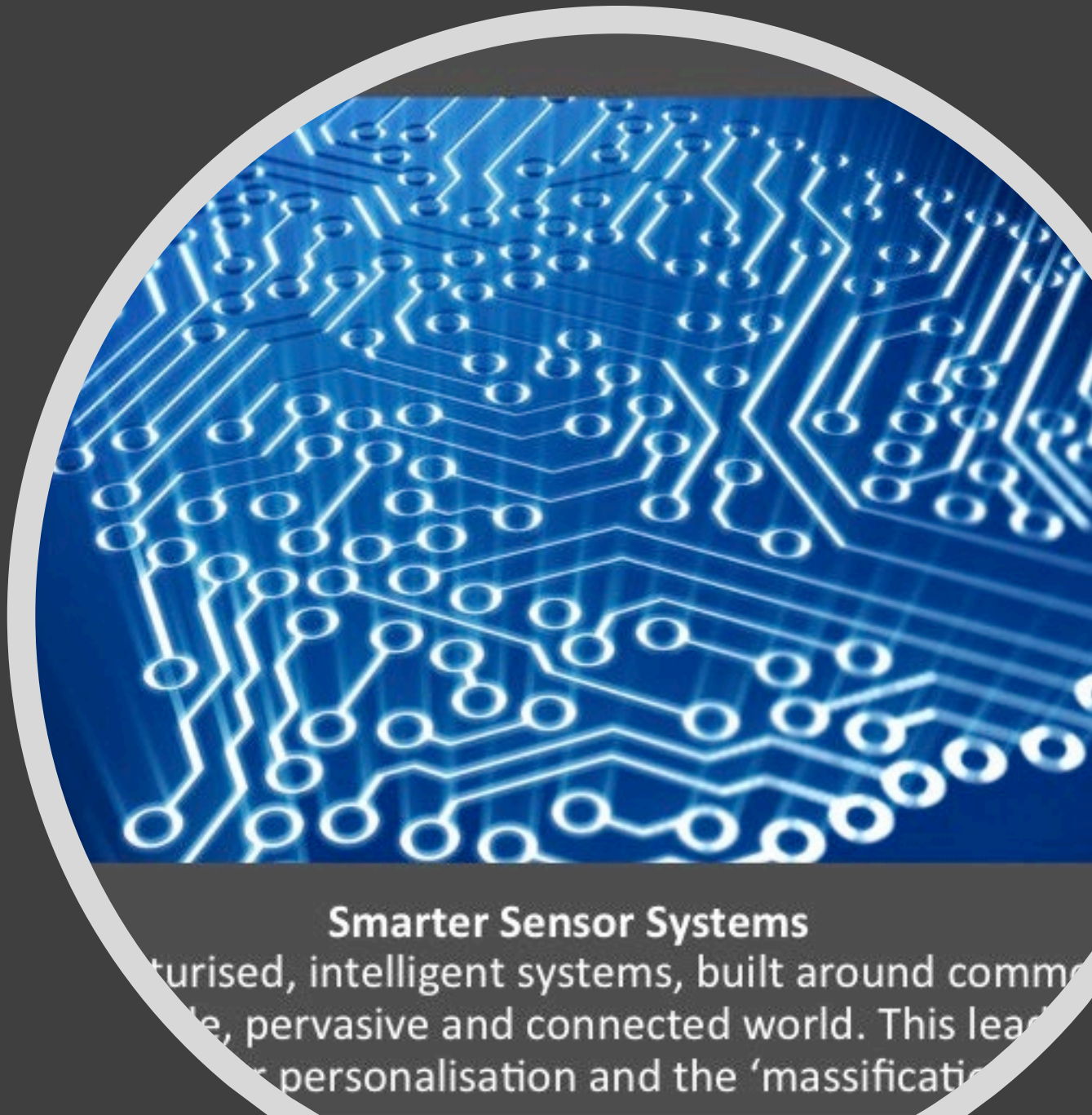
Vincent Claes

IoT Pilootproject

SODAQ MBili



SODAQ MBili

- Informatie ivm SODAQ Mbili board
- Installatie IDE + Hello World!
- Schrijven van eerste software applicaties

