

# Soirée Pratique

**Introduction + bike remote project  
8/10/2015**

**slides + extra information:**

**[www.ieee-sb-leuven.be/soireepratique2015](http://www.ieee-sb-leuven.be/soireepratique2015)**

# Soirée Pratique

- Organized by IEEE Student Branch Leuven
- Goal:
  - Give engineers practical experience,
  - In a fun way,
  - During a two-hour session,
  - and hands-on!
- Monday evening 19h30



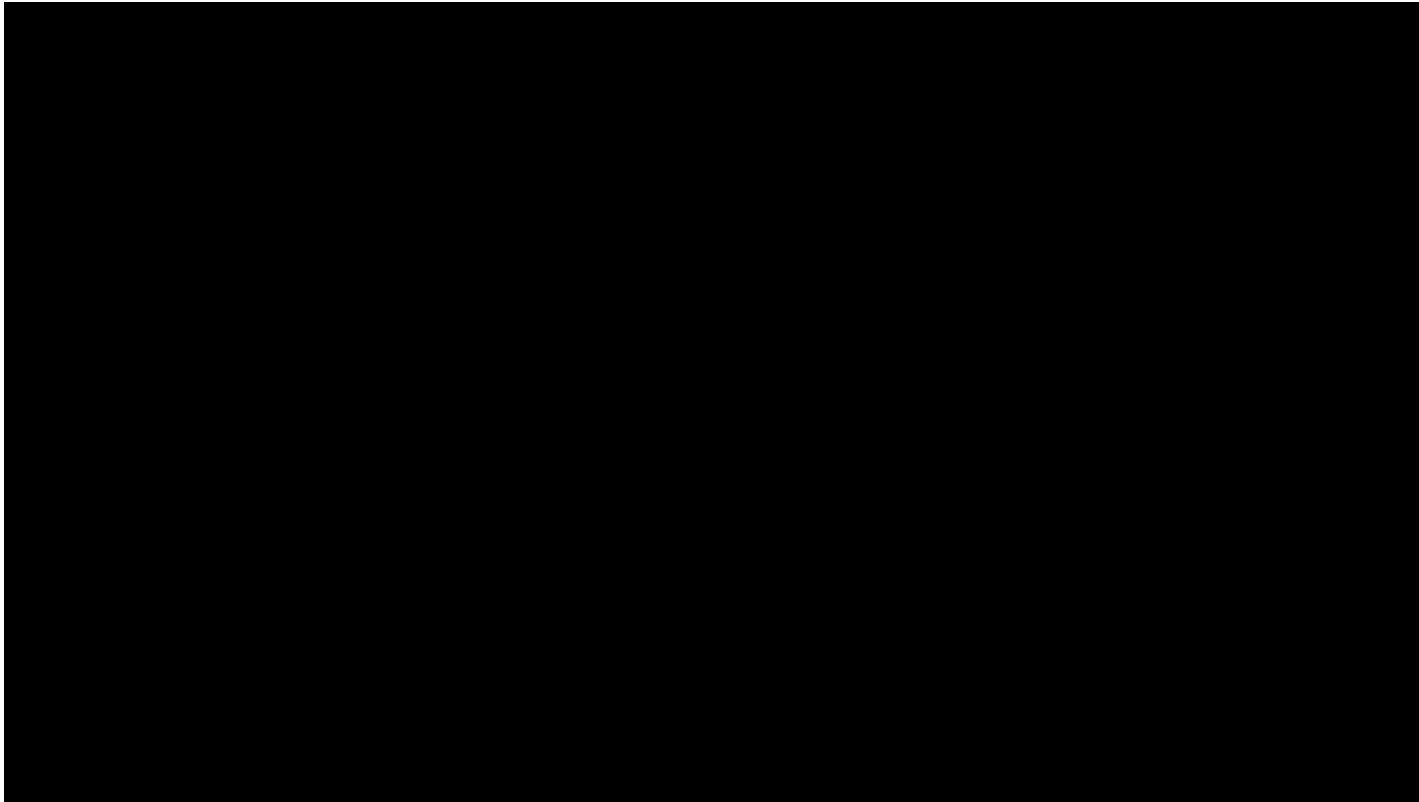
"Your hands-off approach isn't working."

