

FABO ACADEMY X

WHAT IS A FABLAB?



HOW IT STARTED

PROF. NEIL GERSHENFELD, DIRECTOR OF THE CENTER FOR BITS AND ATOMS



Center for Bits and Atoms

HOW IT STARTED

MIT (MASSACHUSETTS INSTITUTE OF TECHNOLOGY)
CENTER FOR BITS AND ATOMS

HOW IT STARTED

WHAT IS A FABLAB?

- A SPACE ABOUT **BITS AND ATOMS**
- PART OF A **NETWORK**
- A LOCAL AND GLOBAL **COMMUNITY**
- A SET OF **TOOLS**
- A SET OF **KNOWLEDGE**
- A SET OF **PROCESSES**
- A **SERVICE**
- **NOT A FRANCHISING**
- A **BUSINESS**
- A CONCEPT CURRENTLY **UNDER DEVELOPMENT**

<http://www.slideshare.net/openp2pdesign/>

HOW IT STARTED

THE FAB CHARTER

● **WHAT IS A FAB LAB?**

Fab labs are a global network of local labs, enabling invention by providing access to tools for digital fabrication

● **WHAT'S IN A FAB LAB?**

Fab labs share an evolving inventory of core capabilities to make (almost) anything, allowing people and projects to be shared

● **WHAT DOES THE FAB LAB NETWORK PROVIDE?**

Operational, educational, technical, financial, and logistical assistance beyond what's available within one lab

● **WHO CAN USE A FAB LAB?**

Fab labs are available as a community resource, offering open access for individuals as well as scheduled access for programs

● **WHAT ARE YOUR RESPONSIBILITIES?**

safety: not hurting people or machines

operations: assisting with cleaning, maintaining, and improving the lab

knowledge: contributing to documentation and instruction

● **WHO OWNS FAB LAB INVENTIONS?**

Designs and processes developed in fab labs can be protected and sold however an inventor chooses, but should remain available for individuals to use and learn from