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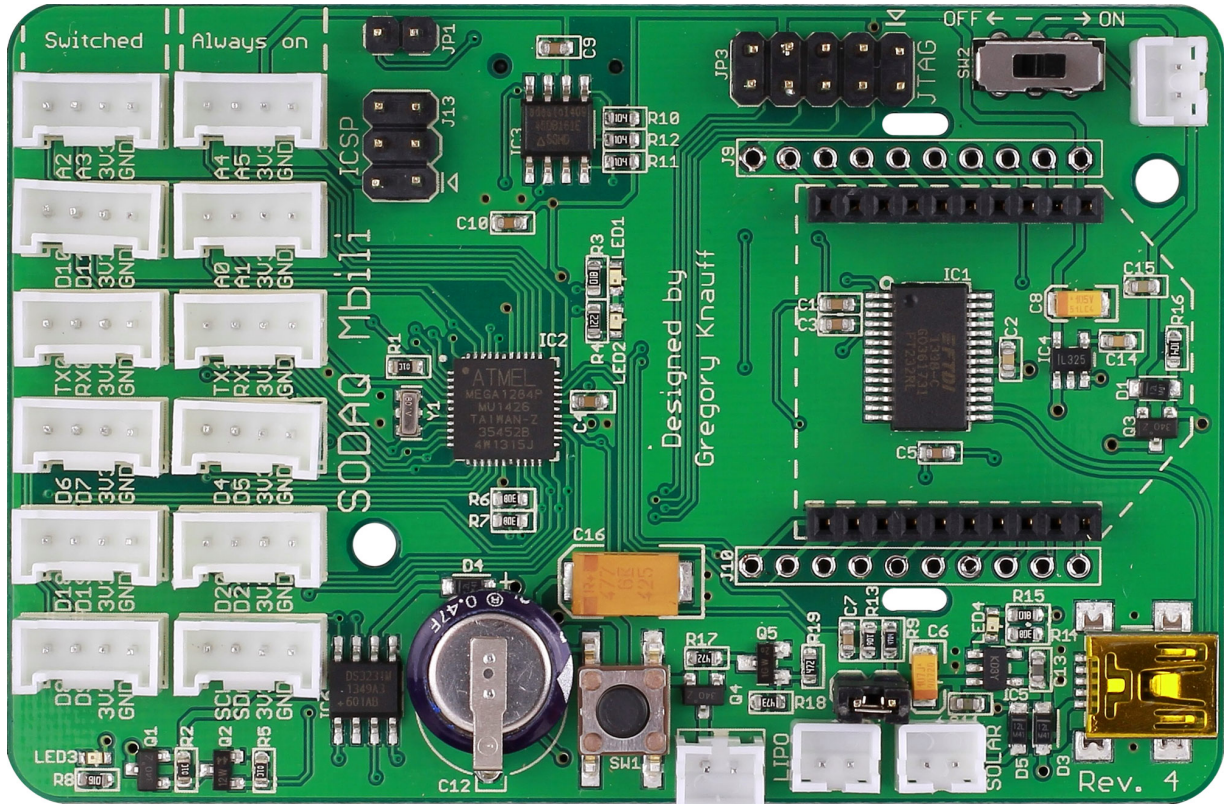
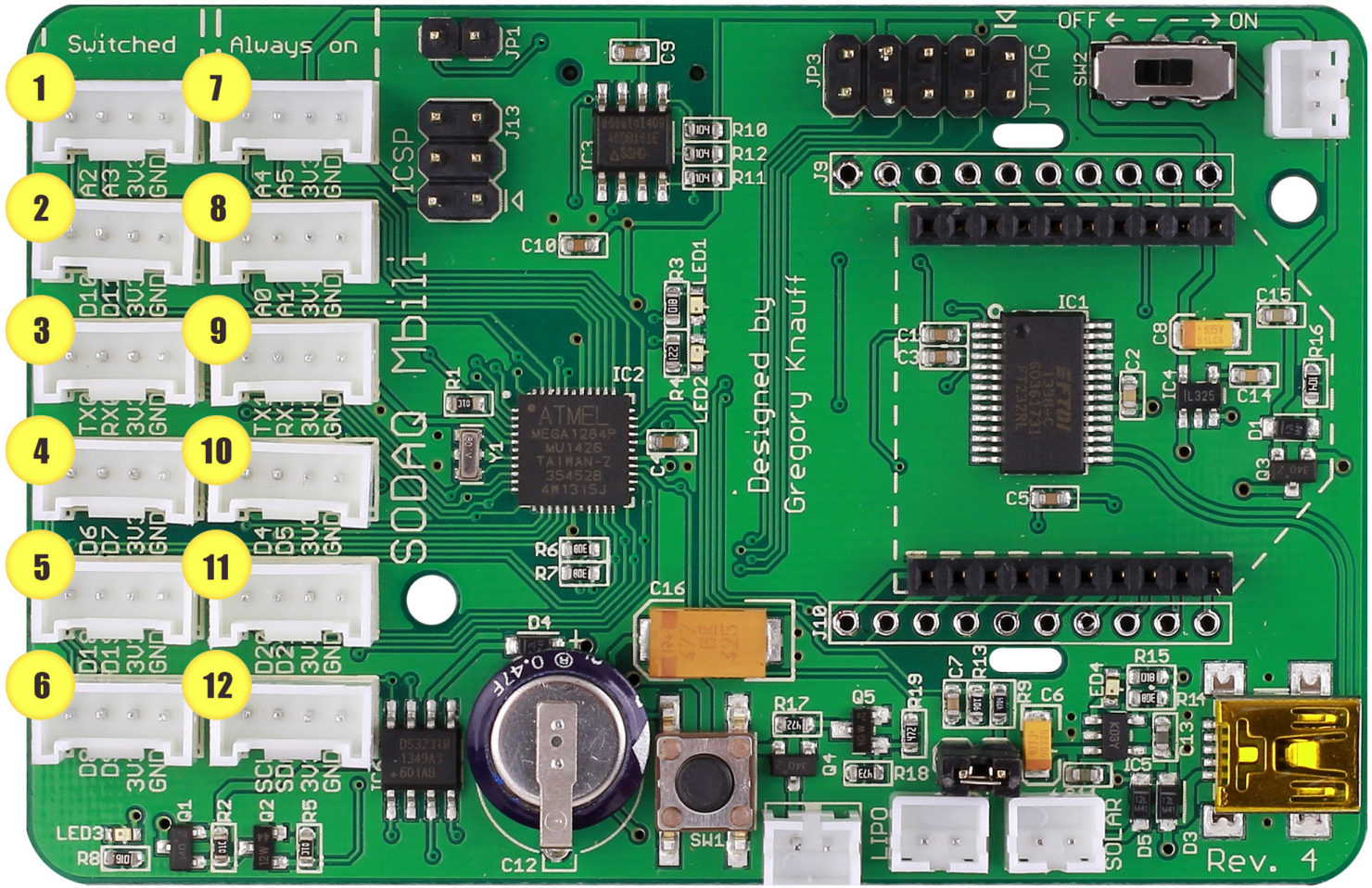
SODAQ MBili Board



