Tinkering at home

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Where to buy?

- www.maker-shop.ch

- www.pi-shop.ch

- www.distrelec.ch

- www.digikey.ch

- www.mouser.ch

- www.conrad.ch

- www.store.arduino.cc

- www.shop.udoo.org

- www.adafruit.com

- Pre-mounted sensors & breakout boards are easier to handle and prototype with rather than bare ICs
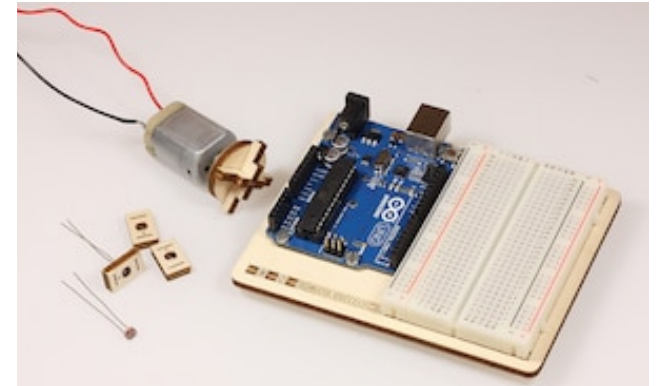
- Check availability and lead times before ordering

Nice to have

- Any microcontroller board that supports Arduino IDE
- Breadboard
- Jumper Cables
- Assorted Sensors
- Variable Power Supply
- Camera for Computer Vision
- Motors
- Oscilloscope or Multimeter
- Passive elements (resistors, capacitors, LEDs, etc)

Arduino Starter Kit (English/Deutsch/Italiano /Français)

- ## Starter Kit
  - Arduino UNO (ATmega328P)
  - 89.00 CHF,
  - [Project Book](#)
  - Plug the board into your laptop and start programming
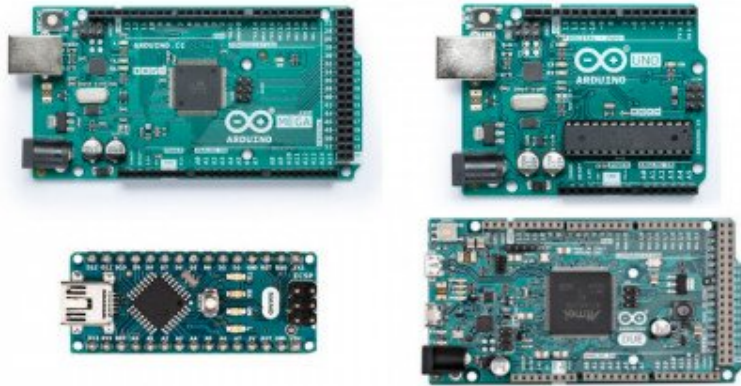 - Ways to power your Arduino

Contents: Breadboard, Arduino Projects Book, Arduino UNO, 9V Battery Adapter, 70 x jumper cable, 2 x jumper cable, 6 x photoresistor, 3 x potentiometer 10kμΩ, 10 x pushbuttons, 1 x temperature sensor, 1 x tilt sensor, 1 x alphanumeric LCD (16x2 char), 1 x LED (white), 1 x LED (RGB), 8 x LEDs (red), 8 x LEDs (green), 8 x LEDs (yellow), 3 x LEDs (blue), 1 x DC motor 6/9V, 1 x servo motor, 1 x piezo capsule, 1 x H-bridge Motor Driver, 2 x optocouplers, 5 x transistor, 2 x Mosfet transistor, 5 x capacitor 100nF, 3 x capacitor 100uF, 5 x capacitor 100pF, 5 x diode, 1 x pin header (40x1), 20 x resistor 220 Ω, 5 x resistor 560 Ω, 5 x resistor 1 kΩ, 5 x resistor 4.7 kΩ, 10 x resistor 10 kΩ, 5 x resistor 1 MΩ, 5 x resistor 10 MΩ, 3 x transparent gels (red/green/blue)

Boards that support Arduino IDE
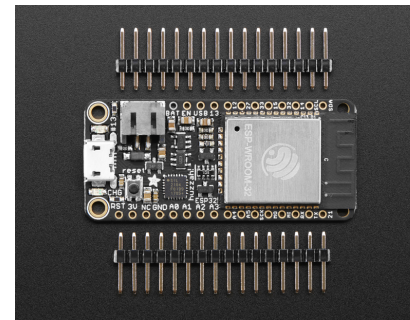
- **From Arduino**
  - Select your board based on project requirements & budget
  - Comparison

