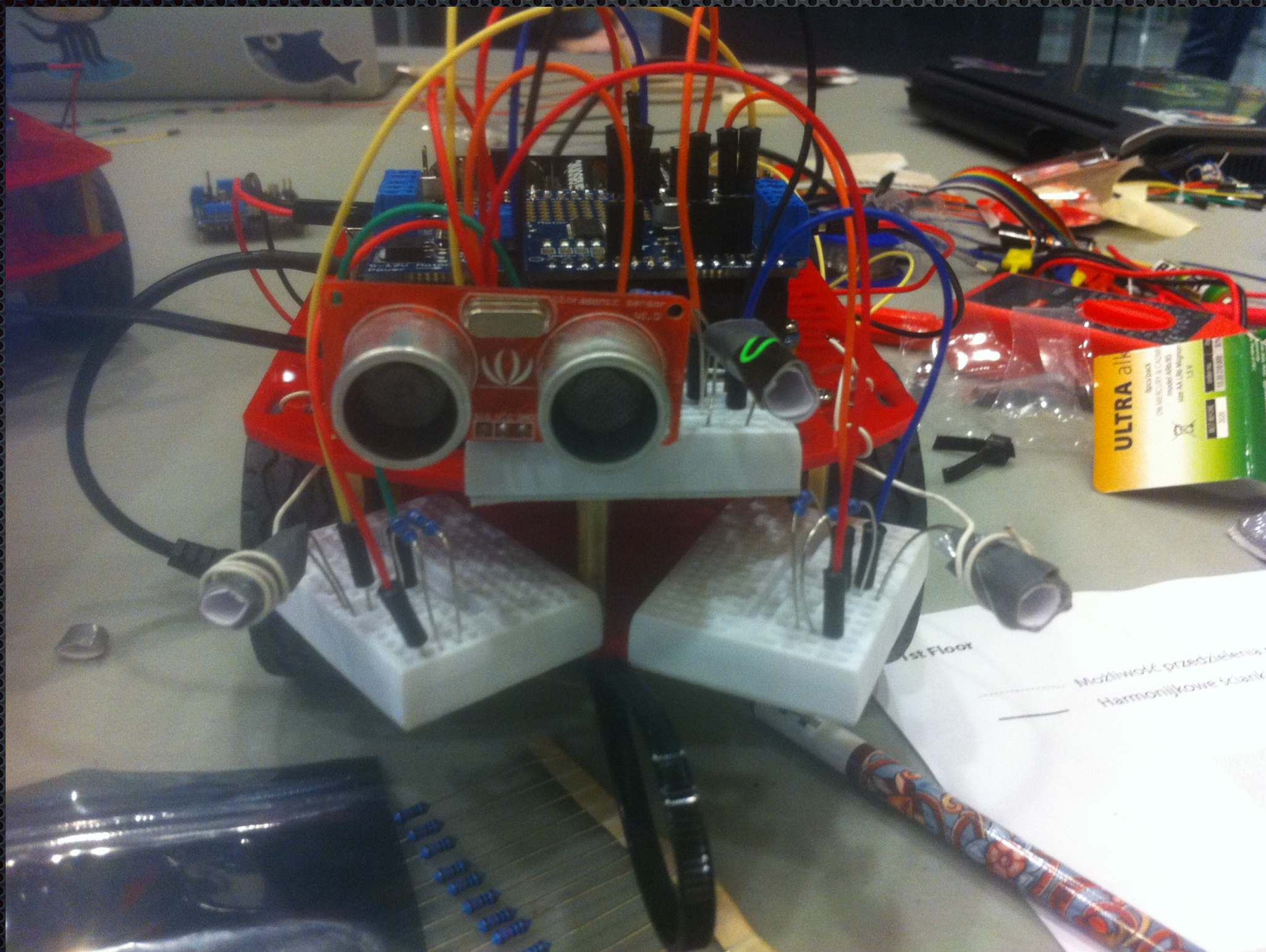
Arduino Workshop



Arduino Workshop



Winner face

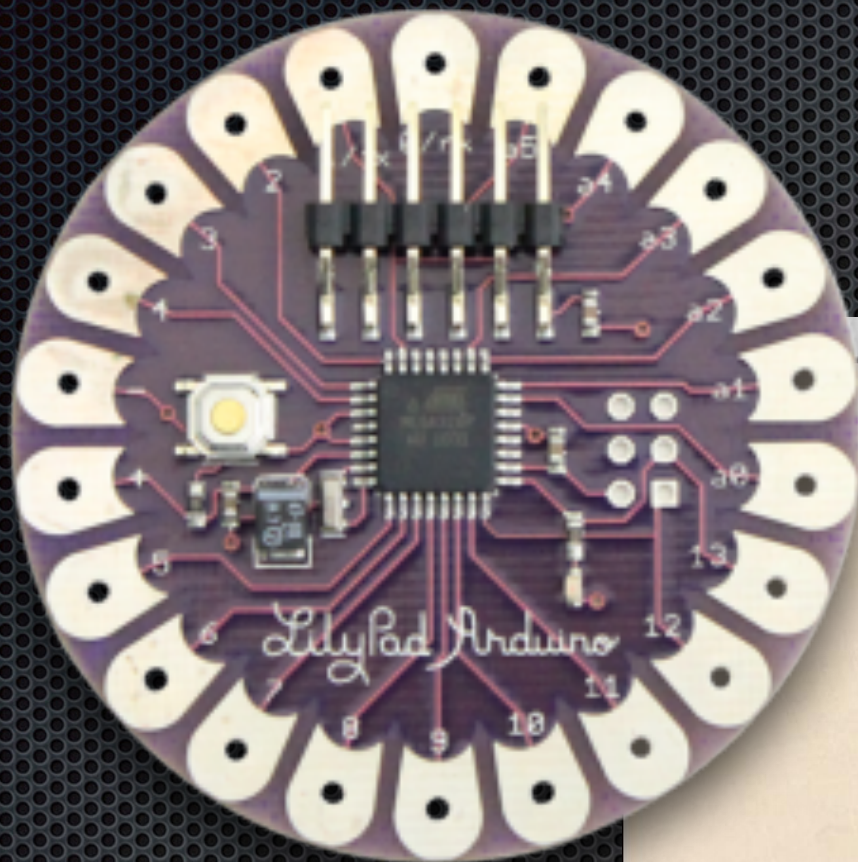


ARDUINO LILYPAD

- ✦ The LilyPad Arduino is a microcontroller board designed for wearables and e-textiles.
- ✦ It can be sewn to fabric and similarly mounted power supplies, sensors and actuators with conductive thread.



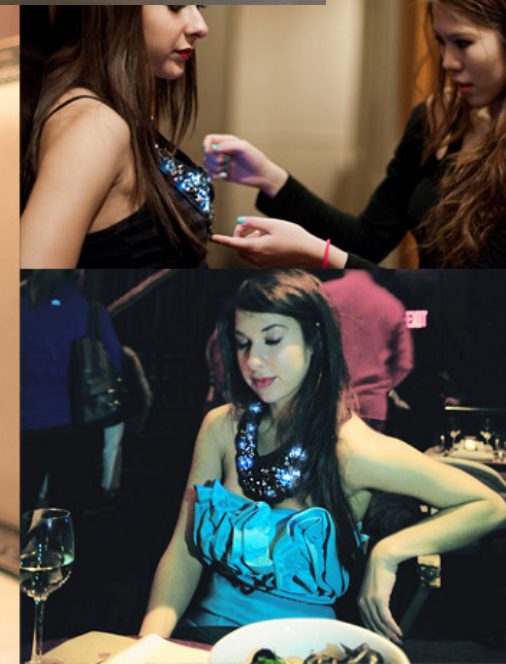
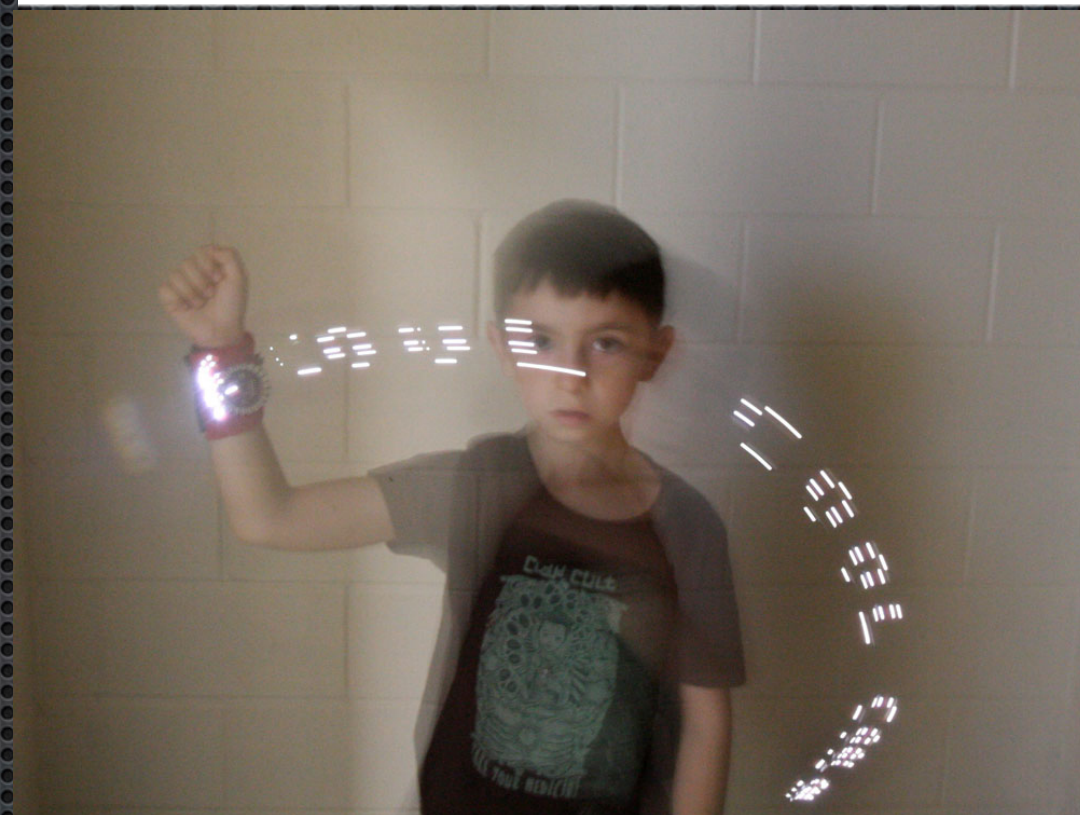
ARDUINO LILYPAD