# Main activities

1. Sumo robot competition
2. Drone Nights
3. Small DIY projects

# 1) Sumo-robot competition

- Build your own fully autonomous robot!



# 1) Sumo-robot competition



Competition Leuven



Competition Ghent

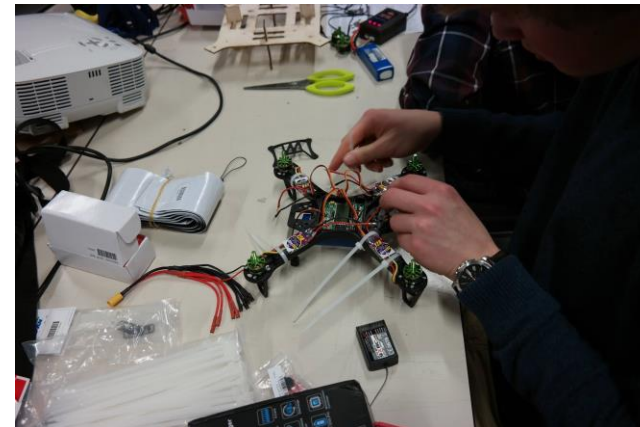
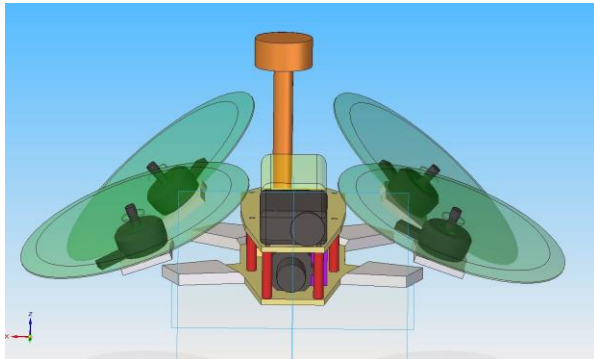
# 1) Sumo Competition

- Organized over two semesters
- Sessions start in a couple of weeks
- New this year:
  - default simple frame provided
  - default simple code provided



## 2) Drone Nights

- Build your own drone!
- Learn to select components and how to fly/control a drone



## 2) Drone Nights

- First meeting Drone Nights:
  - Monday 12 October, 20h @FabLab (dept. WTK)




# 3) Small DIY project



Ambilight




Bike remote

**IEEE** Student Branch Leuven The Soirée Pratique Team presents: 








### Introduction to Raspberry Pi

Timelapse with Raspbian



Monday March 10th, 19h30 @ ESAT 02.58

info and subscriptions at [www.ieee-sb-leuven.be/soireepratiques](http://www.ieee-sb-leuven.be/soireepratiques)

Intro Raspberry Pi

**IEEE** Student Branch Leuven presents

18th of March  
19h30  
@ESAT 2.58

### Build your own Arduino 8-bit Game Console

Registration required at [www.ieee-sb-leuven.be](http://www.ieee-sb-leuven.be)



Game shield

**IEEE** Student Branch Leuven <http://www.ieee-sb-leuven.be/> presents

### Home Automation

Program your own domotics system!