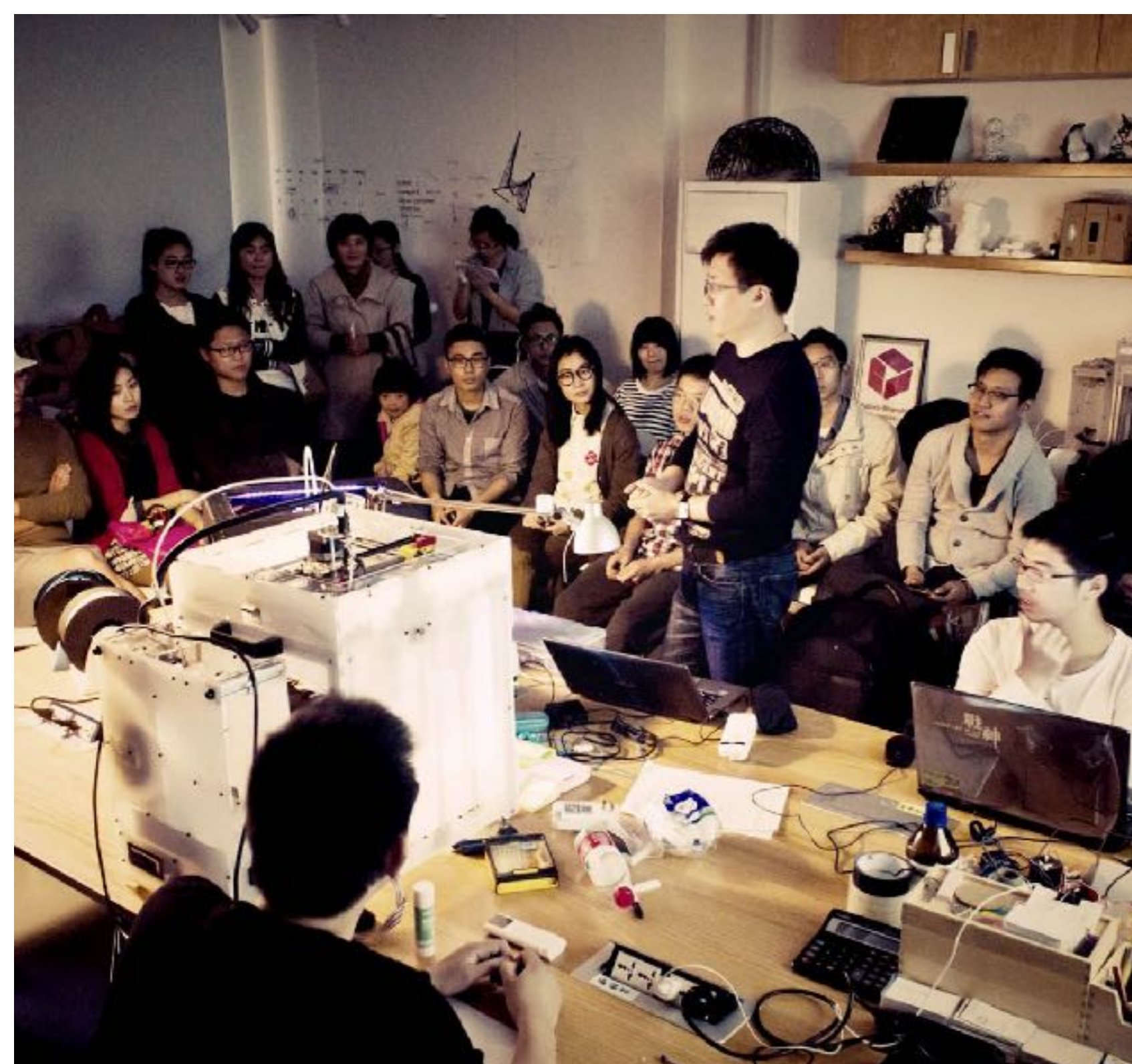
● **HOW CAN BUSINESSES USE A FAB LAB?**

Commercial activities can be prototyped and incubated in a fab lab, but they must not conflict with other uses, they should grow beyond rather than within the lab, and they are expected to benefit the inventors, labs, and networks that contribute to their success



WHAT IT IS NOW

OVER 600 LABS WORLD WIDE, DOUBLING EVERY 1.5 YEARS.
EVERY LAB HAS THE SAME SET OF MACHINES BUT FOCUS ON SOLUTIONS FOR LOCAL PROBLEMS.



WHAT IT IS NOW

ONLINE COMMUNITY THROUGH VIDEO STREAMING, SHARE DESIGN AND KNOWLEDGE BETWEEN LABS, EACH LAB HAS A SIMILAR SET OF OPEN SOURCE TOOLS.



Laser cutter



(Small) CNC
Milling machine



Vinyl cutter



3D Scanner



3D
printing



Digital
sewing /
embroidery



(Big) CNC
Milling machine



Electronics
(custom PCBs,
Arduino)

WHAT IT IS NOW

EVERY FABLAB HAS THE SAME STANDARD SET OF MACHINES. YOU CAN EASILY MAKE THE SAME PROJECT EVERYWHERE IN THE WORLD.



WHAT IT IS NOW

FAB ACADEMY: A DIGITAL FABRICATION COURSE.
EVERY FAB LAB IS A CLASSROOM IN THE NETWORK

WHAT IT IS NOW

A PLACE WHERE YOU CAN...

- FIND A **STANDARD** SET OF TOOLS
- **SHARE** YOUR KNOWLEDGE WITH THE USERS
- **LEARN** NEW SKILLS FROM THE LOCAL USERS
- ACCESS AND LEARN FROM THE GLOBAL **COMMUNITY**
- MAKE (ALMOST) **ANYTHING**
- PROTOTYPE AND **START** A BUSINESS



WHAT CAN YOU MAKE IN A FABLAB?