- https://support.sodaq.com/sodaq-one/sodaq-mbili-1284p/
- Atmega 1284P
- Switched Grove Row
- Always On Row
- Micro SD Card
- JTAG Interface
- DS3231 Real Time Clock
- 8MHz and 3.3V

SODAQ Mbili Board



Switched Column	Always On Column
1.Analog: **A2 A3**	7.Analog: **A4 A5**
2.Digital: **D10 D11**	8.Analog: **A0 A1**
3.Serial (USB): **TXD0/RXD0B**	9.Serial1 (Bee): **TXD1/RXD1**
4.Digital: **D6 D7**	10.Digital: **D4 D5**
5.Digital: **D18 D19**	11.Digital: **D20 D21**
6.Digital: **D8 D9**	**12.I²C** socket

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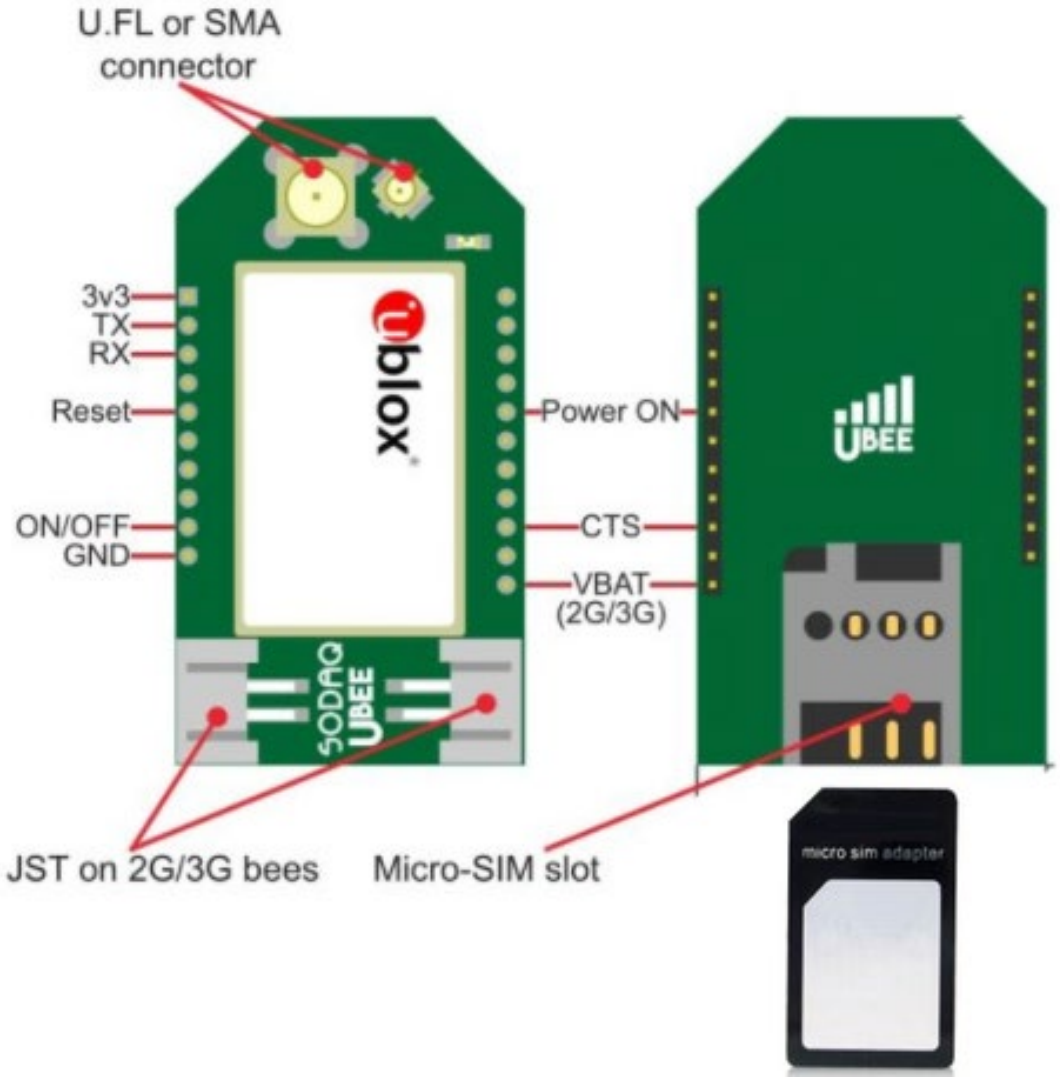
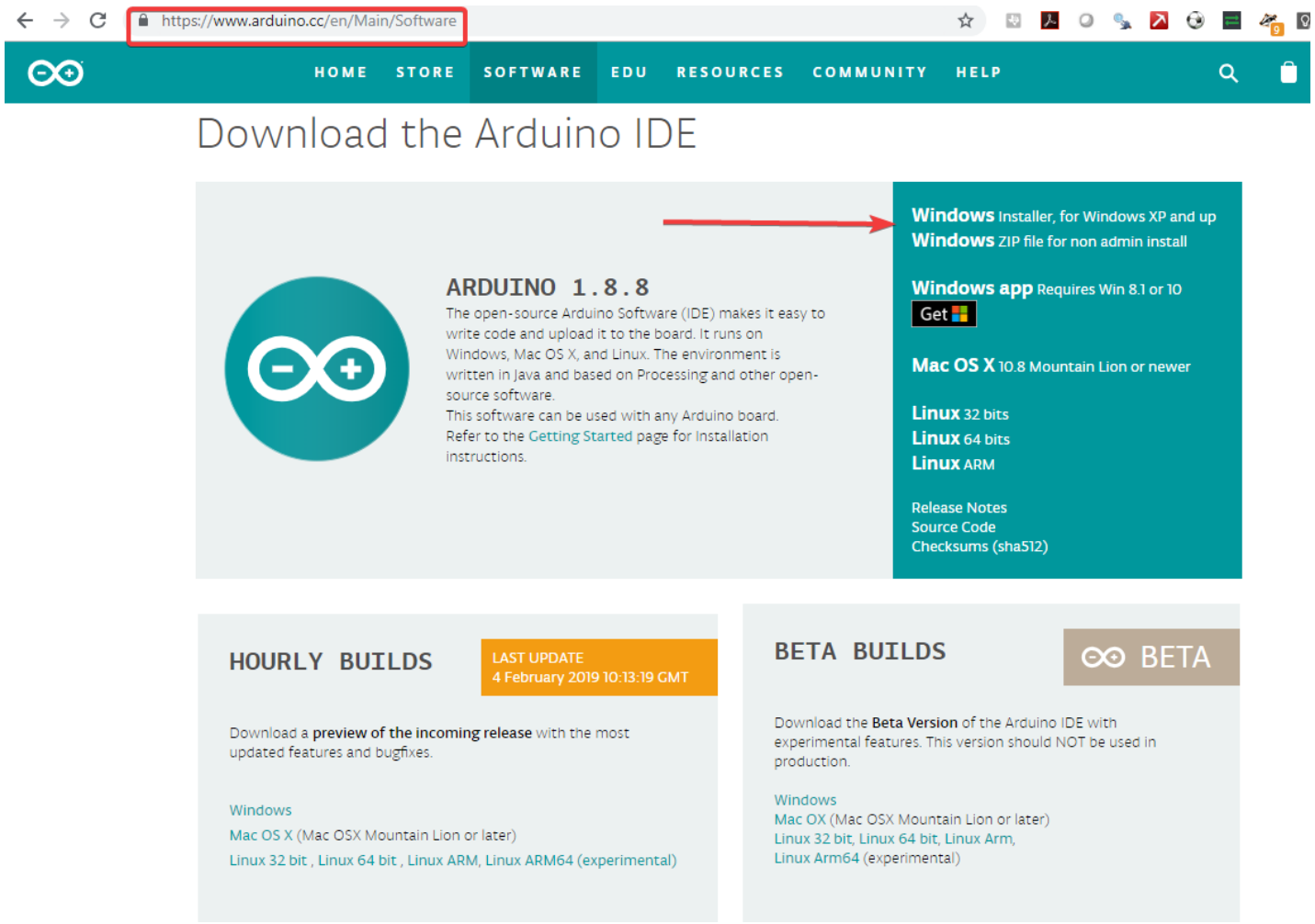
SODAQ UBee