ARDUINO LILYPAD

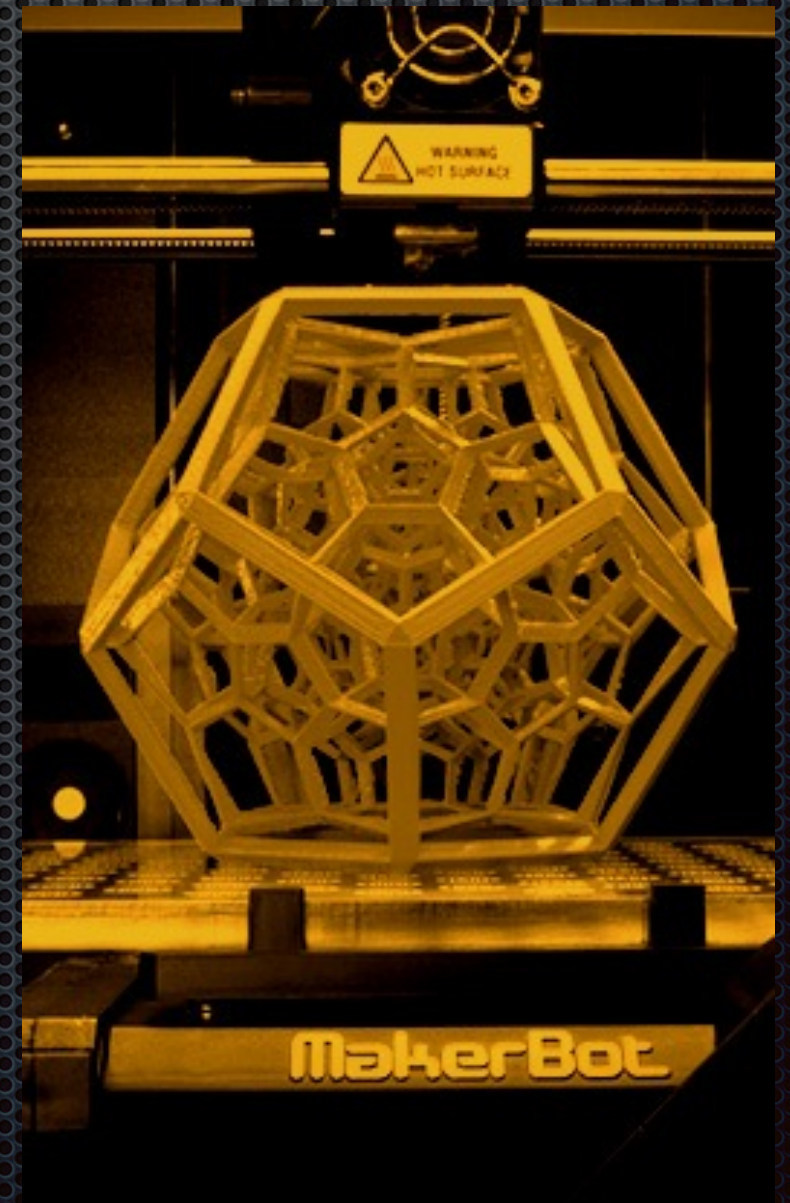


Leah Buechley: turn signal biking jacket

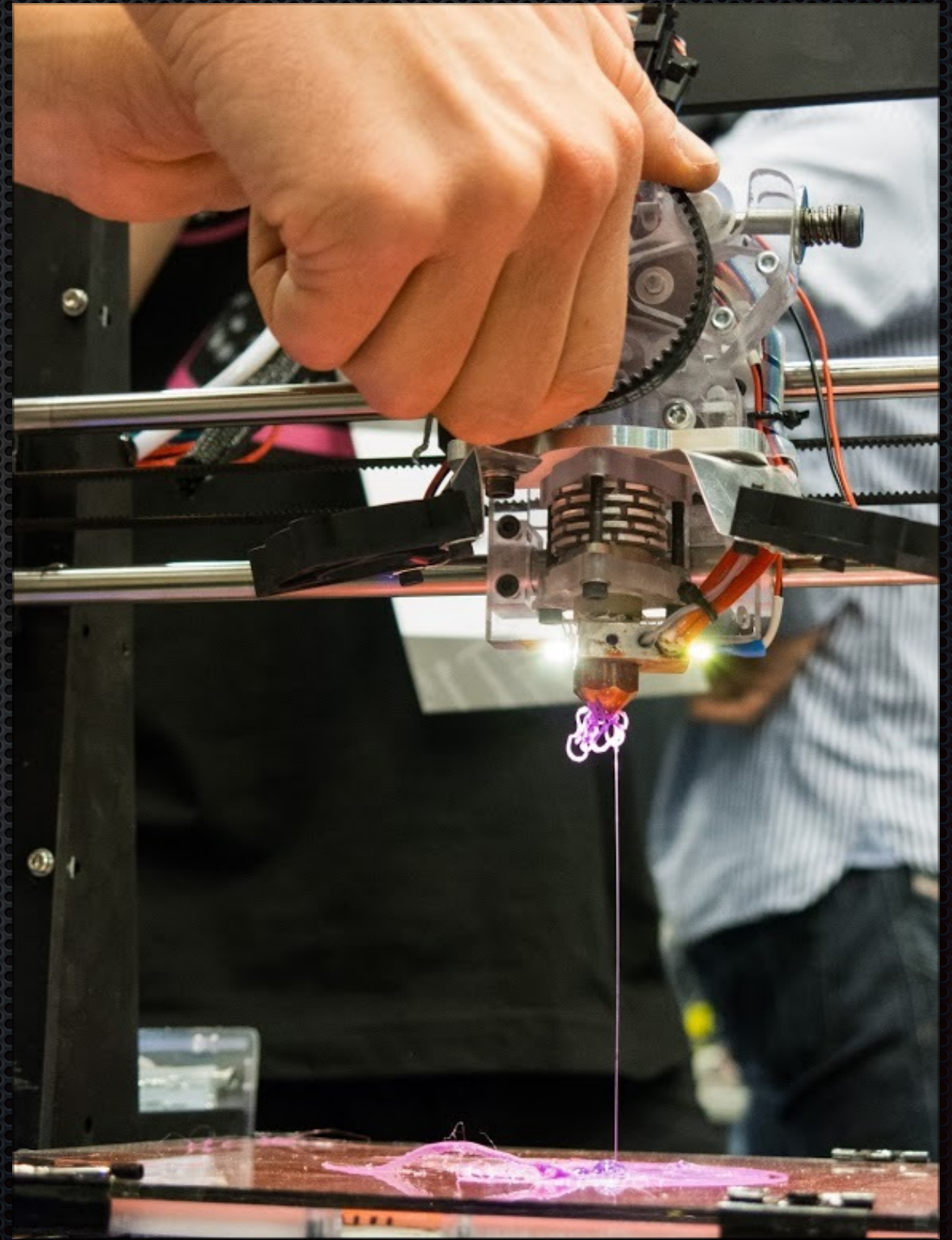
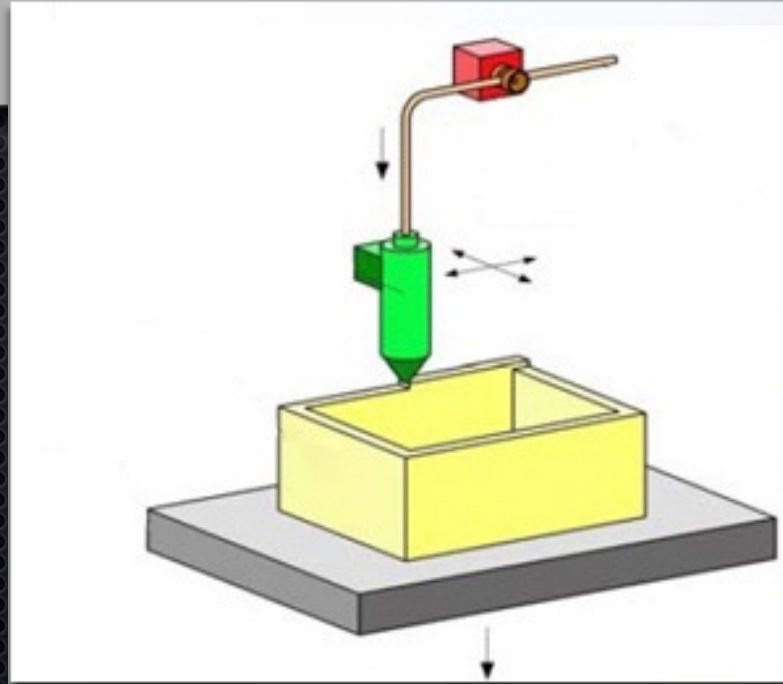
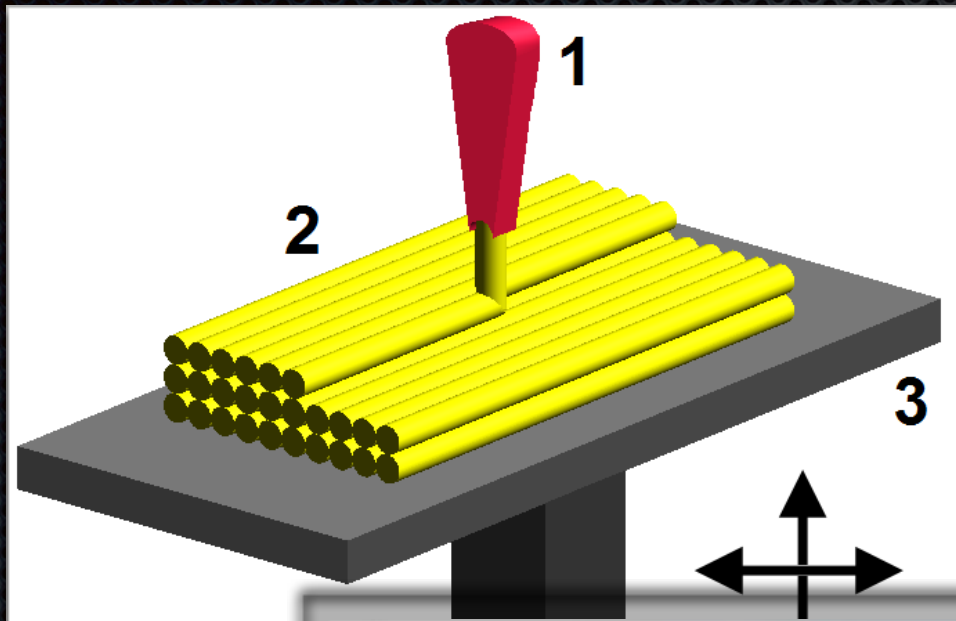