- Completely wireless
- Compatible with:
  - Android, iOS
  - Smartphone, Tablet

Monday 11 March, 19.30h  
ESAT 02.58

Pricing: [www.ieee-sb-leuven.be](http://www.ieee-sb-leuven.be)  
IEEE: 4eur15  
Non-IEEE: 45eur

Subscription on the website:  
<http://www.ieee-sb-leuven.be/node/174>



Home automation

# Soirée Pratique

- for latest info on sessions:
  - <http://www.ieee-sb-leuven.be/>
  - <http://www.ieee-sb-leuven.be/soireepratique2015>
- Facebook group:
  - [Soirée Pratique Leuven](#)

# Today's session: bike remote

- play sounds/lights on your bike using an IR remote
- uses:
  - if you can't remember your bike's location
  - to impress your friends



# Today's session: bike remote

- components: arduino uno + IR transmitter/receiver + buzzer + leds/resistors + breadboard + battery holder + cables)
- components can also be used for sumo robot competition
- non-IEEE members: 15 euro
- IEEE members: **only 2 euro's!**
- [www.ieee.org](http://www.ieee.org) => join
  - \$ 27

# Arduino



Arduino microcontroller: brains of our application

## 1. Installation

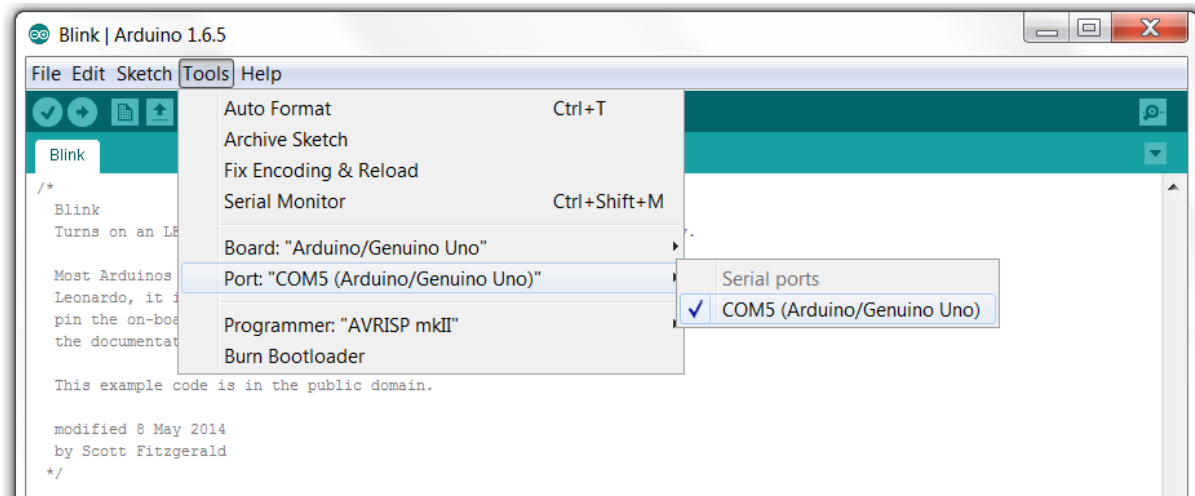
- [www.arduino.cc](http://www.arduino.cc) => Download

## 2. Tutorials

- [www.arduino.cc](http://www.arduino.cc) => Learning  
=> Tutorials => Built-In Examples