- https://support.sodaq.com/sodaq-one/ubee/
- Ublox SARA-N2 – NB-IoT
- Sleep current 4µA

Arduino IDE Installatie procedure



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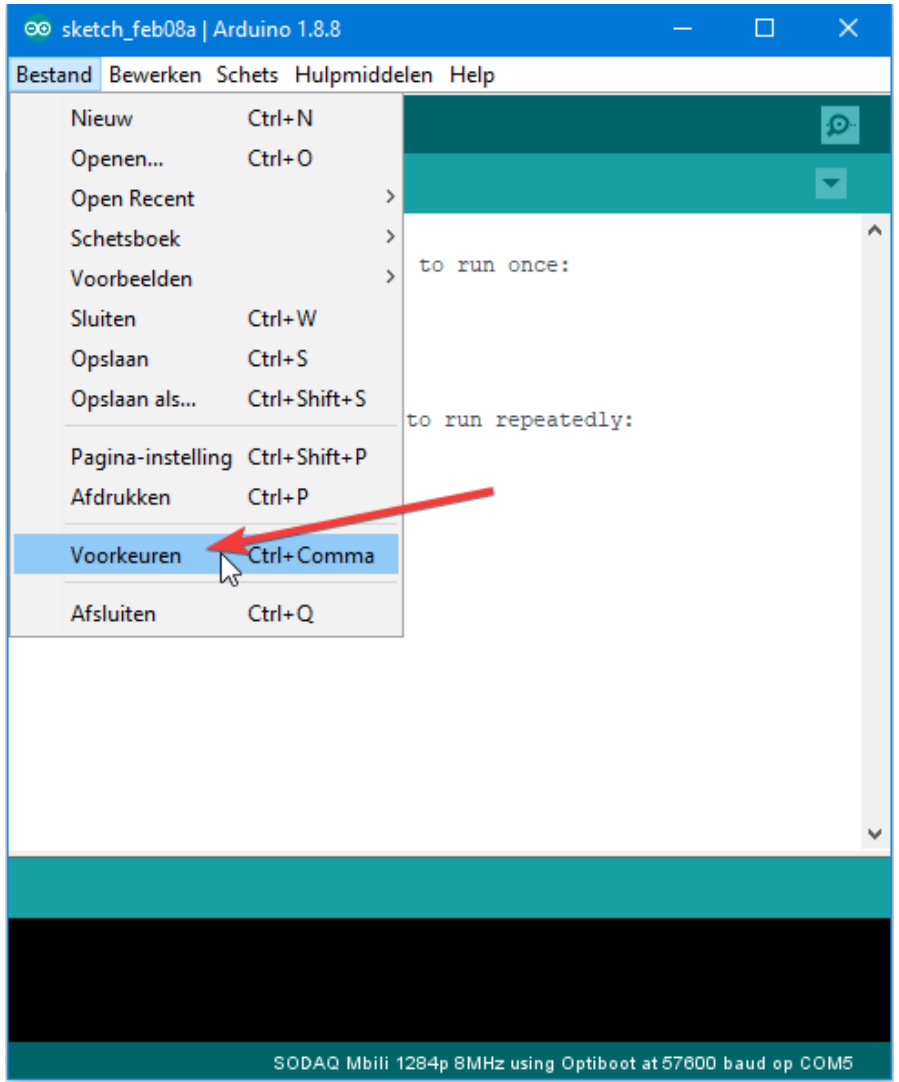
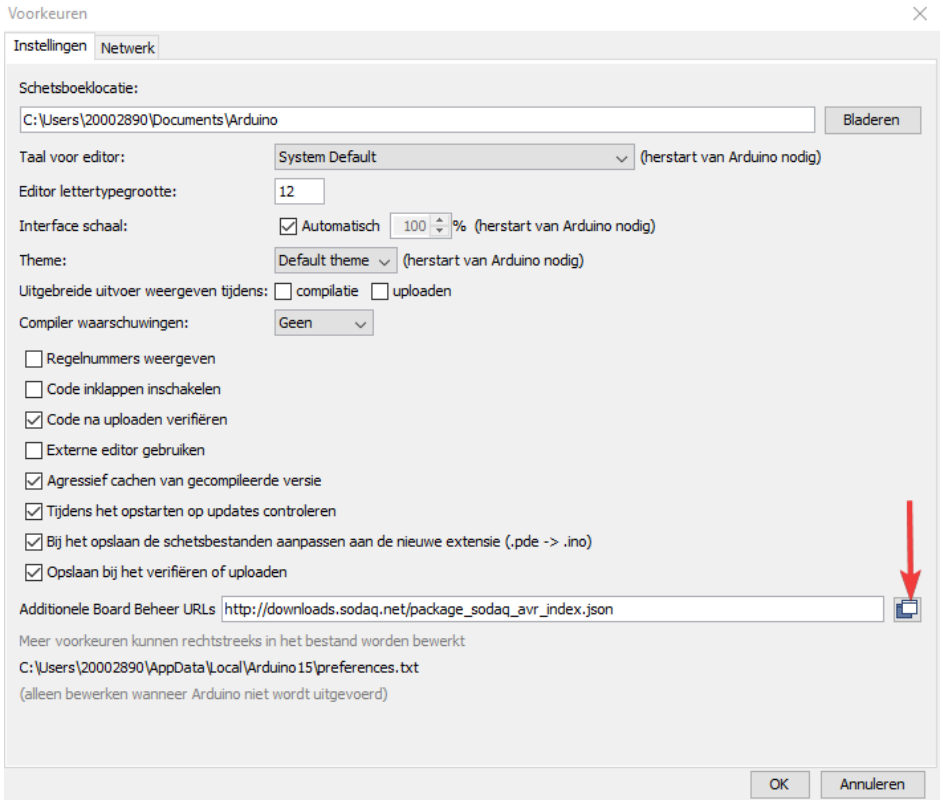