RAPID 3D PROTOTYPING

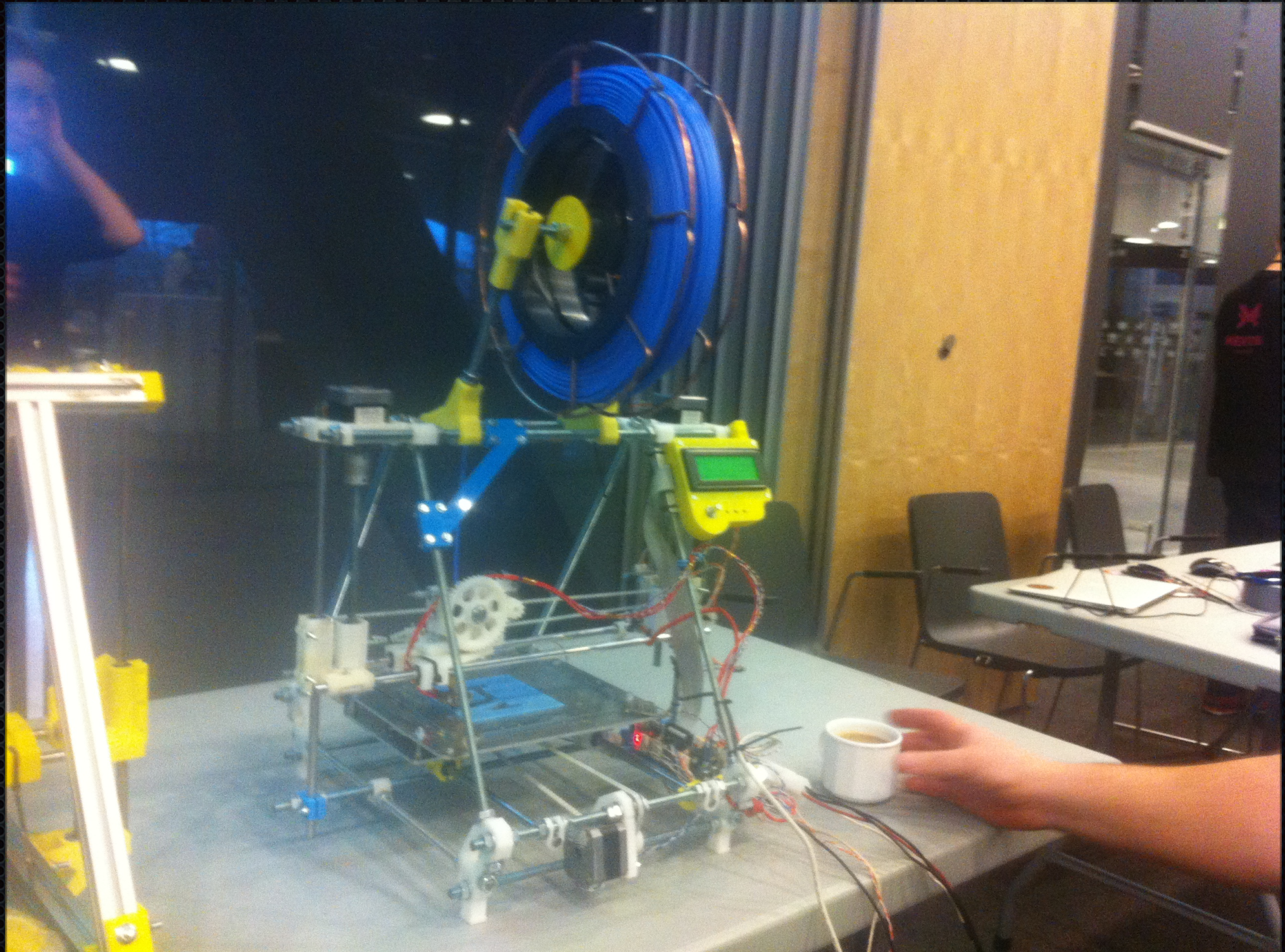
- Making a three-dimensional solid object of virtually any shape from a digital model.
- Large open-source development since 2008, with patent expiration on **Fused deposition modeling**



