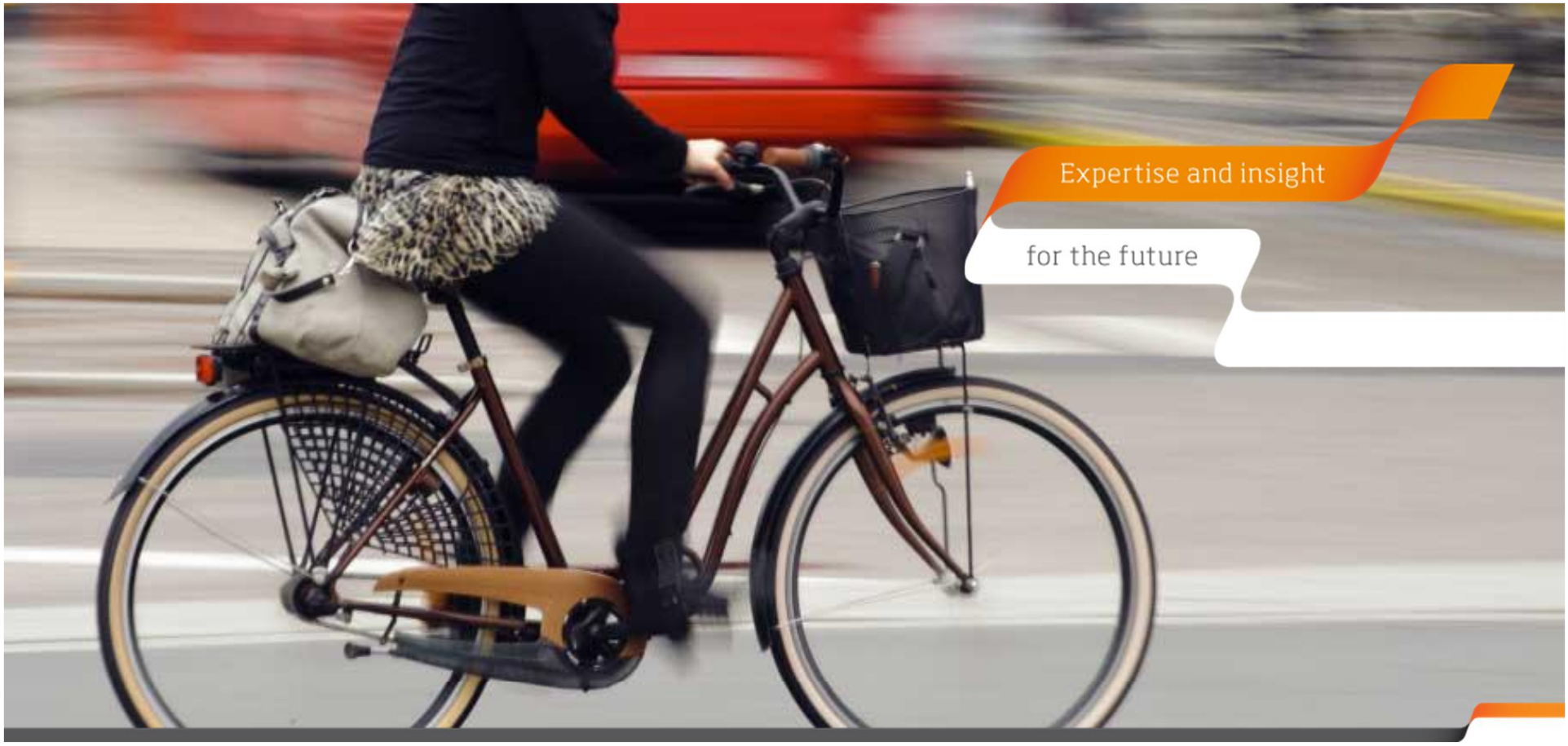

Orientation Project 2023 – Part 1 – Arduino environment

Orig. slides by Aku Valmu

Helsinki Metropolia University of Applied Sciences

Assessment and preliminary schedule

Points

- Max 30p
- Min 6p

Preliminary schedule

- Arduino installation + assignment 1 - 3p
- Blynk-application + assignment 2 - 3p
- Temperature sensor - 3p
- RGB-LED control – 6p
- Project – 15p

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Part 1 – Arduino installation

1. Intro to Arduino
2. Creating a login to Arduino IDE (arduino.cc)
3. Installing Create Agent and Desktop IDE
4. Introduction to IDE
5. Coding..
6. Assignment