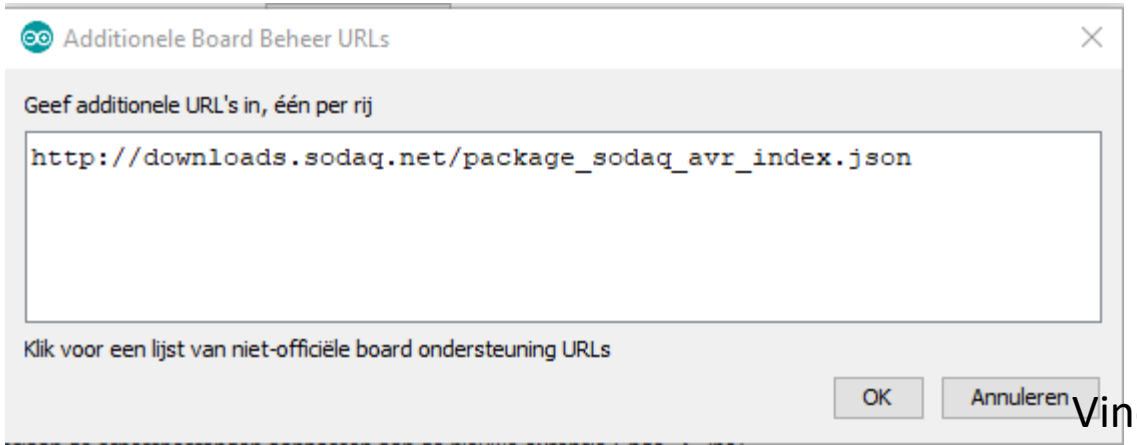
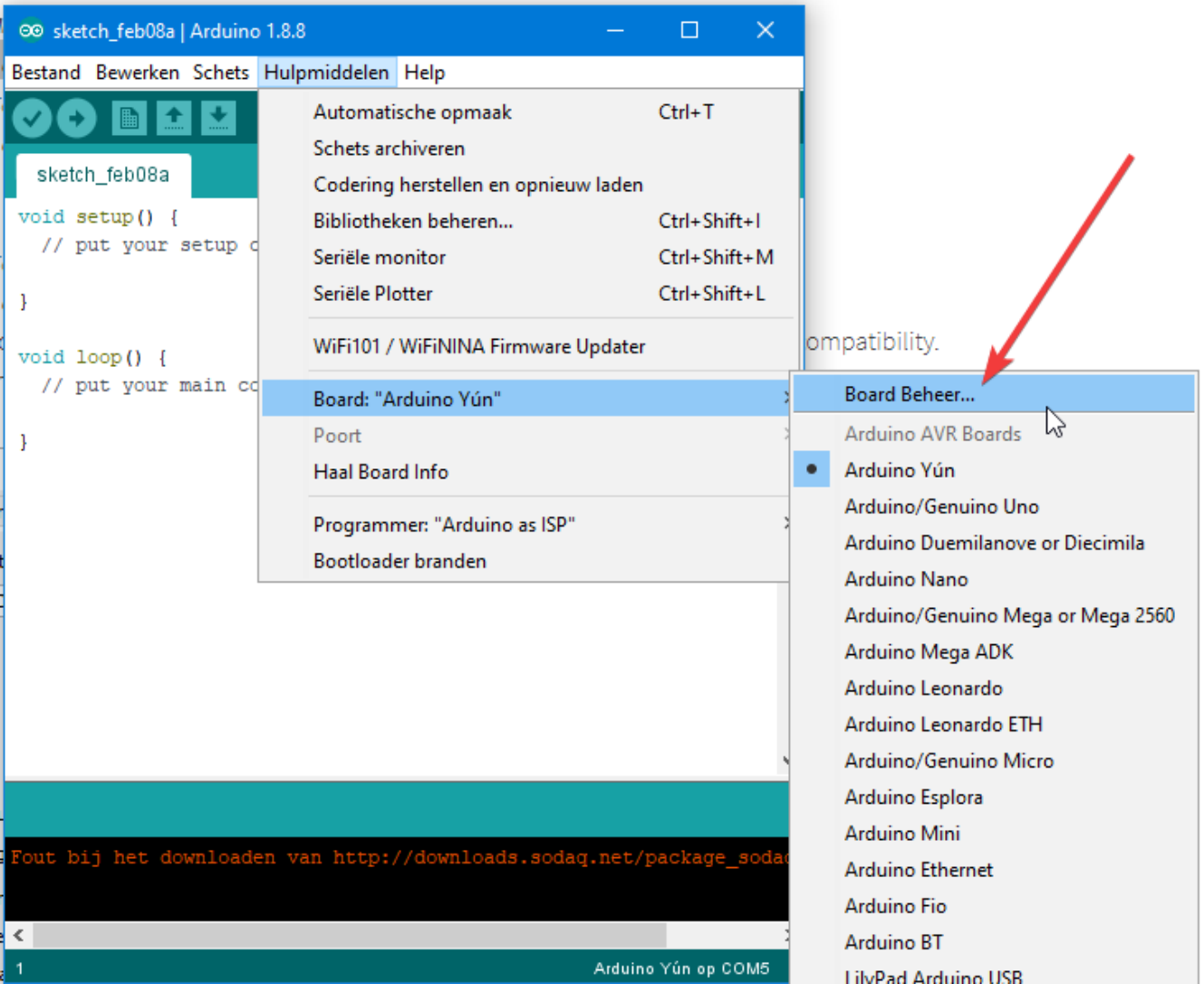
Add Mbili Support