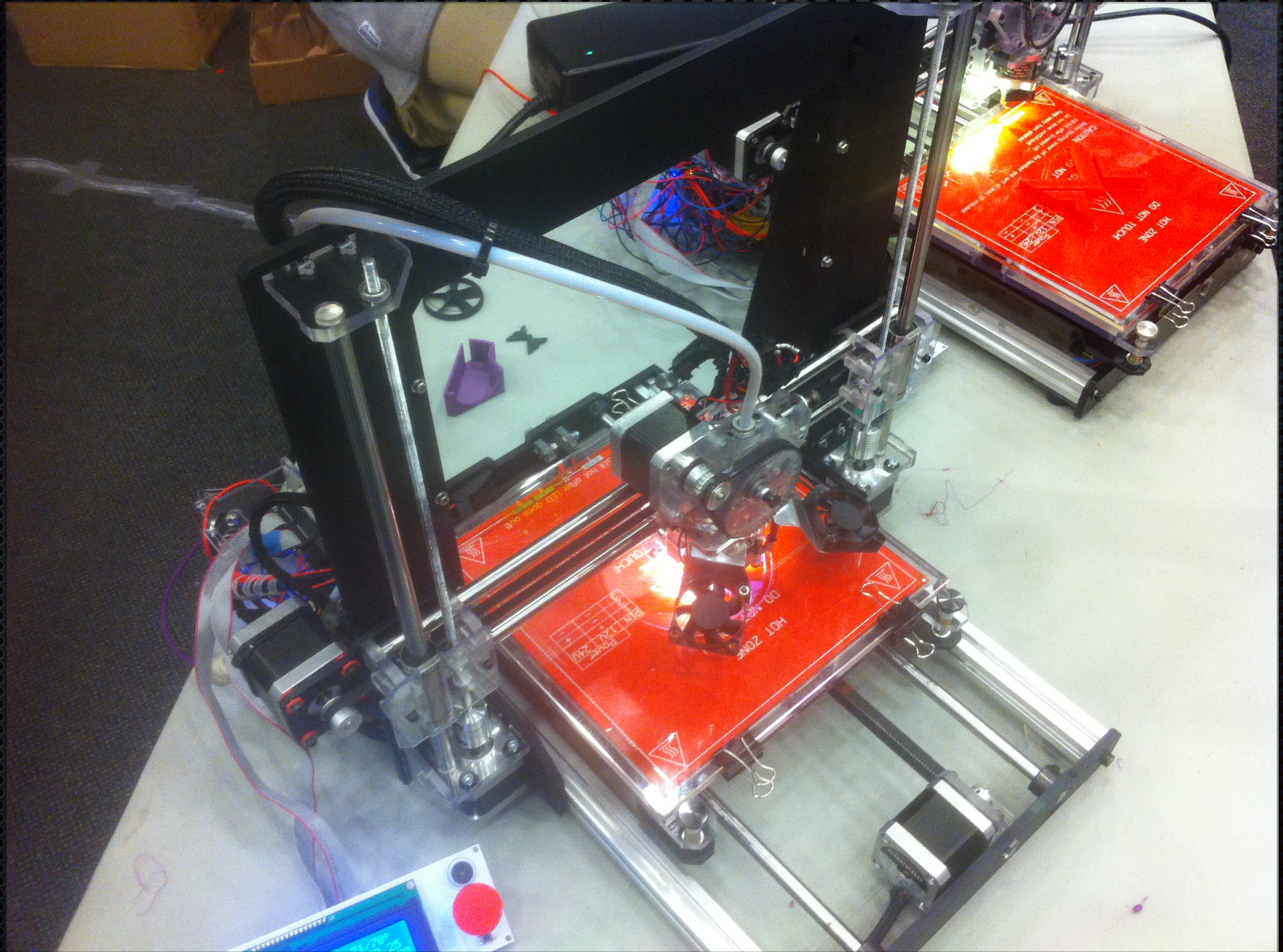
RAPID 3D PROTOTYPING



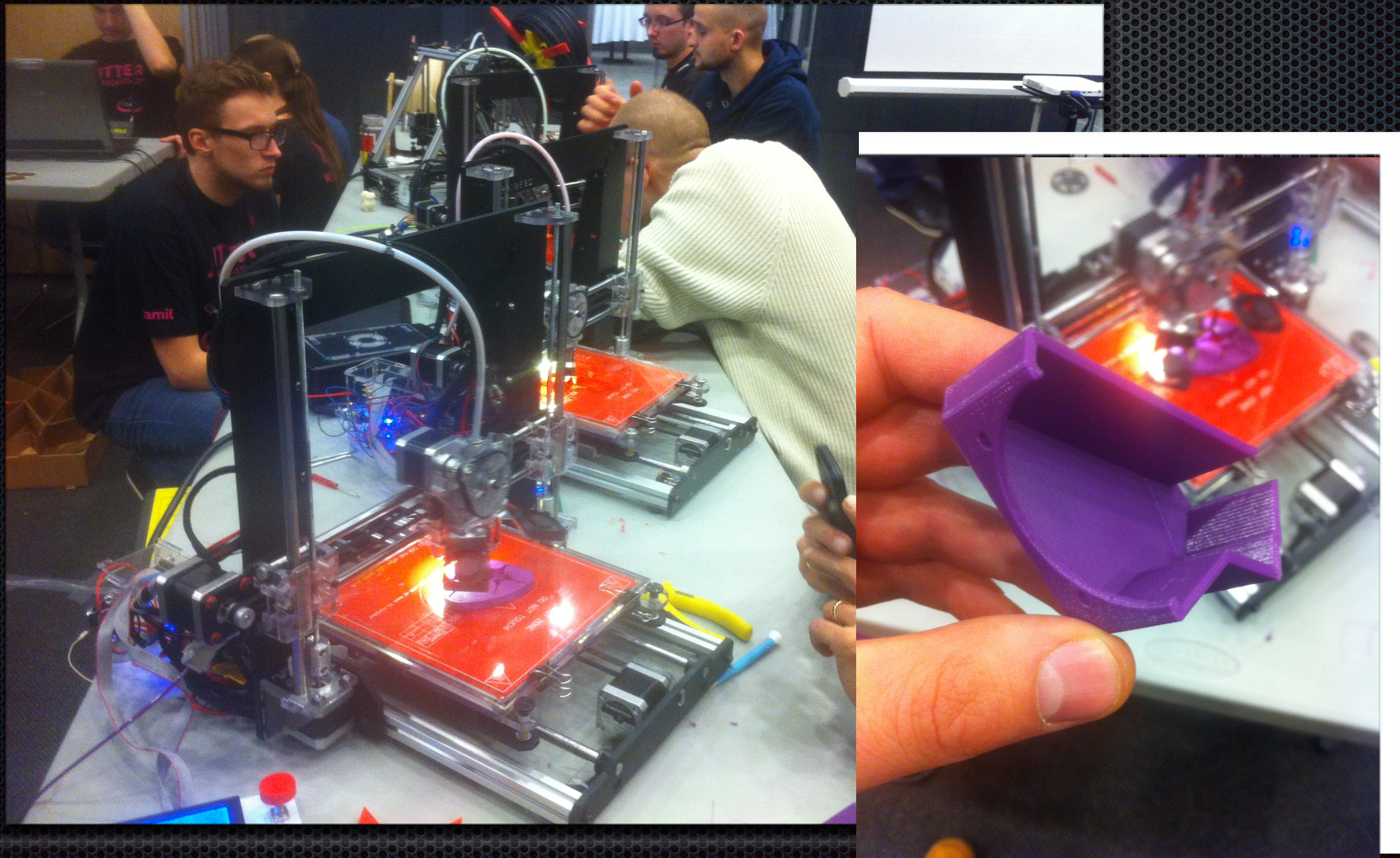
RAPID 3D PROTOTYPING



RAPID 3D PROTOTYPING



RAPID 3D PROTOTYPING

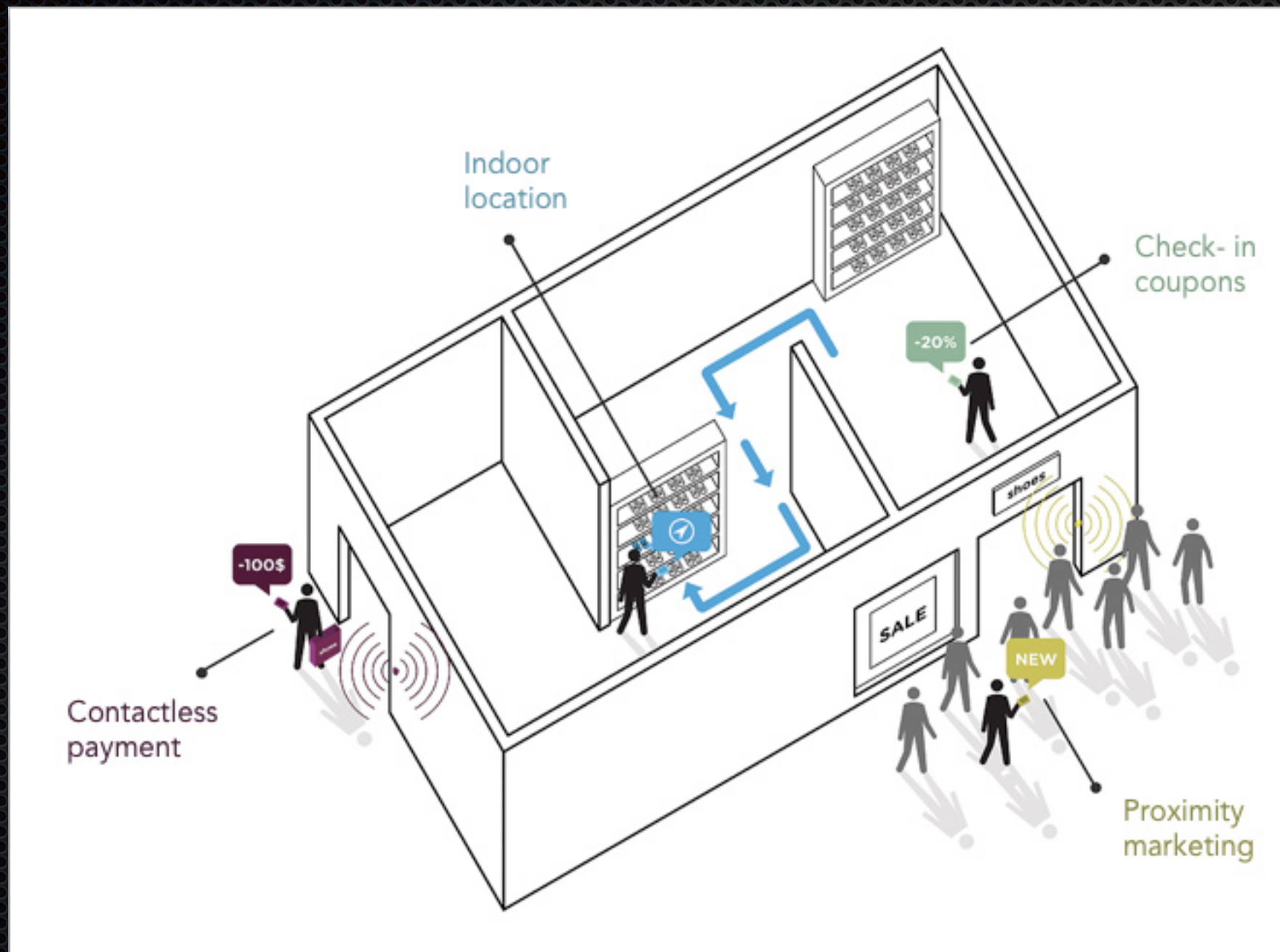


ESTIMOTE

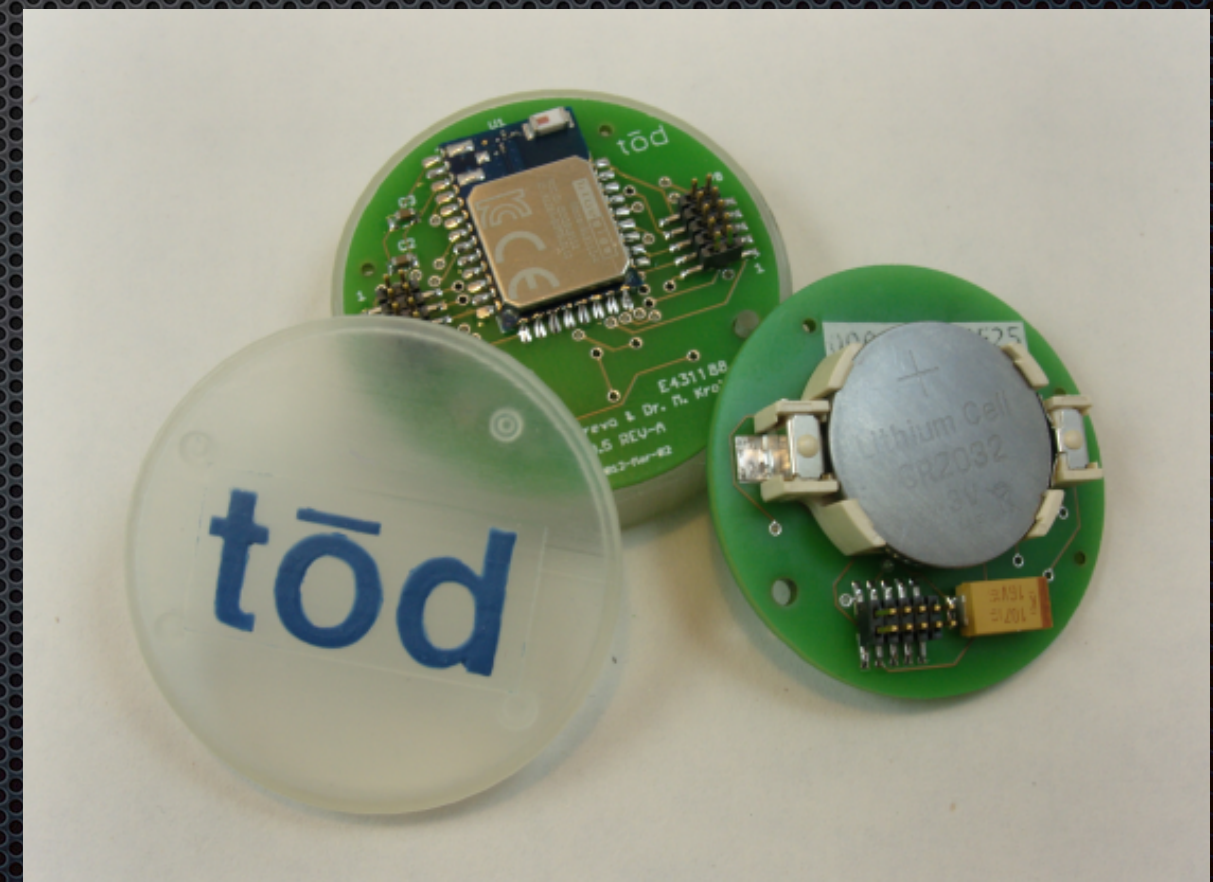
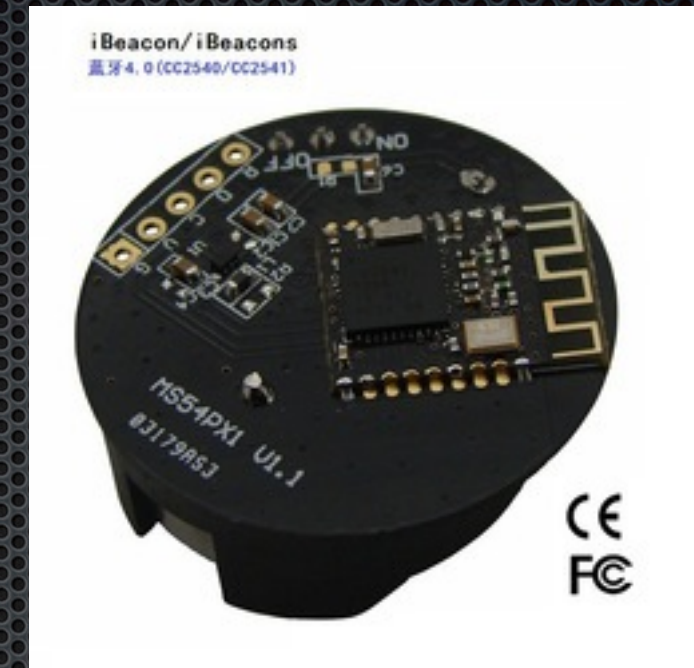
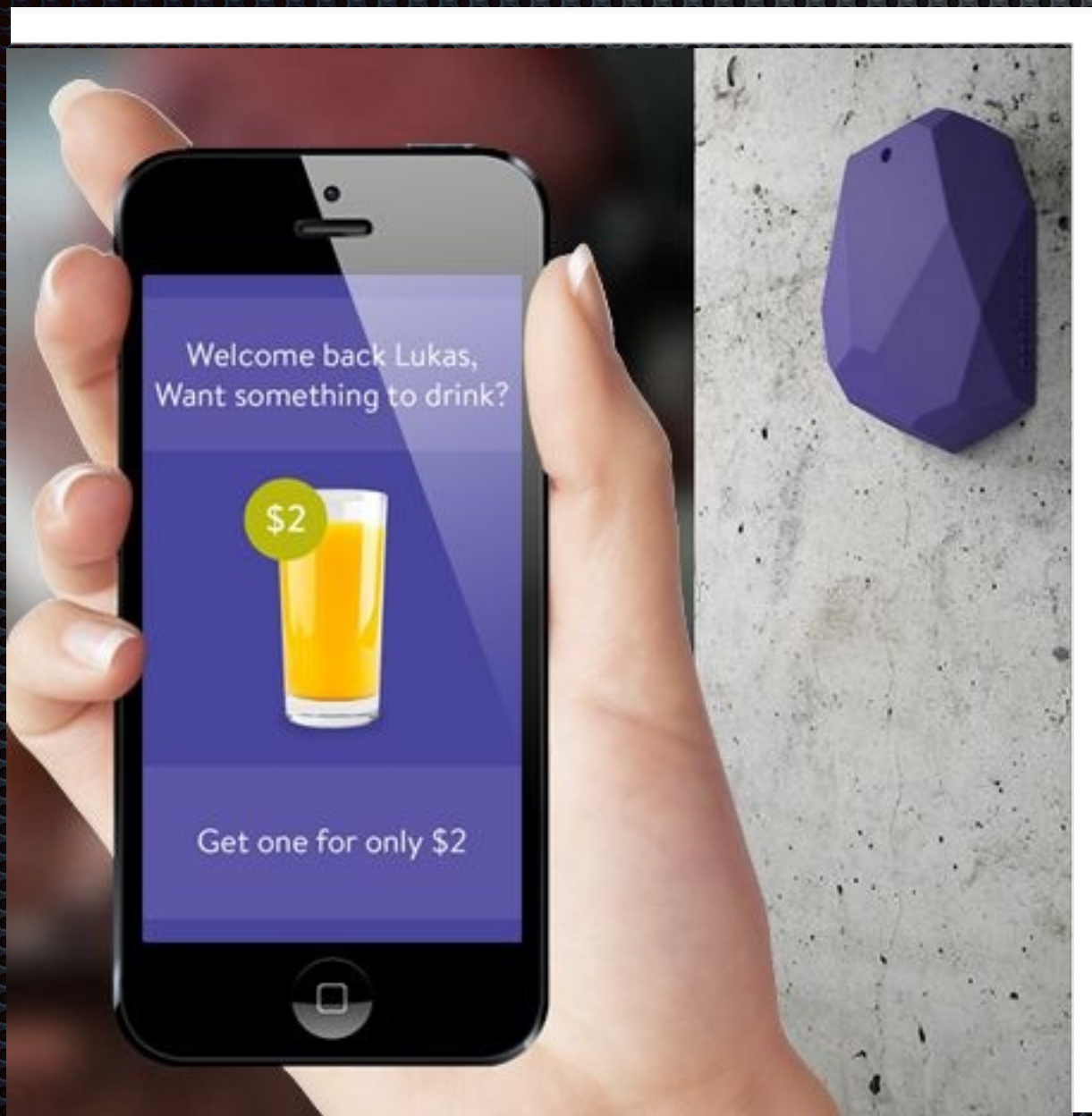
- ✦ micro-localization,
- ✦ wireless device,
- ✦ broadcasts tiny radio signals to smart devices (Bluetooth Smart)