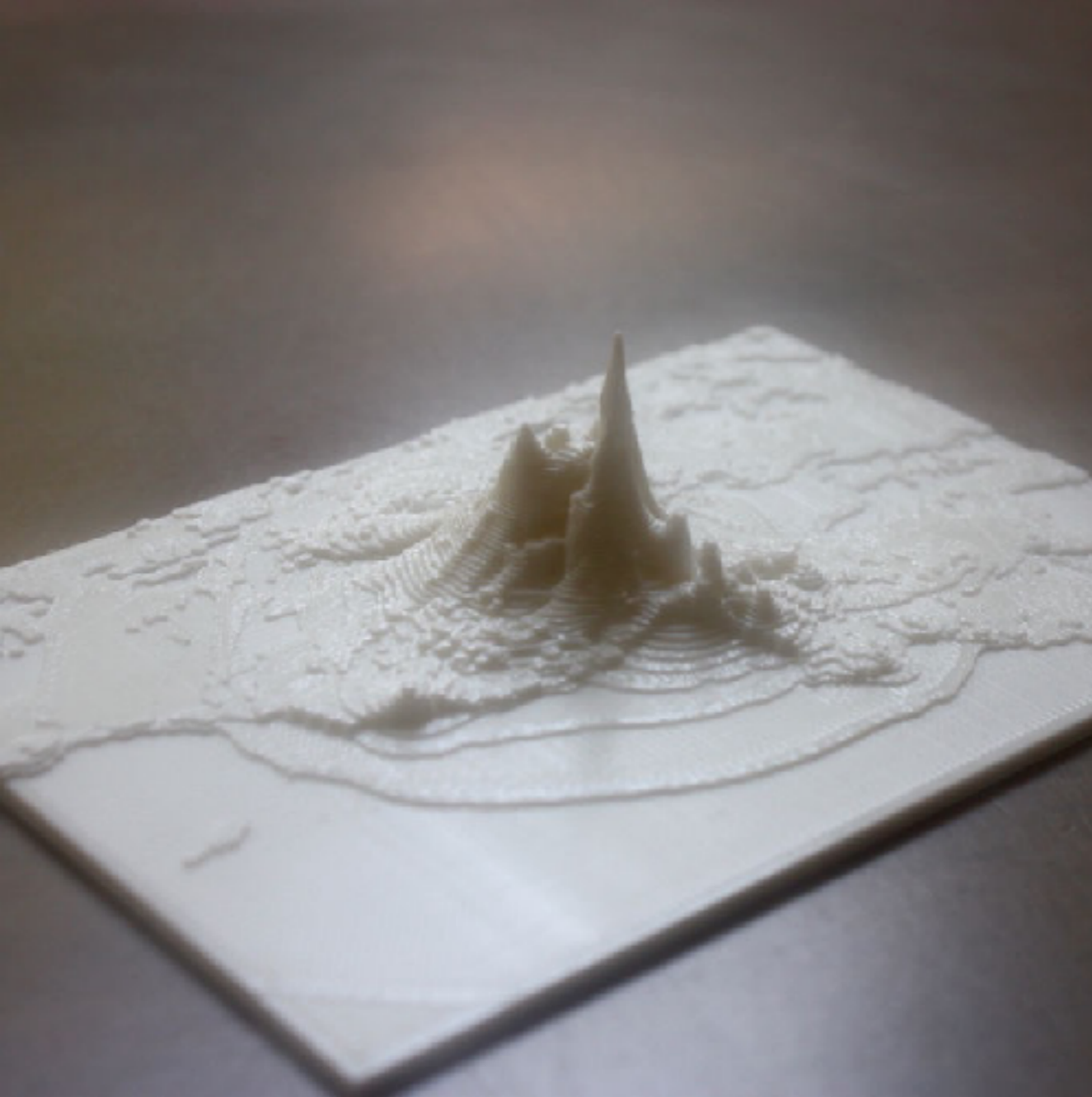
- Do-It-Yourself projects
- Repairs and replacement parts



WHAT CAN YOU MAKE IN A FABLAB?

- Custom Prosthetics, custom aids for impaired people
- Custom bikes

<http://www.opendotlab.it/it/content/loggetto-che-non-c%C3%A8>



WHAT CAN YOU MAKE IN A FABLAB?

- Data Visualization
- Fashion Products

Coffee Capsule Vending machine

Hyebin Goo Fab Lab Seoul

Increasing number of people are enjoying capsule coffee machine but!
Did you know that there are more than 30 different types of capsules? (I'm only talking about Nespresso here)
We consume lot of coffees but people just don't care about the flavors.

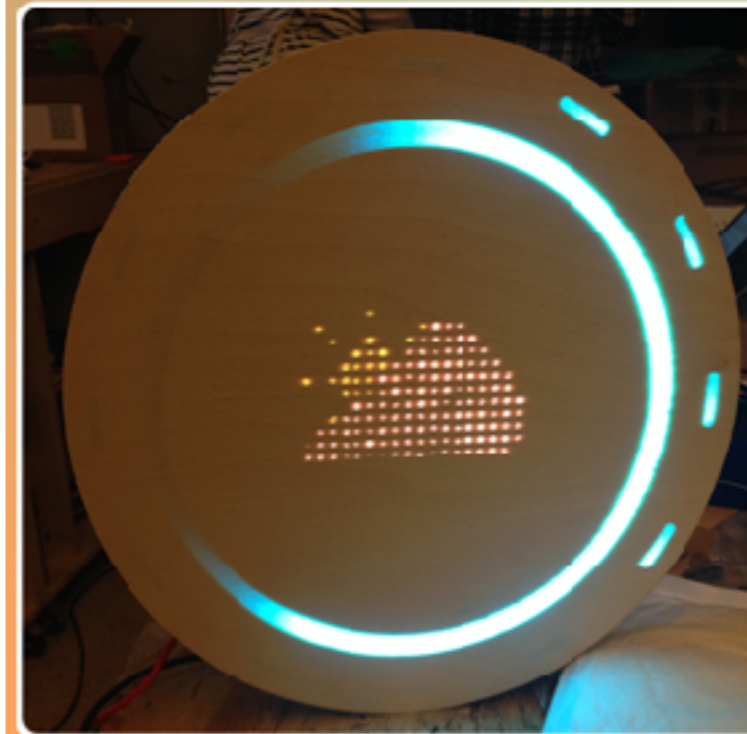
This vending machine will let you keep the capsules in each different container and make you easy to select the capsule you want.