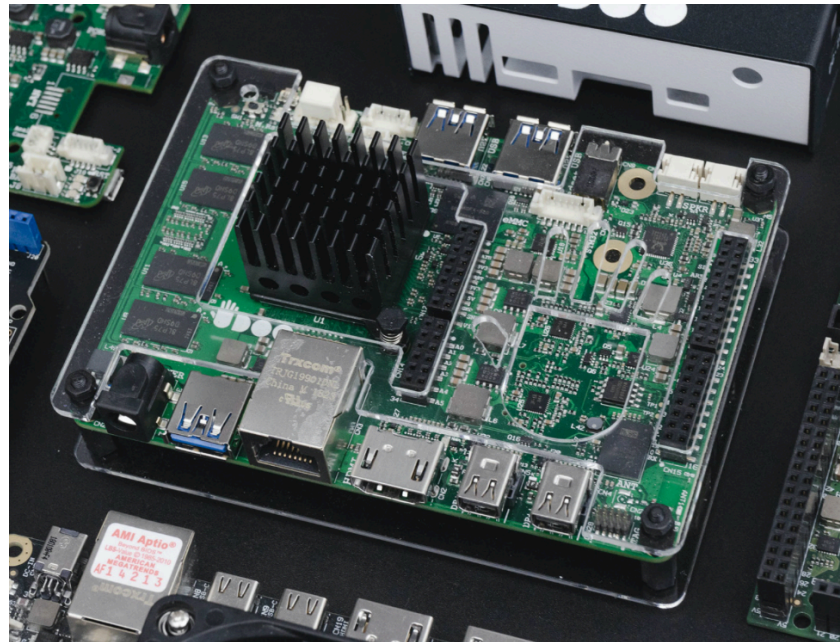- **From Adafruit**
  - Feather series
  - Small, portable, stackable
  - Model recommendation
    - ESP32 feather
    - 2 core microcontroller
    - WIFI + BLE
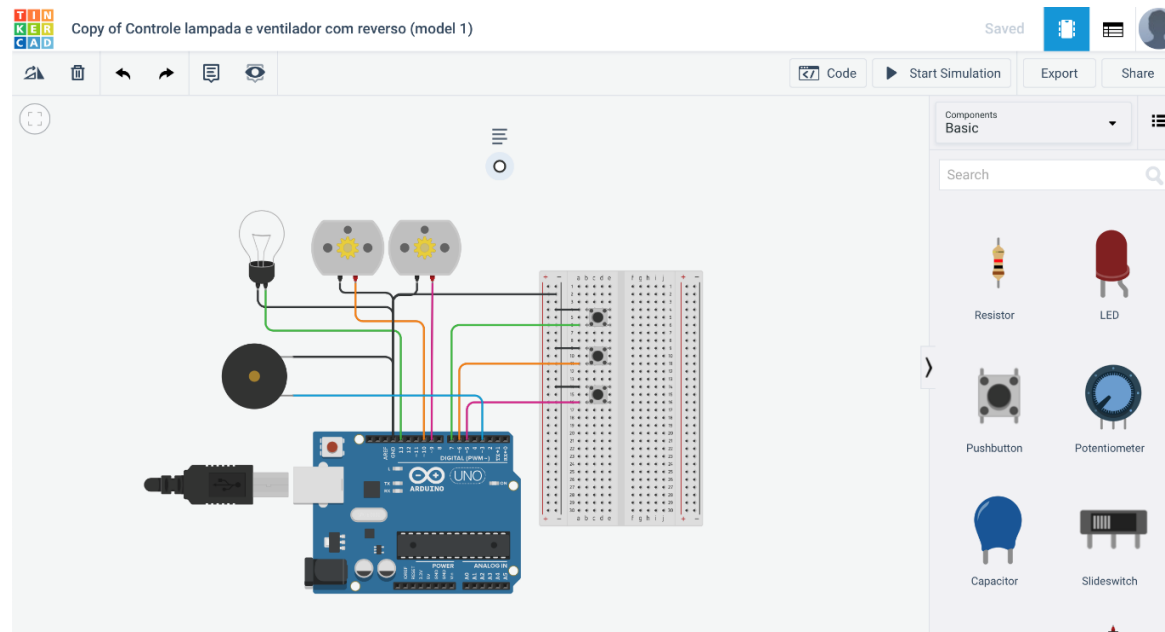   - 20.00 CHF onwards