ESTIMATE



ESTIMOTE



GOOGLE GLASS

- wearable computer
- optical head-mounted display (OHMD)
- smartphone-like hands-free
- voice activated
- touchpad
- head-gestures
- bone conduction audio playback



GOOGLE GLASS

- ✦ Google Mirror API
- ✦ Java Or Python?
- ✦ timeline card interaction
- ✦ Timeline cards == text, images, HTML or video



NAO ROBOTS

- ✦ 58cm tall humanoid robot,
- ✦ Intel ATOM 1,6ghz CPU Inside,
- ✦ 2 cameras, 4 microphones, sonar rangefinder, 2 IR emitters and receivers, 1 inertial board, 9 tactile sensors, and 8 pressure sensors
- ✦ including voice synthesizer, LED lights, and 2 high-fidelity speakers

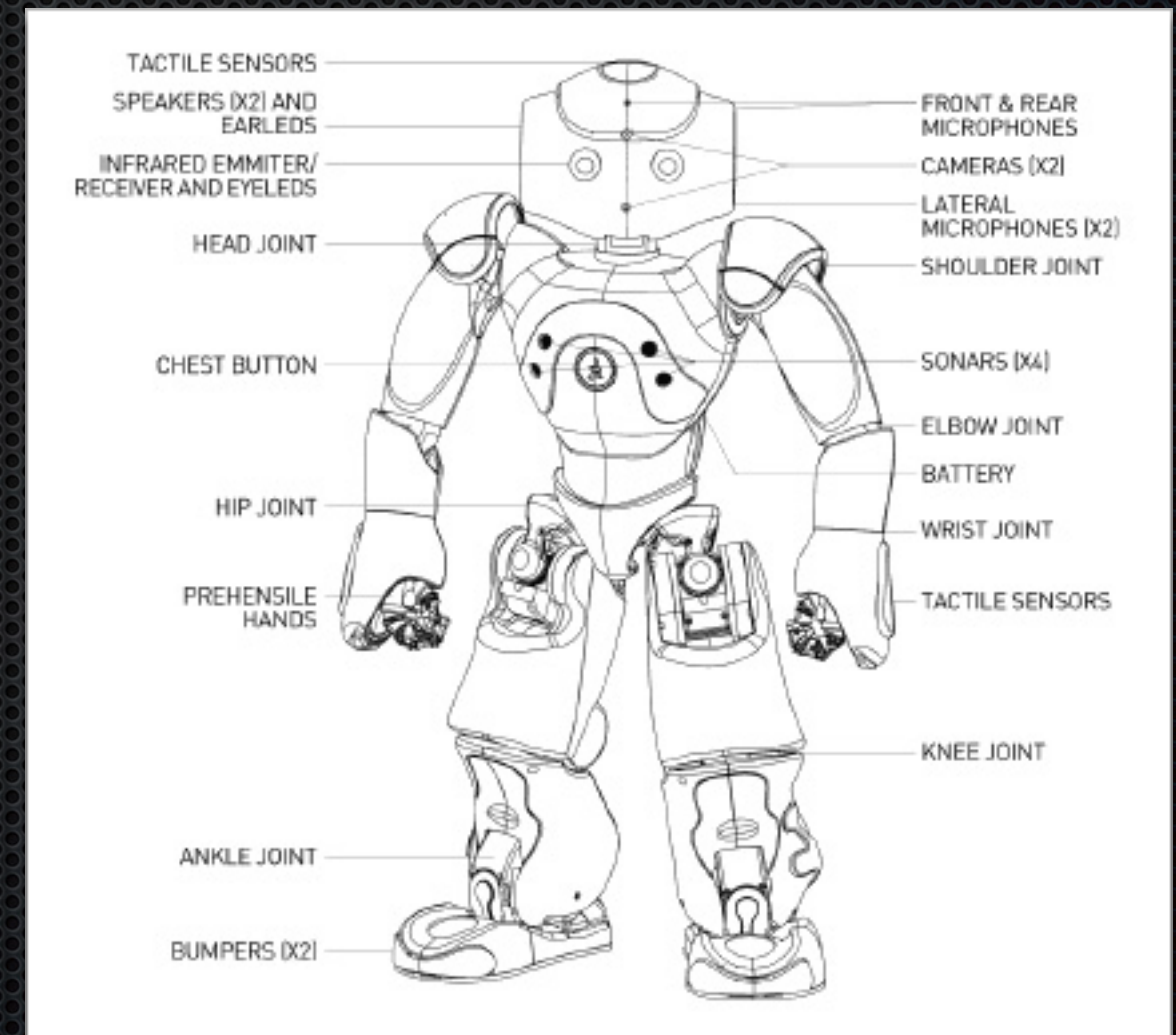


NAO ROBOTS

Choreographe software

- create and edit movements and interactive behaviors simply
- dragging/copying from the library or creating personalized boxes and saving them to personal libraries.
- including voice synthesizer, LED lights, and 2 high-fidelity speakers

Cross-platform SDK, compatible with many robotics development platforms and languages, such as C++, Python, Matlab, Java, Urbi or .Net.



NAO ROBOTS

Choregraphe File Box library Edit Connection View Help

Whatsnew - Choregraphe (Connected to 192.168.1.9)

Box libraries: standard, advanced, Search

- Audio
- Communication
- Data Edit
- Flow Control
- LEDs
- Math
- Motions
- Sensing
- System
- Templates
- Trackers
- Vision

Diagram components and connections:

- onStart
- Add event from AL Memory
- Vision
- Head Movements
- Head Lines OK
- Say Once
- Binocular Processing
- Walk Around
- Facial Expression
- Head Lines Copy
- Call to Module

Video monitor: [Image of a zebra]

Behavior manager

Behaviors:

Behavior	Status
.currentChor...	▶
AR_DataEntr...	▶
autonomous...	▶
cloud-reader	▶
fortune_1	▶
go-to-rest	▶
happybirthday	▶
monitoring	▶
naos-life	▶
naos-life-ch...	▶
presentation	▶
psy-radio	▶
ReceiveEvent...	▶
sitdown	▶

Robot view: [Image of a Nao robot]

Project content: behavior.xar

Debug window:

trying to set is inherited from parent.
[WARN] behavior.box: ALFrameManager__naoslifechannelsit_relaxation2150013008__root__Relaxation_2_1: setParameter: The parameter you are trying to set is inherited from parent.
[WARN] behavior.box: ALFrameManager__naoslifechannelsit_think32624290920__root__Think_3_1: setParameter: The parameter you are trying to set is inherited from parent.
[WARN] behavior.box: ALFrameManager__naoslifechannelsit_rest1148295848__root__Rest_1_1: setParameter: The parameter you are trying to set is inherited from parent.