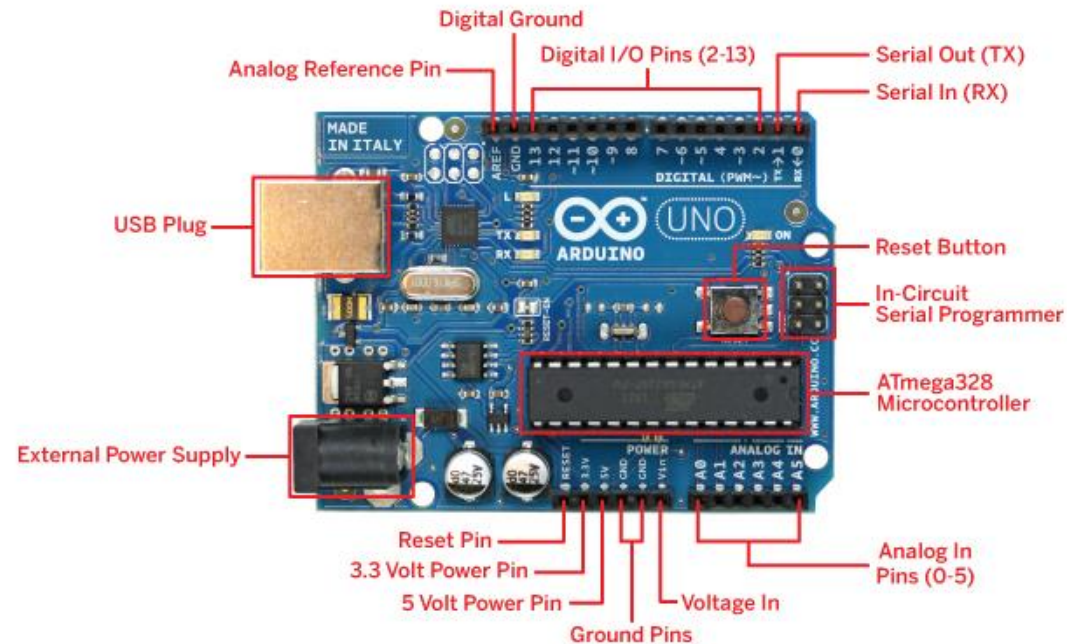
# Installing the Arduino

- After installation, connect the Arduino using the USB cable
- Make sure to select the right port to communicate with the Arduino



# Arduino

## ■ Arduino layout:



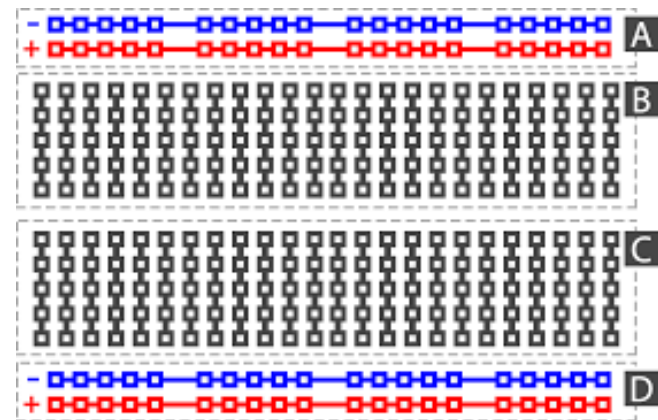
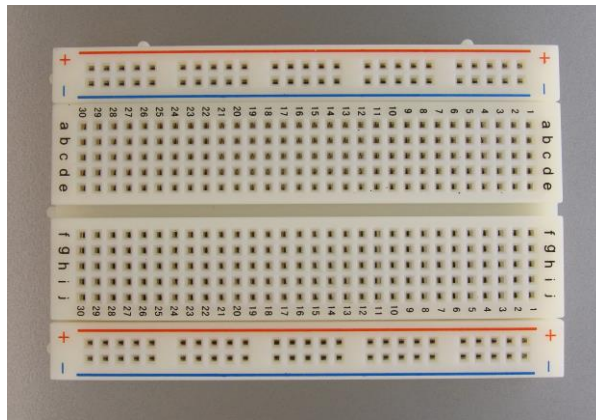
## ■ important commands:

- pinMode (declare inputs/outputs)
- digitalWrite / digitalWrite
- analogRead / analogWrite
- Serial.begin / Serial.println (monitor)



# Breadboard

- Breadboard: connection layout



# Applications with Arduino

## Tutorials:

1. basics -> Blink
2. basics -> Fade
3. basics -> DigitalReadSerial
4. digital -> ToneMelody

...

## If done with tutorials:

try making an application in which you can turn both a LED and a Buzzer on/off by pressing a button or switch

# Applications with Arduino

- try adding IR remote/receiver:
  - download code from <http://www.ieee-sb-leuven.be/soireepratique2015> => Bike remote project
  - you can lend IR remote/receiver from us
- match buttons from emitter to different commands (e.g. different LEDs, blinking LED, different buzzers)

# Next time (Monday 19/10)

- add IR remote
- add batteries to make it stand-alone
- create a box to put all components inside and mount it on a bike