HW required: Arduino, breadboard, micro-USB-cable, LED and series resistor

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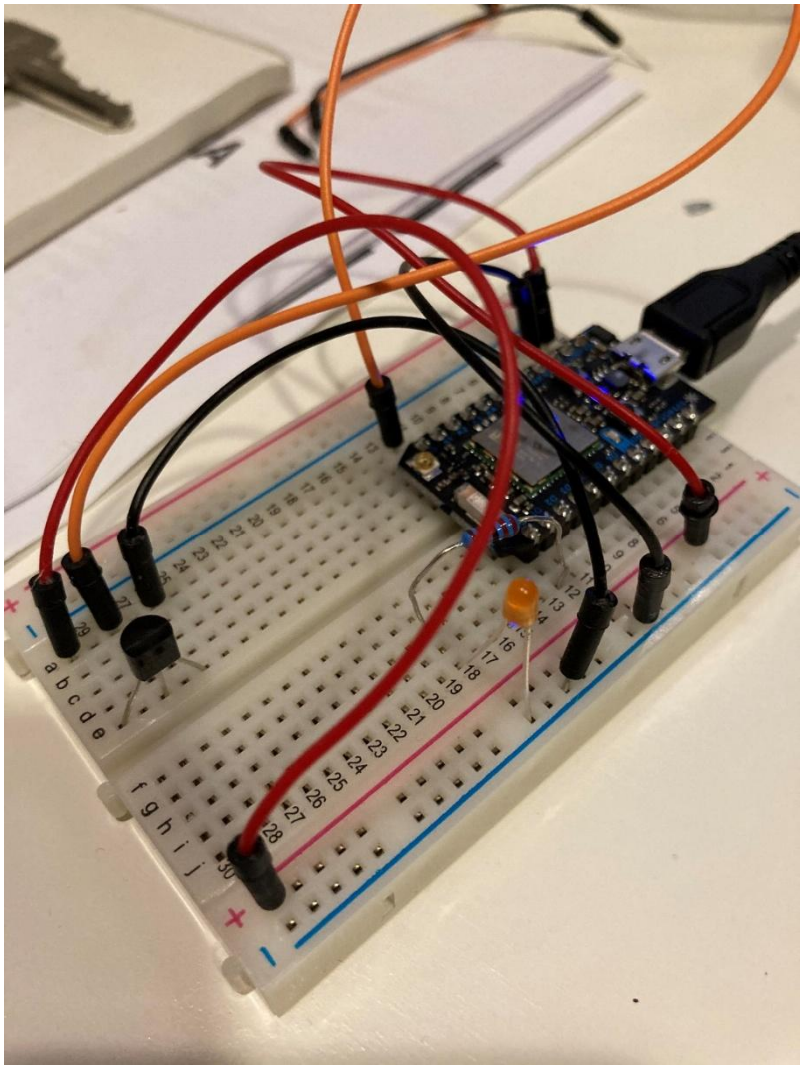
1. Intro to Arduino

https://docs.arduino.cc/static/fc77c3c3c77d69764ba7773df64c99db/ABX00datasheet.pdf

1. Intro to Arduino



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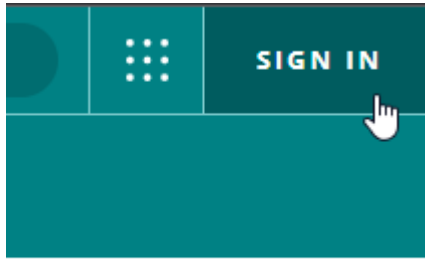
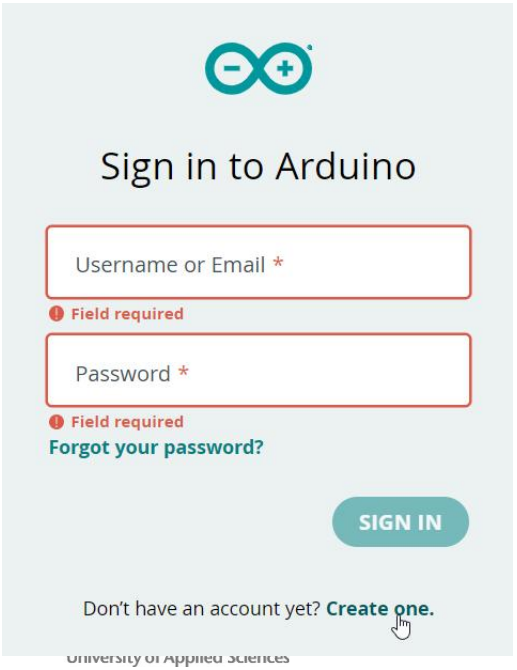
2. Creating login to Arduino(arduino.cc)