Show all logs Log Level: Info

NAO ROBOTS





Nowa Praga Cinema



Mike Lee

Keynote: The app Universe After
The Big Bang



- ✦ Mike Lee, Mayor and founder of Appsterdam,
- ✦ Legendary product engineer and programmer,
- ✦ Founder: New Lemurs, an Amsterdam-based startup with the stated goal of making games educational

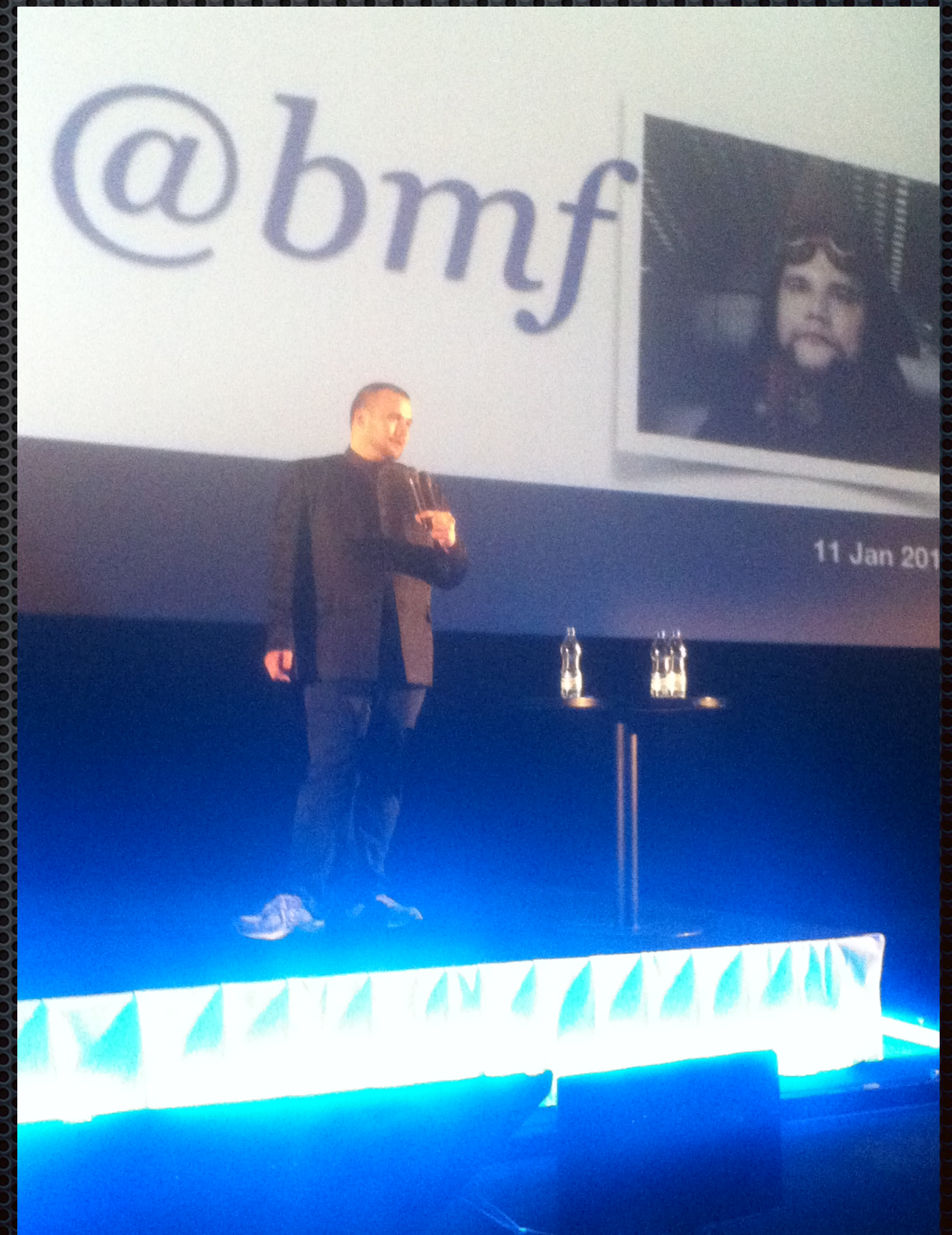
Mike Lee

Keynote: The app Universe After The Big Bang

- Apps "Gold Age": 2008

Example: Obama 08 App.

- While creating you have to be: accountant, sales person, lawyer, etc..
- Hard to price your app
- You will lose friends



Mike Lee

Keynote: The app Universe After The Big Bang

- You will most probably release bad (from your POV) software: "It was supposed to be better!"
- BAD Ideas:
 - Let's do sth like _____ but with/without _____

Examples:

- Let's do sth like **iTunes** but with **sound effects**!
- Let's do sth like **Facebook** but for **pets**!

Mike Lee

Keynote: The app Universe After The Big Bang

- **Don't Make GAMES!**

but..



Jackson Gabbard

Move Fast, Support Multiple
Platforms

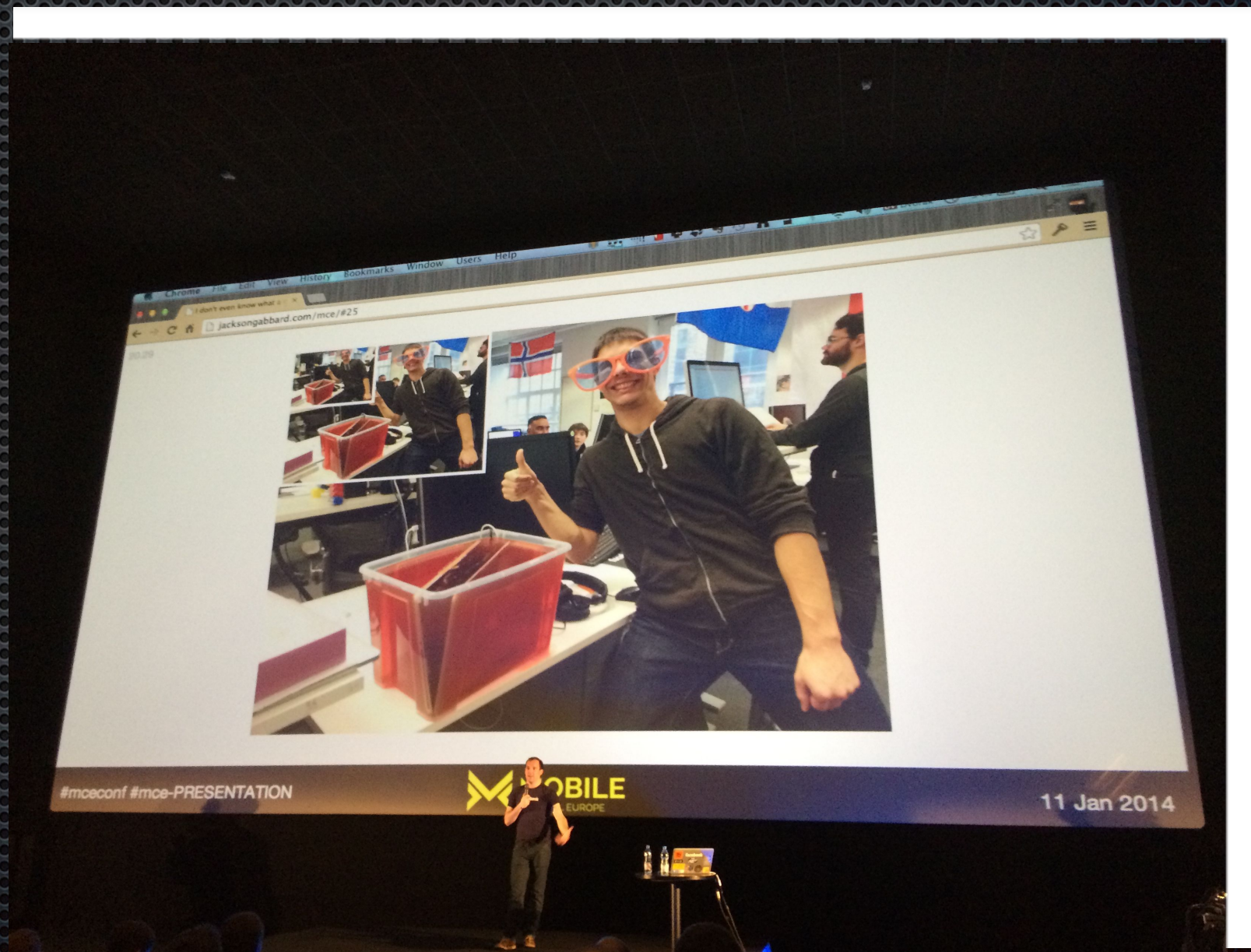


- Works as a Engineer in Facebook London HQ in Covent Garden
- moved from San Francisco to London
- worked on variety of teams and projects from the UI libraries that Facebook product engineers use to internal tools and security.

Jackson Gabbard

Move Fast, Support Multiple Platforms

- Number of employees:
 - 90k Microsoft
 - 50k Google
 - **6k** Facebook



Jackson Gabbard

Move Fast, Support Multiple
Platforms



- Facebook on:
 - Smartphones 2006
 - 2007 iOS App
 - 2008 Android App
- Mobile website users > iOS + Android

Jackson Gabbard

Move Fast, Support Multiple Platforms



- FB website 'cannot failed services' are based on JAVA/C++ core, PHP is on top of that.
- Tools they use:
 - **Apache Thrift** - framework for cross-language services development,
 - **PResto, Hadoop, Hbase** - for data analysis,
 - **Phabricator** - open source software engineering platform,
 - **XHP** - augmentation of PHP developed at Facebook to allow XML syntax

Jon Reid

Test Driven Development for iOS
and anything



- Test Driven Development infected
- creator of Quality Coding blog, where he shares tools, tips & techniques for building quality into iOS development.
- Currently works for eBay



Jon Reid

Test Driven Development for iOS
and anything



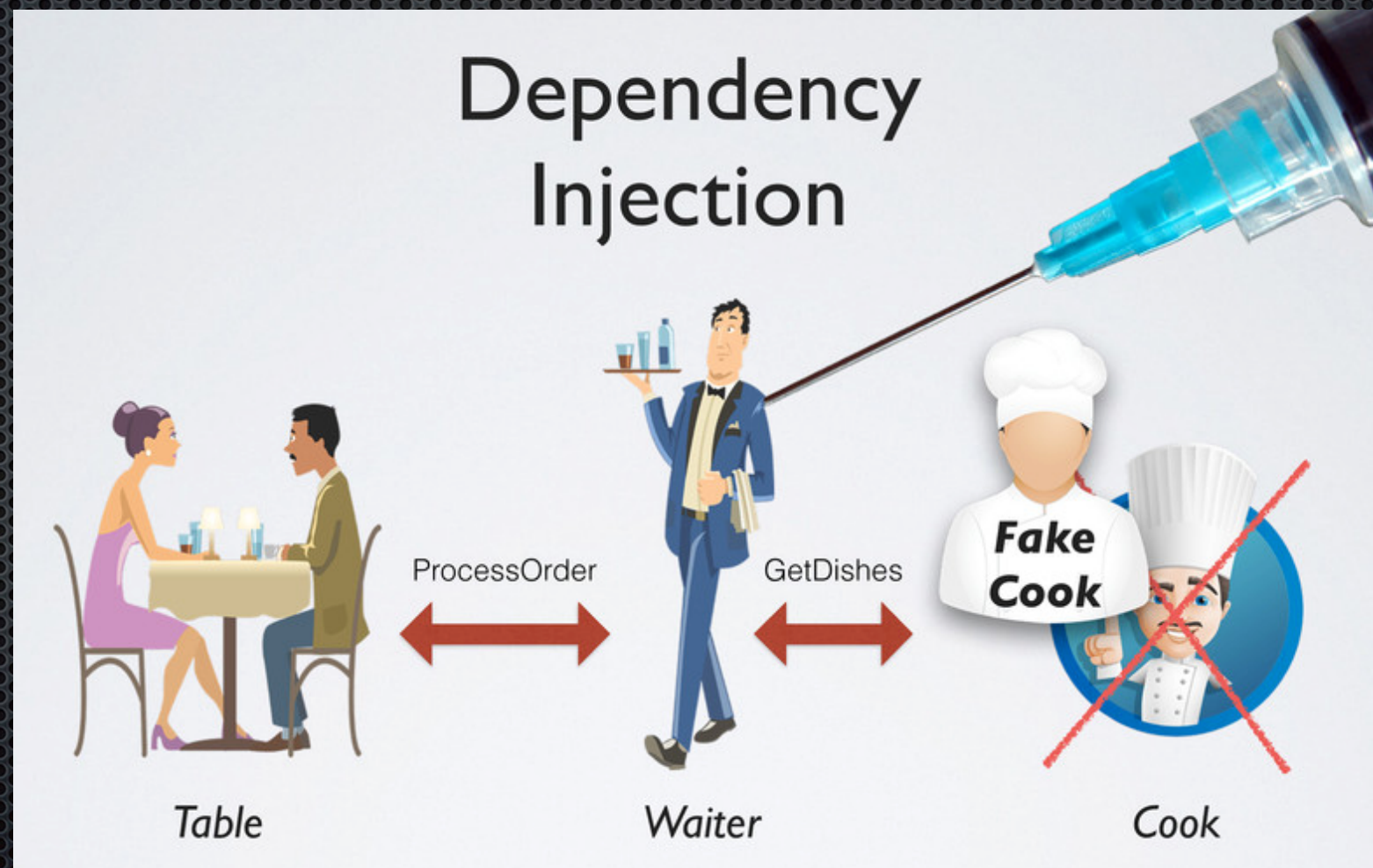
- ✦ TDD for UI and Networking?
- ✦ 3 Types of test
 - ✦ return value test
 - ✦ state test
 - ✦ interaction test