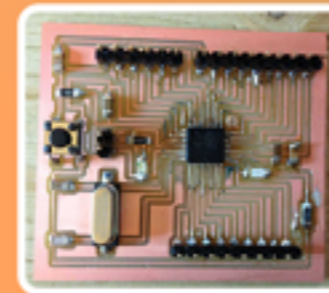
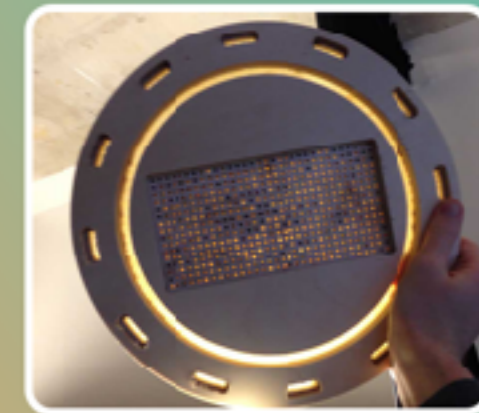
SMART CLOCK

A backlit wooden clock that tells the weather

Thomas
Fablab V
Fab Acad



- WiFi connection using ESP8266
- API communication for weather
- TIME DISPLAY : RGB addressable LEDs on fab-made PCBs and attached to plywood rings
- WEATHER DISPLAY : RGB LED matrix
- Birch plywood casing CNC machined translucent (0.65mm)
- Microcontroller : Daniele Ingrassia

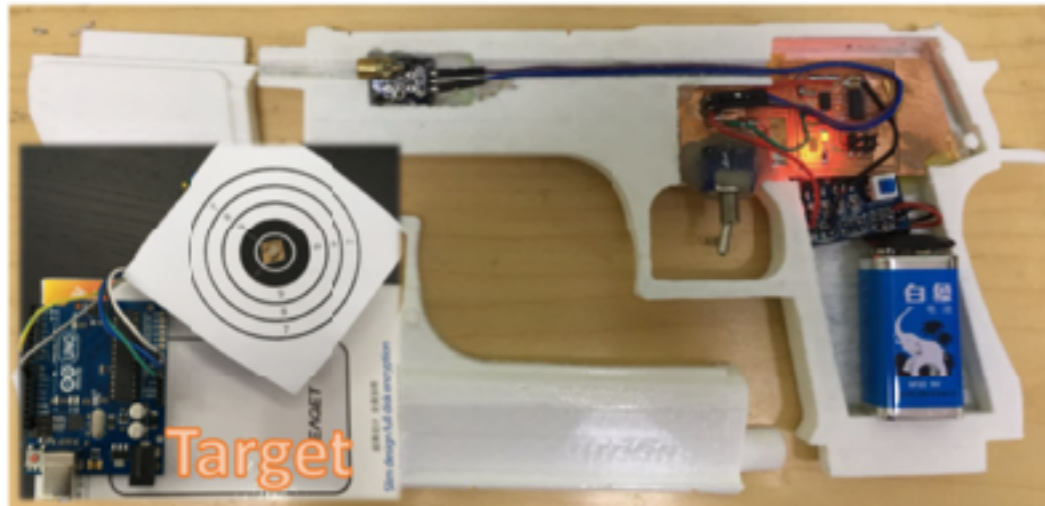


WHAT CAN YOU MAKE IN A FABLAB?