1. Click *SIGN IN*
2. Select “Create one” and finish the registration.

3. Installing Create Agent and Desktop IDE

1. Install Create Agent from https://create.arduino.cc/getting-started/plugin/welcome
2. Install Arduino IDE from https://www.arduino.cc/en/software

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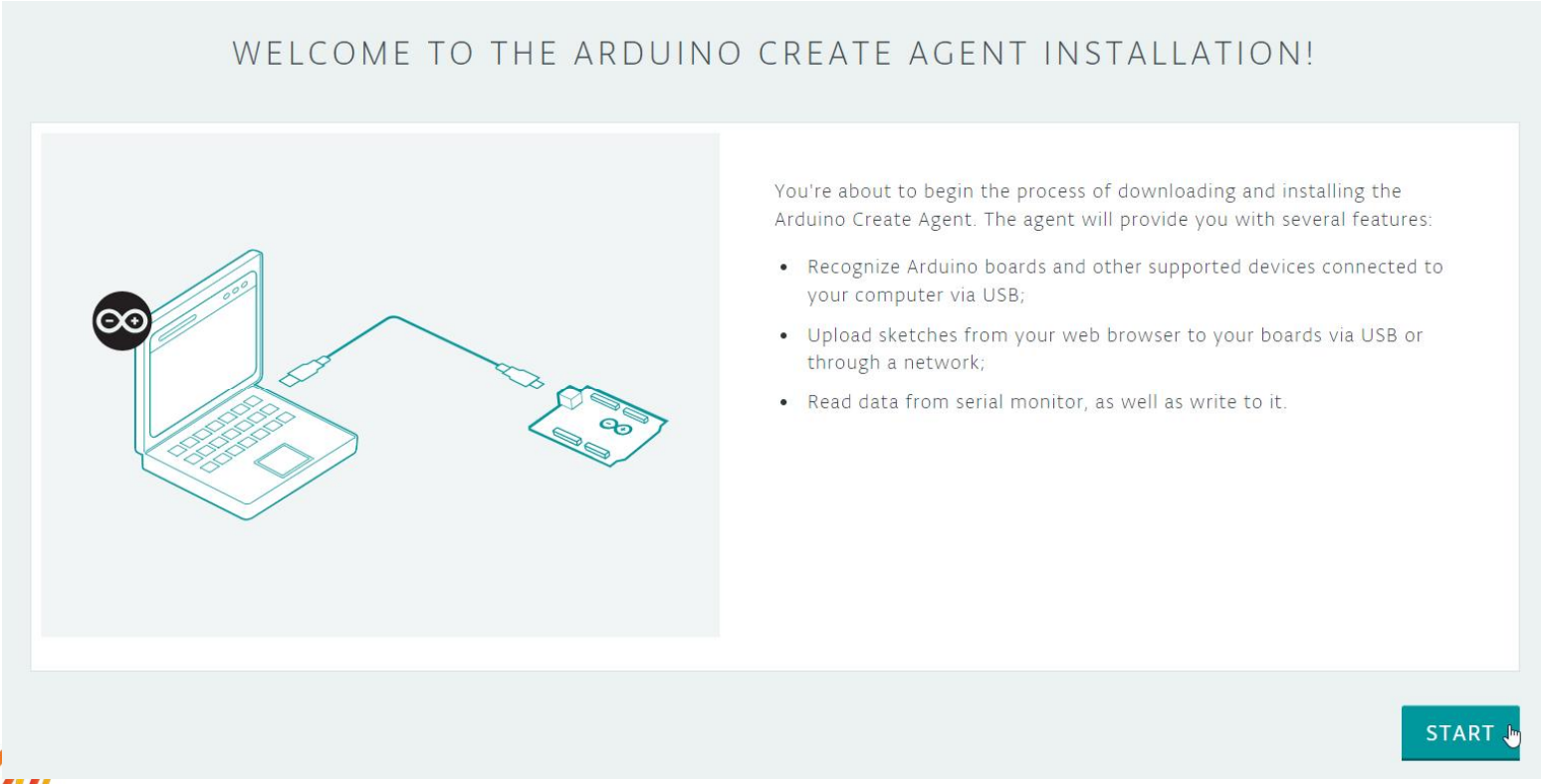
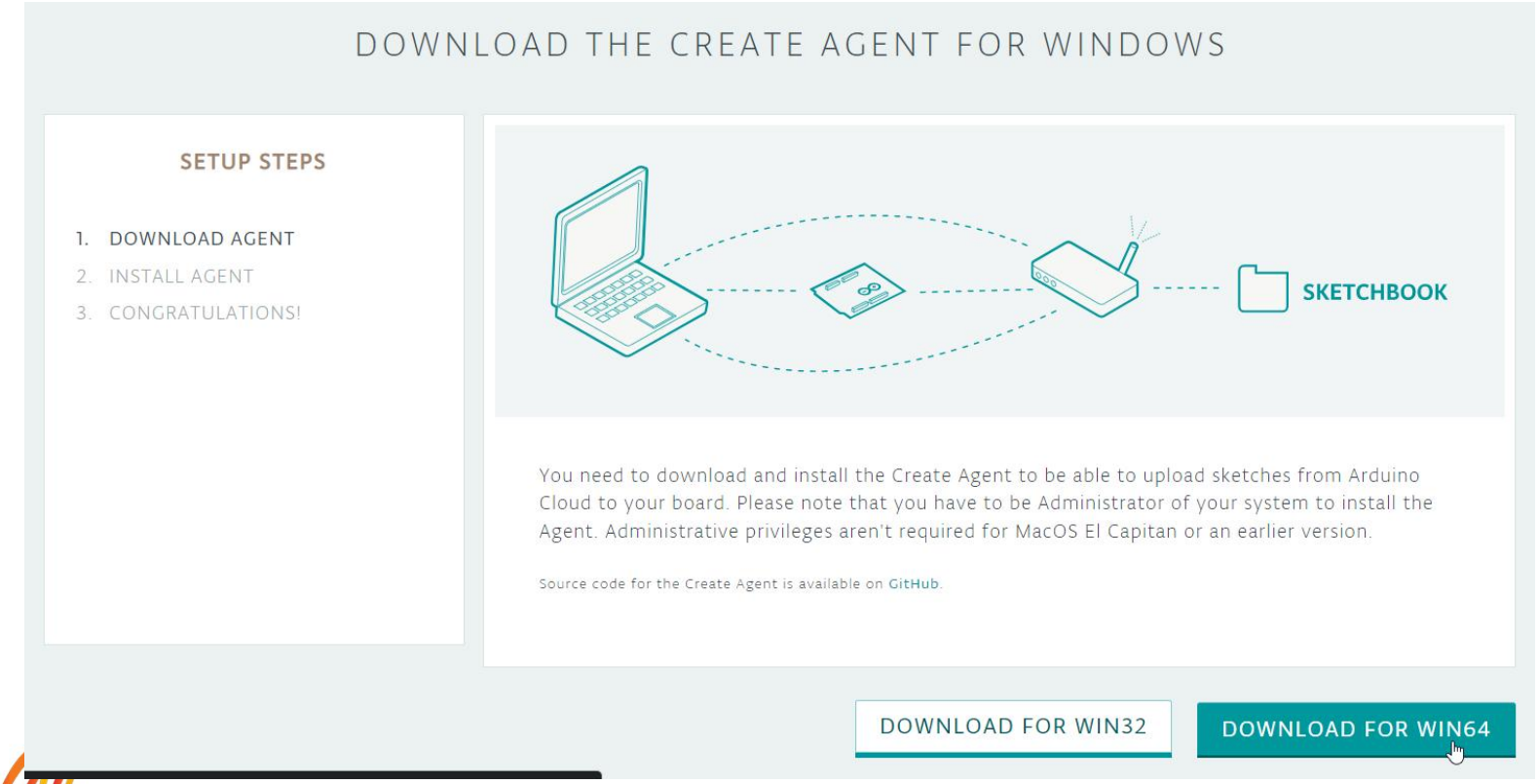
3. Installing Create Agent

