Robotics and AI workshops

Robo CO. - Robots and AI as future colleagues

RIIHIMÄKI

HAMK Häme University of Applied Sciences

Hyria

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Robotics and AI workshops – Introduction to Robotics and AI

- Two workshops:
  - Introduction to Arduino
  - Introduction to Machine Vision

- The workshops are part of Robo CO. -Robots and AI as future colleagues –project
  - Please sign in EURA2021 –system as project participant
  - www.eura2021.fi/osallistuja
  - Project code: S30394

Under the provisions in effect, information on all persons participating in such projects must be reported to the EU and this data is entered in the EURA 2021 information system of the Ministry of Economic Affairs and Employment. The information will help to determine the results achieved with the projects in Finland.

Introduction to Arduino

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Arduino

- Open-Source platform
  - Open-sourse electronics platform
  - Harware
  - Software
- Easy to use for projects
  - To study electronics, programming, embedded systems …
  - Prototyping

Arduino

- **Inexpensive** - Arduino boards are relatively inexpensive compared to other microcontroller platforms.
- **Cross-platform** - The Arduino Software (IDE) runs on Windows, Macintosh OSX, and Linux operating systems. Most microcontroller systems are limited to Windows.
- **Simple, clear programming environment** - The Arduino Software (IDE) is easy-to-use for beginners, yet flexible enough for advanced users to take advantage of as well.
- **Open source and extensible software** - The Arduino software is published as open source tools, available for extension by experienced programmers. The language can be expanded through C++ libraries, and people wanting to understand the technical details can make the leap from Arduino to the AVR C programming language on which it's based. Similarly, you can add AVR-C code directly into your Arduino programs if you want to.
- **Open source and extensible hardware** - The plans of the Arduino boards are published under a Creative Commons license, so experienced circuit designers can make their own version of the module, extending it and improving it.
- https://www.arduino.cc/en/Guide/Introduction

Arduino Starter Kit

- Arduino Uno board, Breadboard, capels, jumpers, resistors, sensors and actuators for several projects
  - Full kit for start to study projects and work further
- USB cable to connect programming environment
- Project Book with some examples

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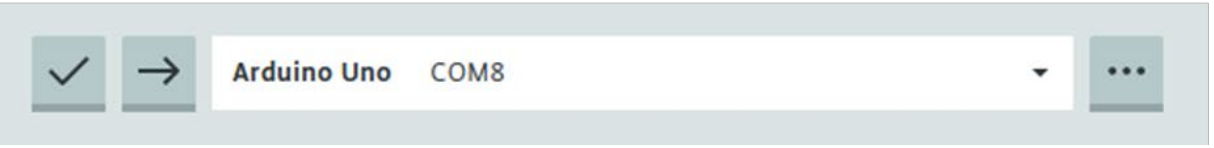
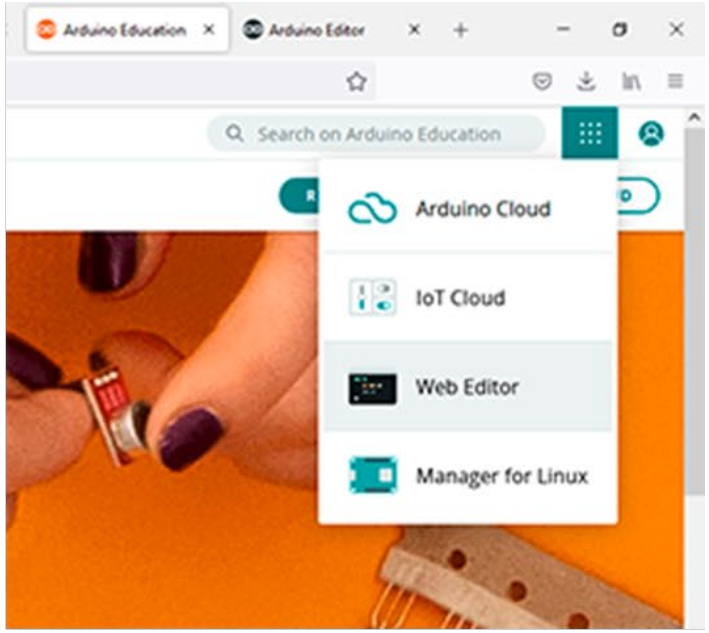
Programming

- Sign in for Arduino Cloud-service
- Open Web Editor
- Download Arduino Agent
- Set port Arduino Uno





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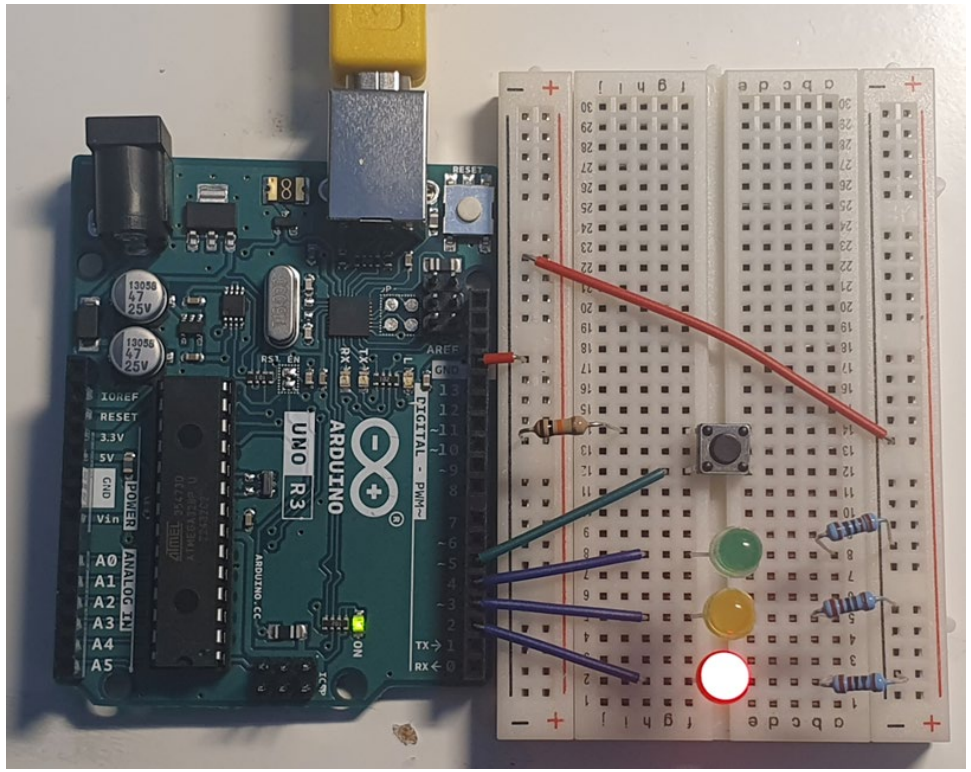
First project – Traffic Lights

- Arduino Uno board
- Breadboard
- Leds (green, yellow, red)
- Cables, resistors, button



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Thank you!

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