Jon Reid

Test Driven Development for iOS and anything



- Interaction tests by using dependency injection



Jon Reid

Test Driven Development for iOS and anything

Let's Make a Fake: 4. *Capture arguments*

```
@interface MockAFNetworkingGET : NSObject
@property (nonatomic) int callCount;
@property (nonatomic, strong) AFHTTPRequestOperation *fakeReturnValue;
@property (nonatomic, copy) NSString *URLString;
@property (nonatomic, copy) NSDictionary *parameters;
@property (nonatomic, copy) void (^success)(AFHTTPRequestOperation *operation, id responseObject);
@property (nonatomic, copy) void (^failure)(AFHTTPRequestOperation *operation, NSError *error);
@end

@implementation MockAFNetworkingGET

- (AFHTTPRequestOperation *)GET:(NSString *)URLString
    parameters:(NSDictionary *)parameters
    success:(void (^)(AFHTTPRequestOperation *operation, id responseObject))success
    failure:(void (^)(AFHTTPRequestOperation *operation, NSError *error))failure
{
    self.callCount += 1;
    self.URLString = URLString;
    self.parameters = parameters;
    self.success = success;
    self.failure = failure;
    return self.fakeReturnValue;
}

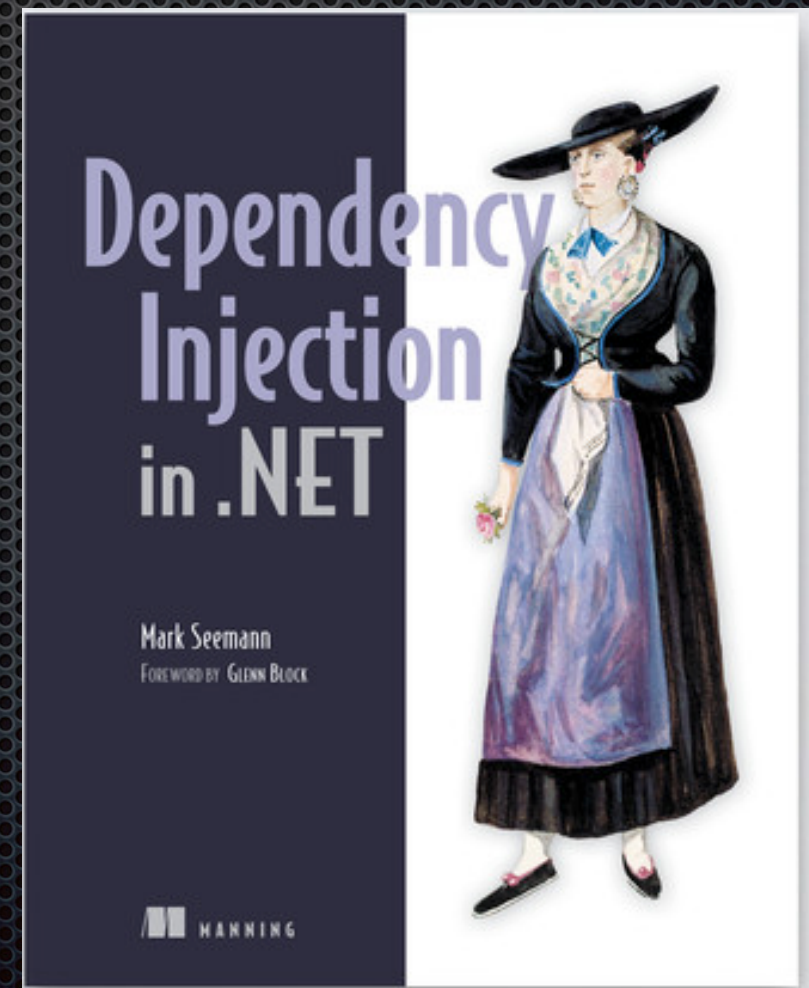
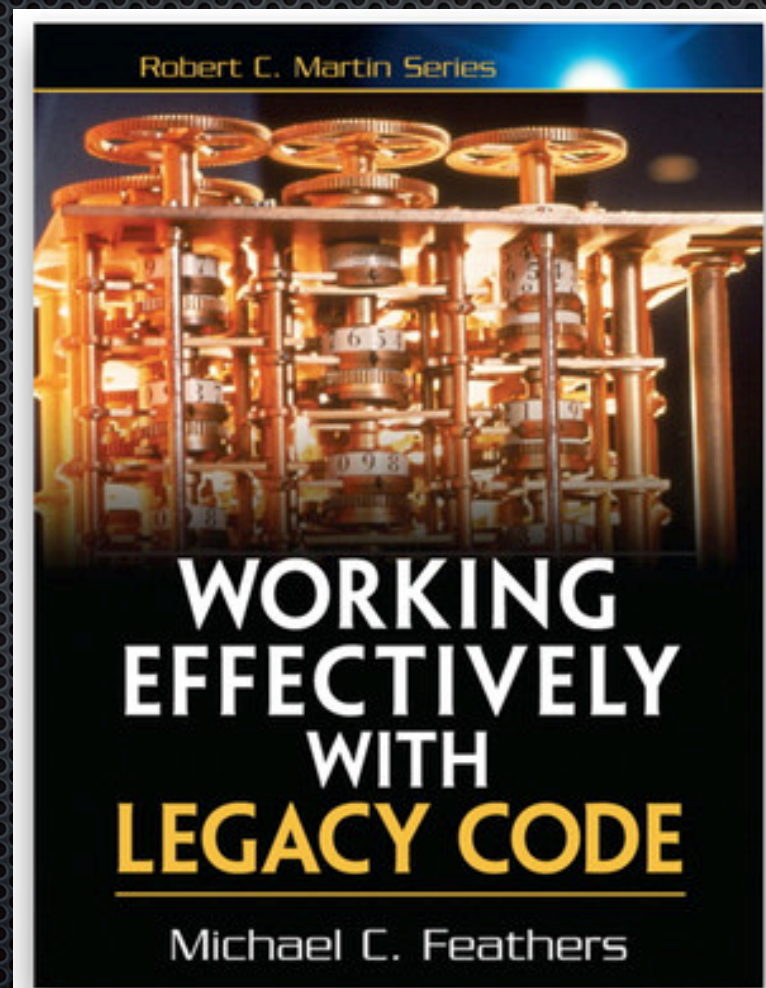
@end
```


Jon Reid

Test Driven Development for iOS
and anything



- ✦ Recommended books:



Tom Maes

First we take Mangattan.. Getting your iOS apps ready for the world



- 15+ years of experienced software developer, who worked for Cisco, Sun Microsystems, Oracle.
- now iOS developer itsuma b.v.b.a.

Tom Maes

First we take Mangattan.. Getting your iOS apps ready for the world

- localization or localisation?
- More languages => more \$\$\$!
- What about button and labels lengths?
- Pseudolocalization: long text made with diacritic marks:

Account Settings = [!!! Àççôûñť Šétťîñĝš !!!]

Tom Maes

First we take Mangattan.. Getting your iOS apps ready for the world

- Remember about date, numbers, units,
- Maintenance: monitor reviews and comments in App Store,
- Become App Store's student - weekly check trends.

Tom Maes

First we take Mangattan.. Getting your iOS apps ready for the world



Damian Mehers

Evernote and Wearable devices - what have we done, what could we do?



- work for Evernote and created the Evernote Windows Phone client,
- currently focused on Wearables and Evernote.

Damian Mehers

Everynote and Wearable devices - what have we done, what could we do?



Damian Mehers

Evernote and Wearable devices - what have we done, what could we do?



Pebble



- link display, low hardware specs
- Bluetooth communication with apps that run on phone,
- sends messages 120 bytes 'short'
- works for iOS and Android

Damian Mehers

Everynote and Wearable devices - what have we done, what could we do?



Galaxy Gear

good hardware specs,
is a complete Android device,
Works with Samsung Galaxy 4.

Damian Mehers

Evernote and Wearable devices - what have we done, what could we do?



- Specs similar to Galaxy Gear
- Works only with smartphone,
- Easy to debug, great for simple apps.

Damian Mehers

Evernote and Wearable devices - what have we done, what could we do?



Google Glass

...

- has voice recognition which can be used to make notes

Damian Mehers

Evernote and Wearable devices - what have we done, what could we do?



- How it can be used?
- Location based notifications
 - Shopping list "hands free"
 - Future? Health tracking.

Rob Rusher

Are you staring on my glass?



- Experienced Software Executive, Software Architect and Developer, Visionary Speaker and Entrepreneur
- Google Glass Evangelist :)

Rob Rusher

Are you staring on my glass?



- Glass Explorer or ...Glass-Hole?
- Don't use it in toilets,
- Take it off when you are asked to.
- ...but with dimmed glass it's easy to hide

Rob Rusher

Are you staring on my glass?



Improves social relations...?