https://create.arduino.cc/getting-started/plugin/welcome



3. Installing Create Agent



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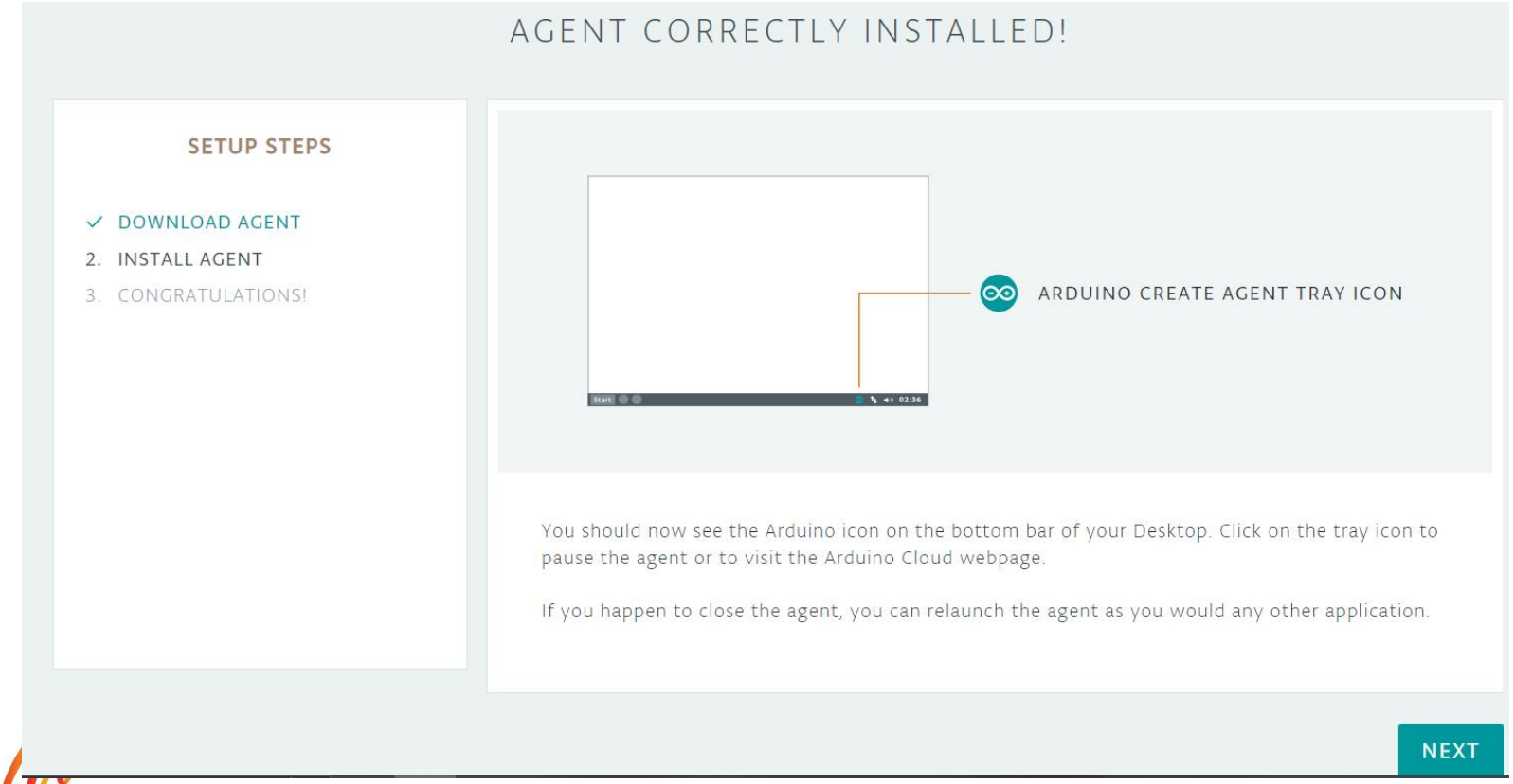
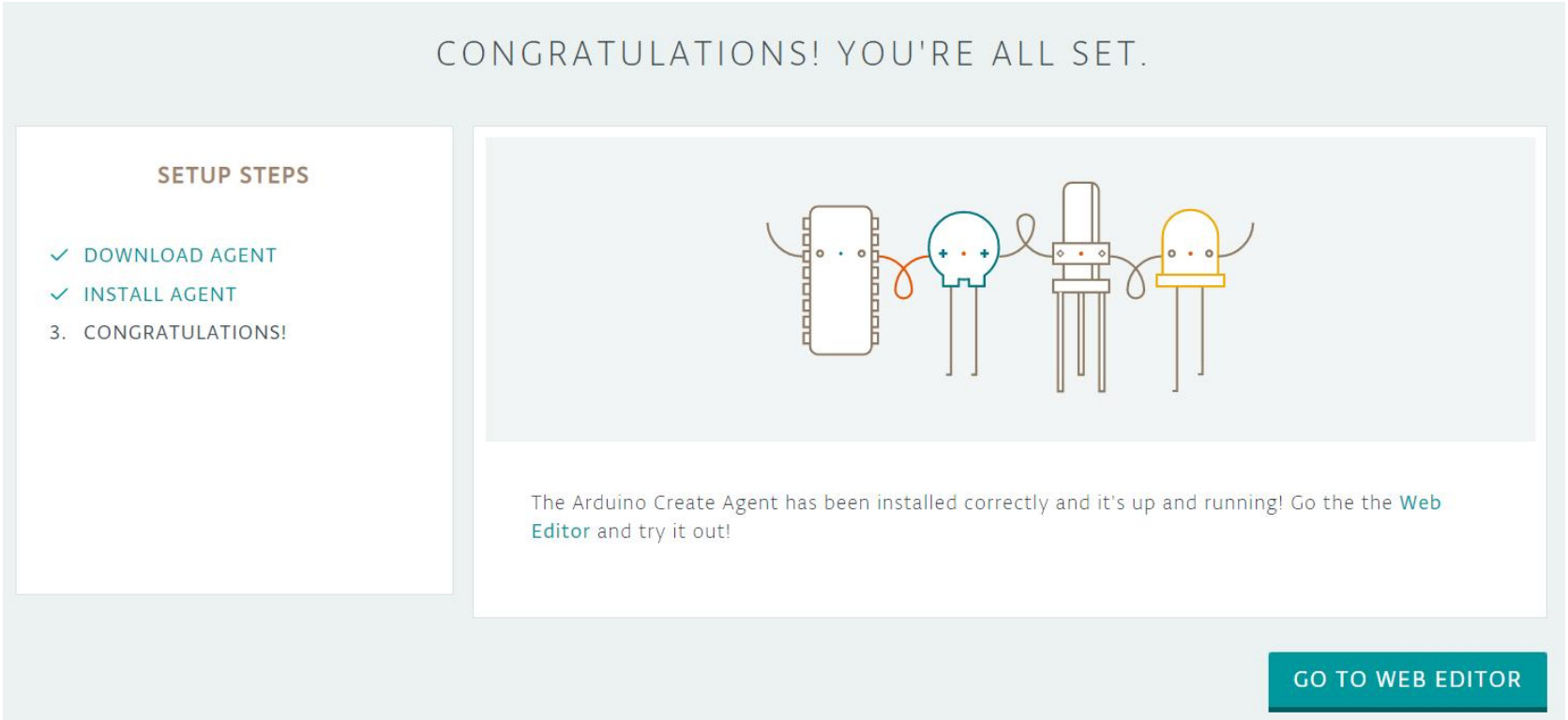
3. Installing Create Agent