- A Coffee Capsule Dispenser
- A Smart Clock

gun designed for shooting game

ei (Vincent)



```

#include <Servo.h>
Servo myservoHead;
Servo myservoLeft;
Servo myservoRight;

#define LightThreshold 50
#define LaserPin A1
#define LeftPin A2
#define RightPin A3

int headPos = 5;
int flag1 = 0, flag2 = 0, flag3 = 0;

void setup() {
  Serial.begin(9600);
  delay(1000);
  myservoHead.attach(9); // attach
  myservoRight.attach(10); // attach
  myservoLeft.attach(11); // attach
  myservoLeft.write(85);
    
```

It's a 3D printed gun integrates with a laser controlled by MCU. And on the target side, there is a laser receiver that can sense the laser shooting, then control servo and send score to Android APP via Bluetooth.

gn & printing

laser and servo
light sensor
ed programming

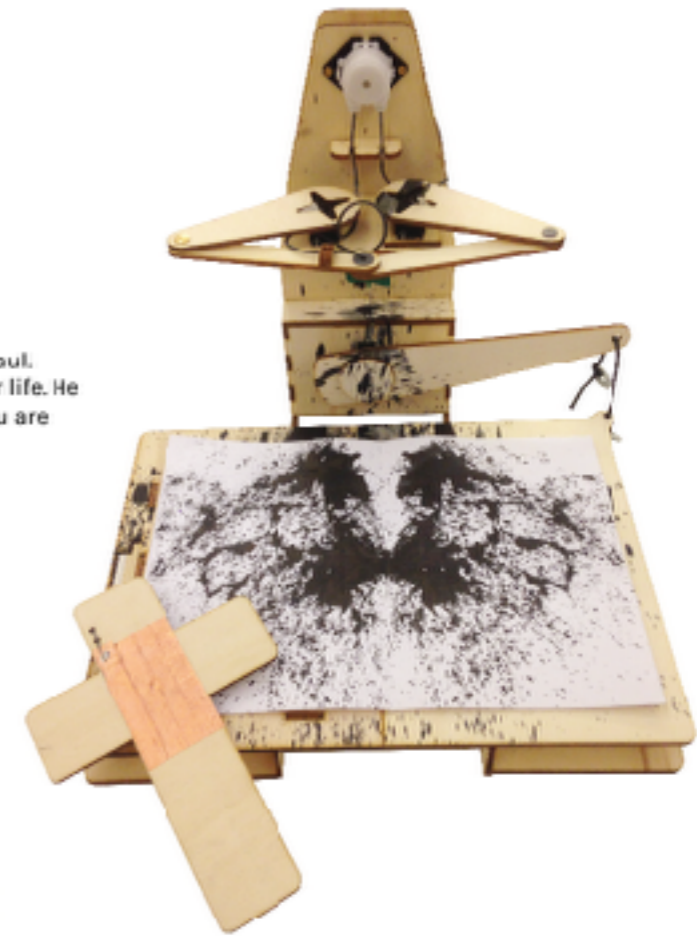
h Communication
programming

Ambhika Jib Samsen
Fablab Opendot, Milan

Paul

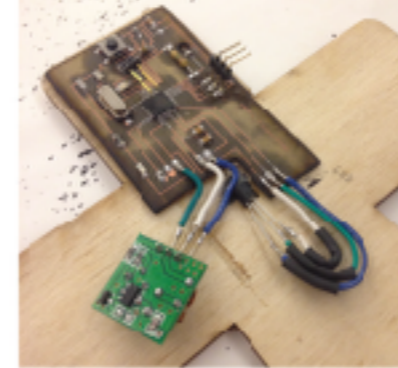
The prophecy generator

Paul is a predictive domestic robot. Whenever you need an answer, ask Paul. Paul will give you signs, a hint to your life. He does not give you exact words but you are the one who interpret.

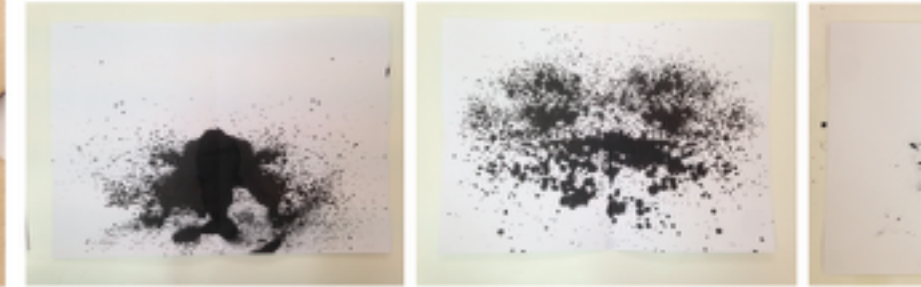


Features
- unique, in
prediction
- SCARA-in
movement
- extra-art
surface

PCB on the back of the cross takes hand temperature as input for seed random



Prophecy gallery



Butterfly ne



WHAT CAN YOU MAKE IN A FABLAB?

- A Toy Laser Gun
- A Profecy Generator Machine