Udoo x86

- Udoo Board
  - Microprocessor + Microcontroller
  - Intel Celeron CPU (4 cores) with 4GB RAM
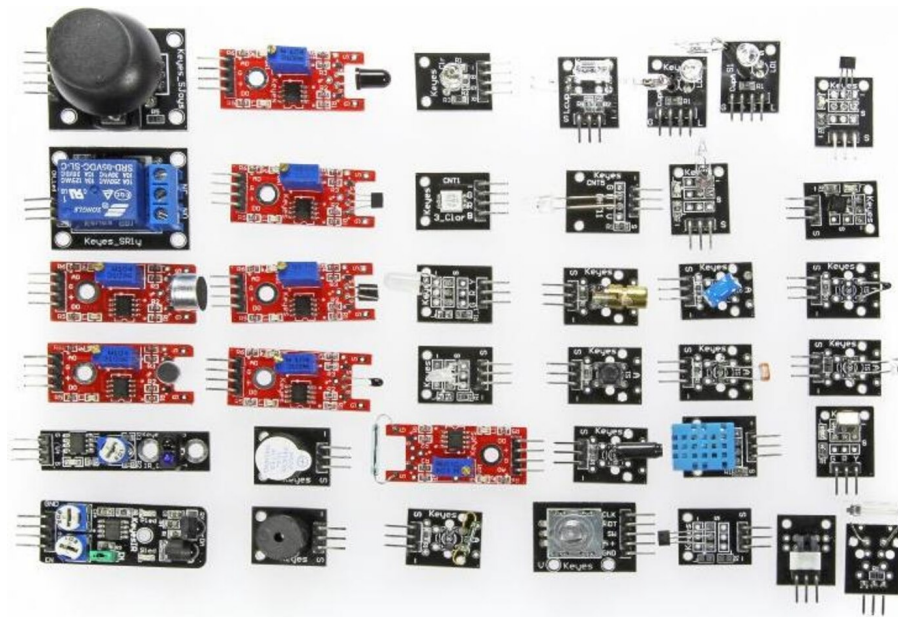 - Arduino Leonardo onboard (ATmega32U4)
  - 174.00 CHF

Autodesk TinkerCAD

- ## Simulation Software
  - Browser based CAD and Electrical Circuit simulation
  - Programmable Arduino Uno Simulation
  - Electronic Component database
    - Free,

Sensors

- Accelerometer + Gyroscope 6 DOF sensor (13.00 CHF, ⬀)

- Measure almost anything with a Sensor Kit

Sertronics SKIT37 (48.70 CHF, ⬀)
Upto 37 analog + digital sensors (temp, sound, flame, shock, light, tilt, magnetic field, etc)
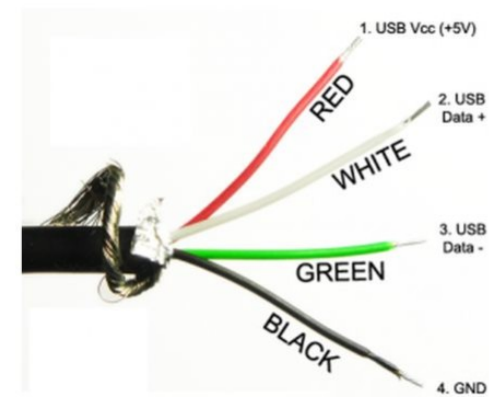
Monitoring your signals

- BitScope Micro oscilloscope (180 CHF) Links 1 , 2
  - Monitor your signals + perform real-time spectrum analysis on your computer
- SW-Stahl Multimeter (42.70 CHF) Link
- UT131B Multimeter (14.40 CHF) Link
- Other Multimeters Link

- Or hack an old phone! Link

Powering your System

- How to power your Arduino?

  - https://www.open-electronics.org/the-power-of-arduino-this-unknown/

- Power up your sensors using a USB phone charger or USB port

  - Cut the cable for 5V supply
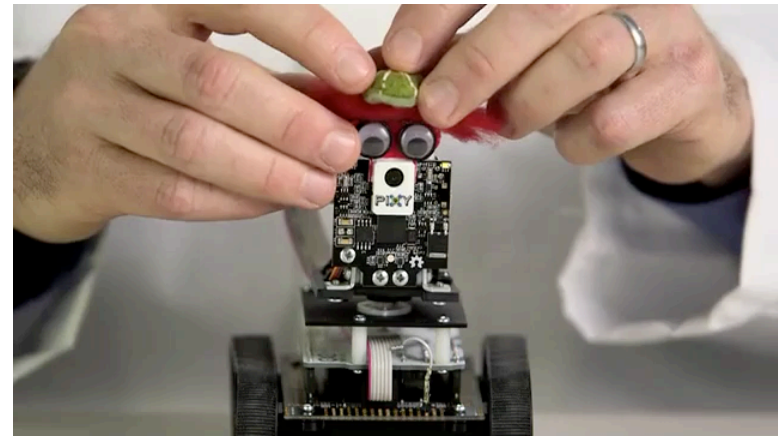
Vision

- Camera with on-board image processing algorithms
    - Pixy2 cam (78.70 CHF,)
        - Videos

- USB 5 MP camera
    - Waveshare OV5648 (34.90 CHF,)

Ideas for Projects

- Arduino Project Book ↗

- Instructables ↗

- Hackster.io ↗

- Adafruit ↗