3. Installing Create Agent



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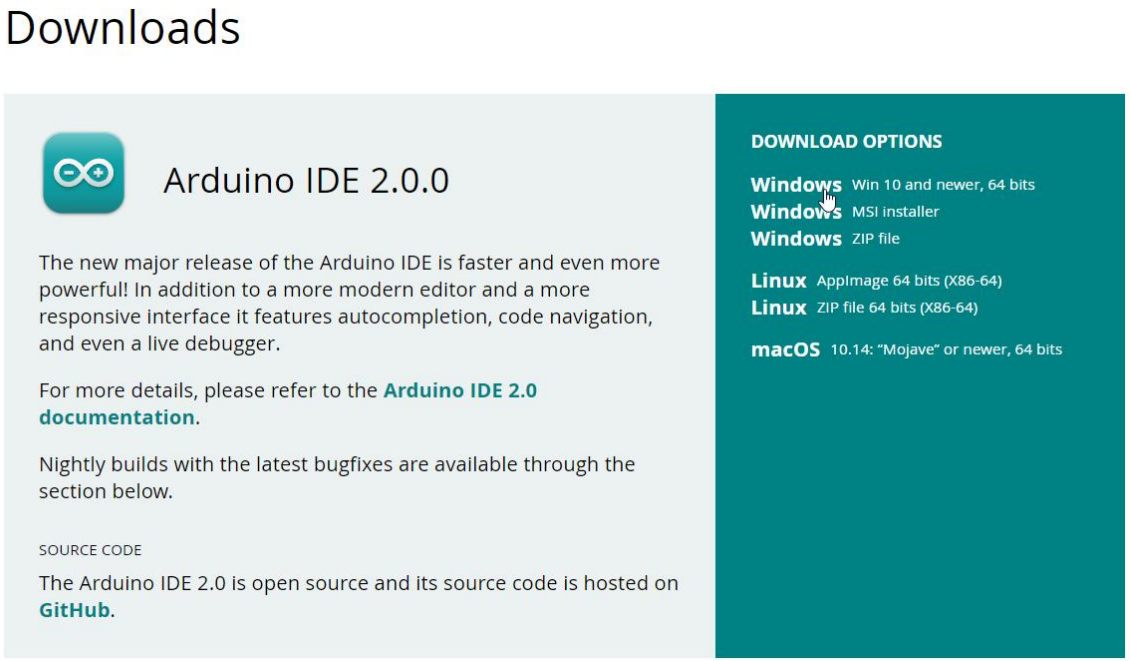
3. Installing Arduino IDE