Remy Virin

Continuos Integration, from Unit
Test to hardware



- Kickstarted successs: LIMA - network drive/cloud hybrid

Remy Virin

Continuos Integration, from Unit Test to hardware



- ✦ Advantages of continuos integration:
- ✦ quality can be measured
- ✦ documents can be generated
- ✦ Unit test
- ✦ functional test

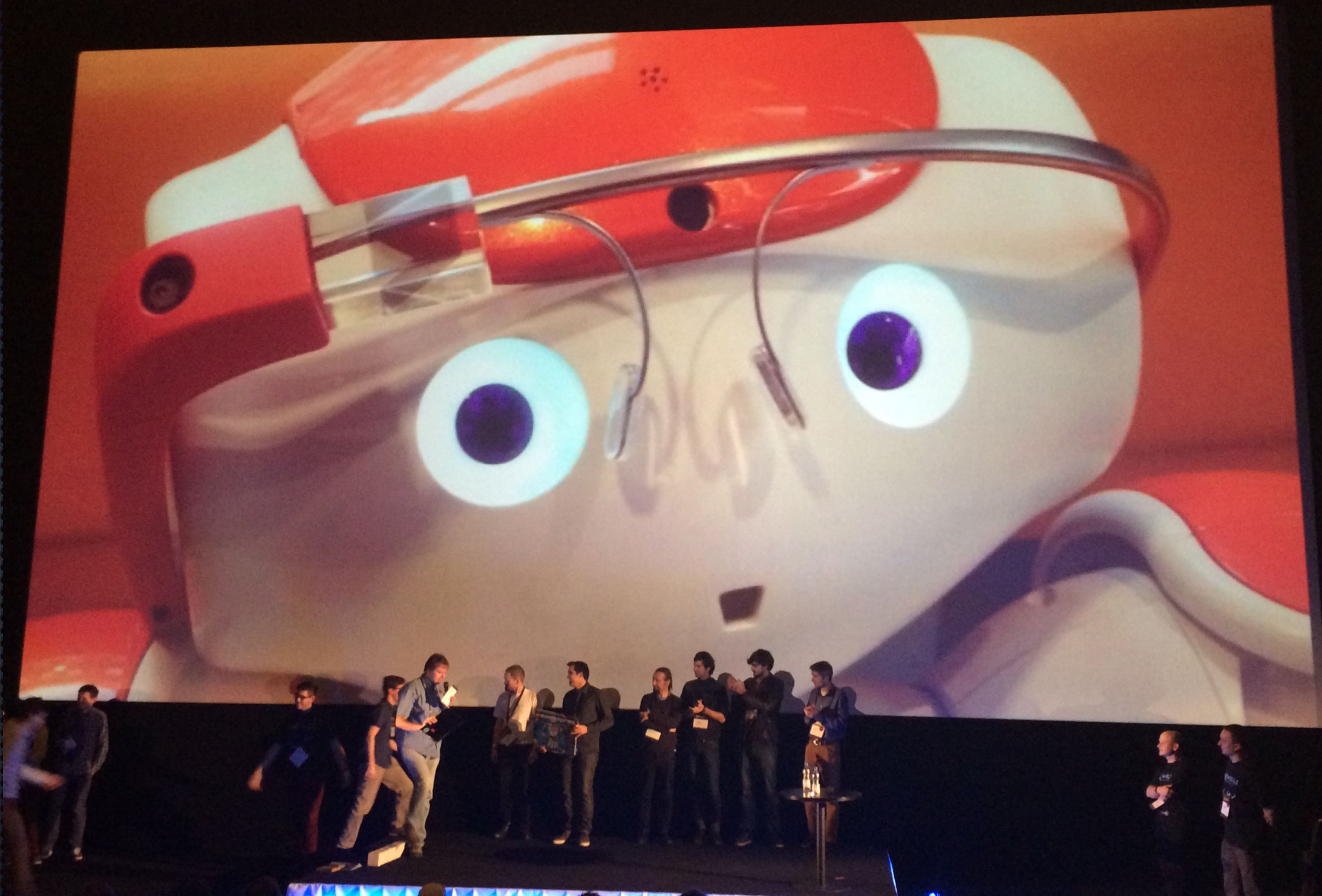
Remy Virin

Continuos Integration, from Unit
Test to hardware

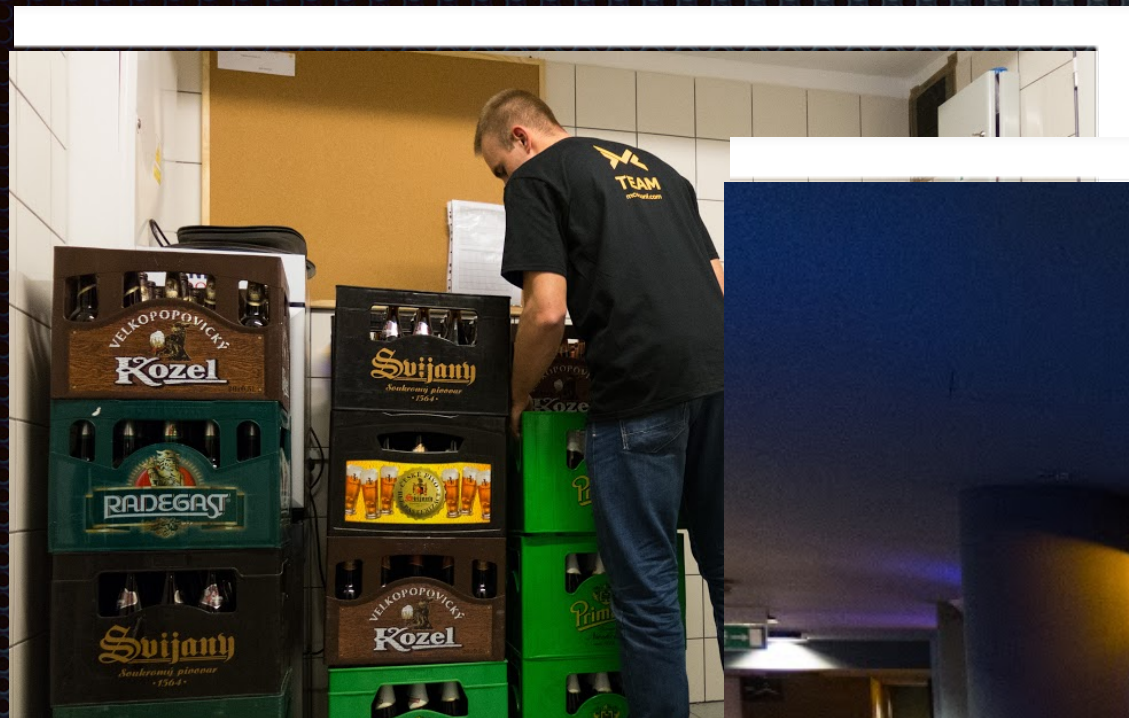


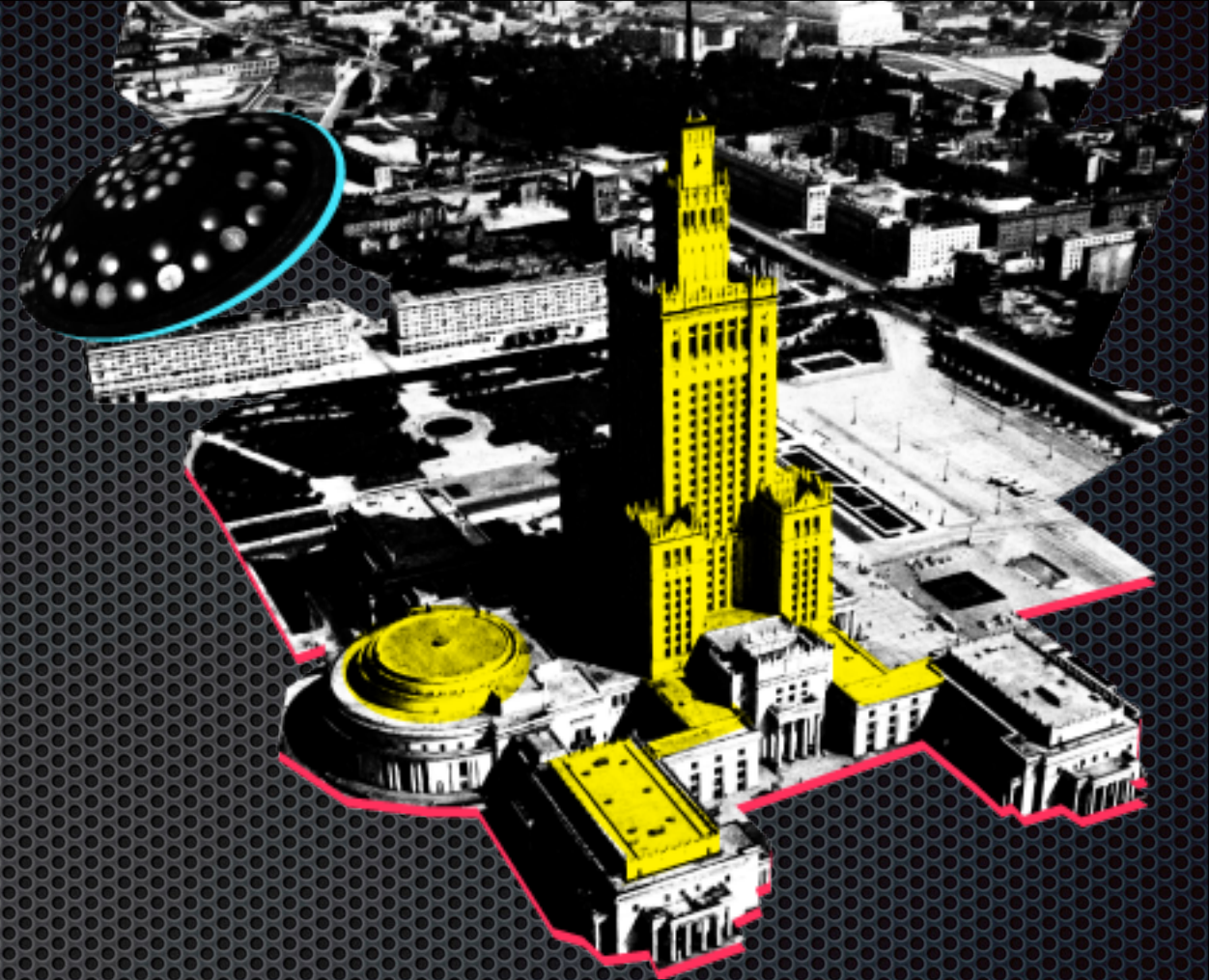
- ✦ Tools:
- ✦ Bots - needs OSX server, buggy
- ✦ Jenkins - integrates several projects,
- ✦ Sonar - generates documentations, counts lines, etc

After all lectures...



After all lectures...





Thank you
Questions?