ELEC-C9820 ED Workshop, Exercise 1, 7-11.1.2019

(Same as with ELEC-A4010/A4910 Sähköpaja)

Getting to know Arduino UNO

You may also try out *Teensy 2.0, which is quite alike Arduino UNO – just smaller. Use the guide card at Sähköpaja space and check out the correct side of the card for instructions. If the Teensy board lacks the break away headers (the comb-like thing), solder those in place the first.*

Both Arduino UNO and Teensy 2.0 can be powered through the USB port either from a computer or appropriate external power.

In case you use your own laptop, you need to install Arduino programming environment first (Arduino IDE). You can download it from here: https://www.arduino.cc/en/Main/Software (Note that the version 1.8.8 has a bug an does not work on some OSX operating systems. If the software crashes at start, you need to download version 1.8.7)

Teensy requires an additional program, Teensyduino, to be installed. You can find it here: https://www.pjrc.com/teensy/td_download.html

Sähköpaja computers already have these installed.

Getting connected

Open Arduino IDE and choose the right board from the Tools menu [Arduino UNO]. Choose the port from the Tools menu with an Arduino name on. Once you have connected an Arduino board to the computer, one of the ports will have the name Arduino in the port name. The full port names vary across platforms, i.e. Windows, Linux, and OSX.

Finding the examples

The code examples are found in the File menu > Examples. We recommend starting with the Blink example (File>Examples>01.Basics>Blink). You find the full documentation of the examples online at: https://www.arduino.cc/en/Tutorial/BuiltInExamples

Running the examples

You will first need to upload the code to the Arduino board. The '->' button is good for the purpose. Once the code is uploaded, the LED on the Arduino board should start blinking on 1 sec (=1000 ms) interval. You can change the numbers in the code, and once you upload the code again, you will see the LED to behave differently.

The code stays in the memory of the Arduino board even if you cut off the power.

Try also at least the following examples:

Basics > Digital Read Serial
Basics > Analog Read Serial
Basics > Read Analog Voltage
Basics > Fade

You will receive the additional components from the assistants or from the boxes at Sähköpaja space. There are also ready made 'snack boxes' for you with some necessities, such as breadboard, jumper cables, resistors, LEDs, push buttons, trimmer potentiometer, etc.

We recommend regular visits to Sähköpaja space (TUAS, 1st floor 1558), at least twice a week! Assistants are there for you. Schedules have green spots for the best free exploration moments.