https://www.arduino.cc/en/software



- Download and click *Next* to finnish the installation

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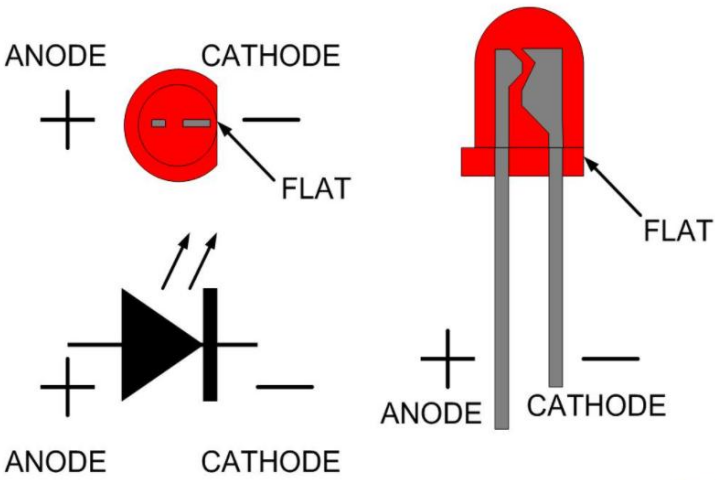
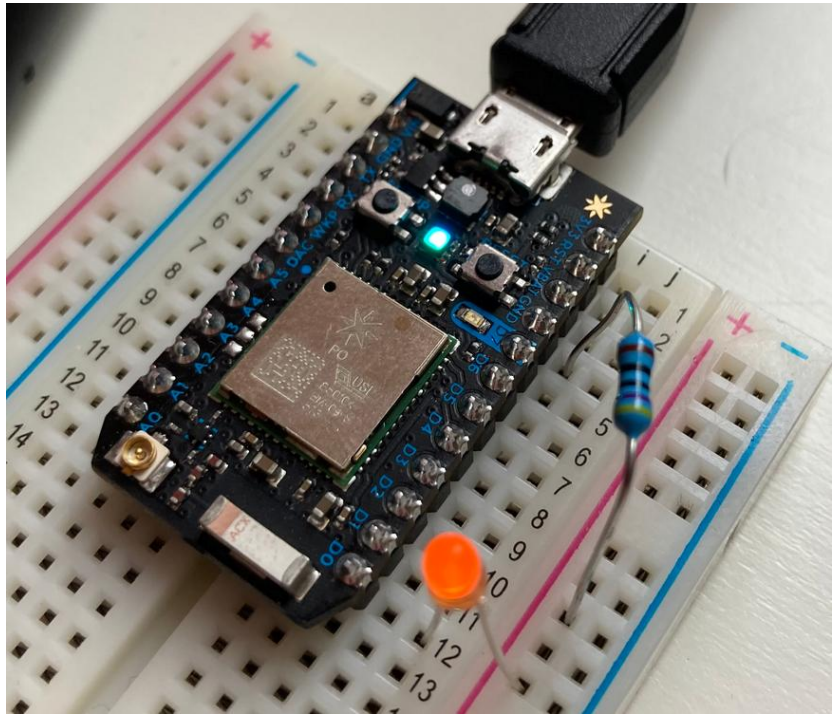
3. Arduino IDE

Task 1. Create a code that blinks the LED with frequency of 1 HZ.

Connecting an external LED





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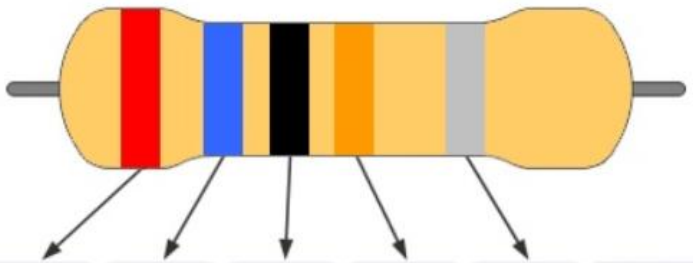
Connecting an external LED

Color	Voltage drop @ 20 mA
Red	1.8
Orange	2
Yellow	2.3
Green	3.5
Blue	3.6
White	4



	1st digit	2nd digit	3rd digit	multiply	tolerance	TCR (ppm/K)
Black	0	0	0	1	1% (F)	100
Brown	1	1	1	10	2% (G)	50
Red	2	2	2	100		15
Orange	3	3	3	1K		25
Yellow	4	4	4	10K		
Green	5	5	5	100K	0.5% (D)	
Blue	6	6	6	1M	0.25% (C)	10
Violet	7	7	7	10M	0.1% (B)	5
Gray	8	8	8	100M	0.05% (A)	
White	9	9	9	1G		
Gold				0.1	5% (J)	
Silver				0.01	10% (K)	
None					20% (M)	

Assignment 1 (3p)

1. Create and implement code that blinks both internal and external LEDs with 0,5Hz frequency so that one LED is on and one is off, and then vise versa.

2. Create and implement code that blinks the internal LED with frequency of 2Hz and external LED with frequency of 0,2Hz.

Once ready, submit your code to OMA, *Assignment 1 – Blinking LEDs*. Add the names of team members with the submission.

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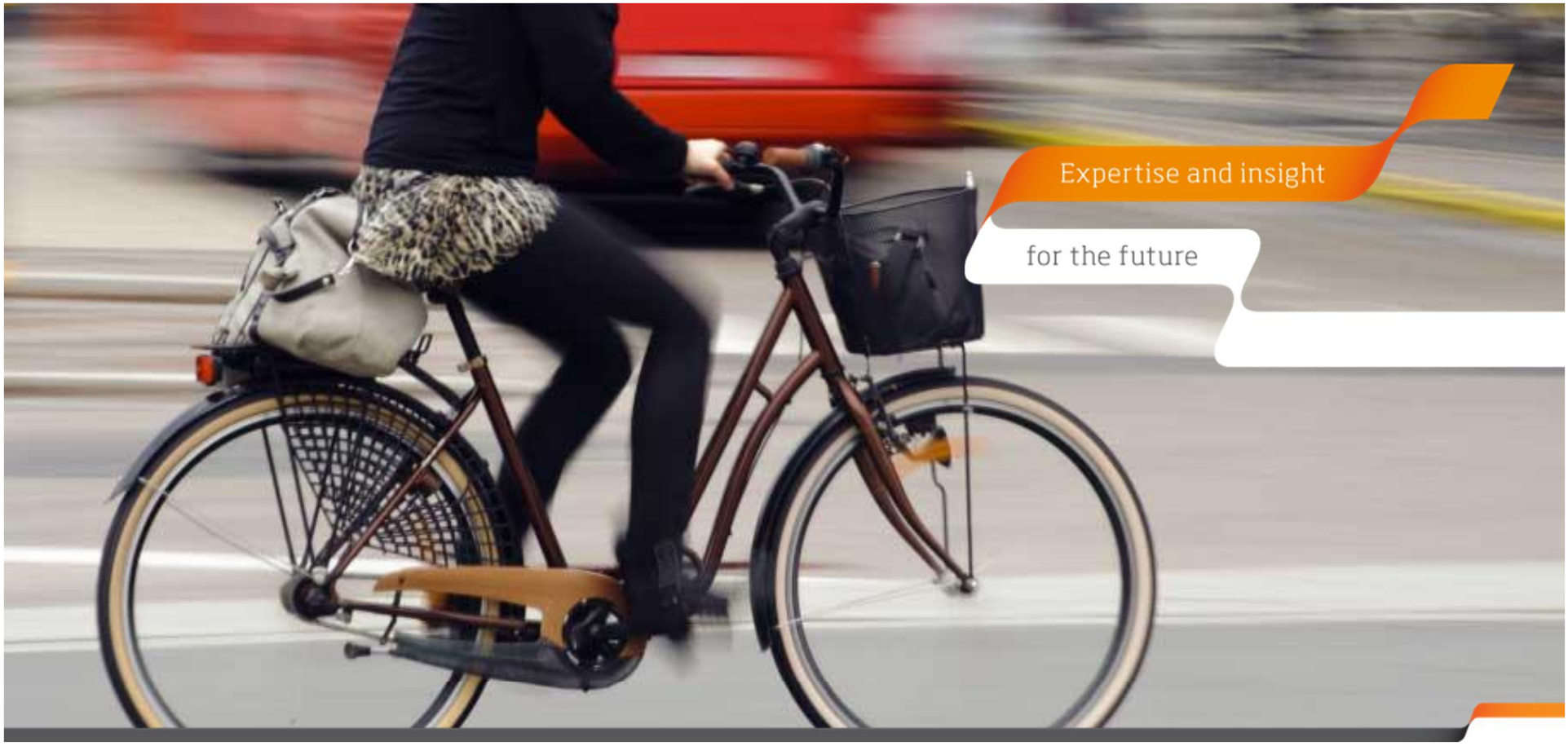

THANK YOU!

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