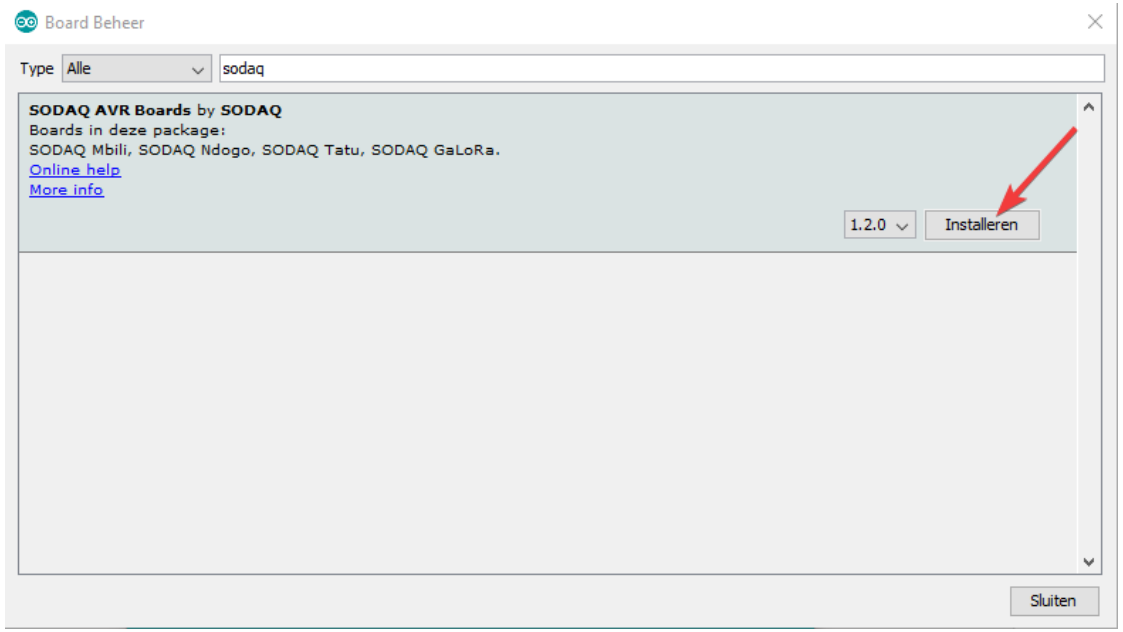






Add Mbili Support





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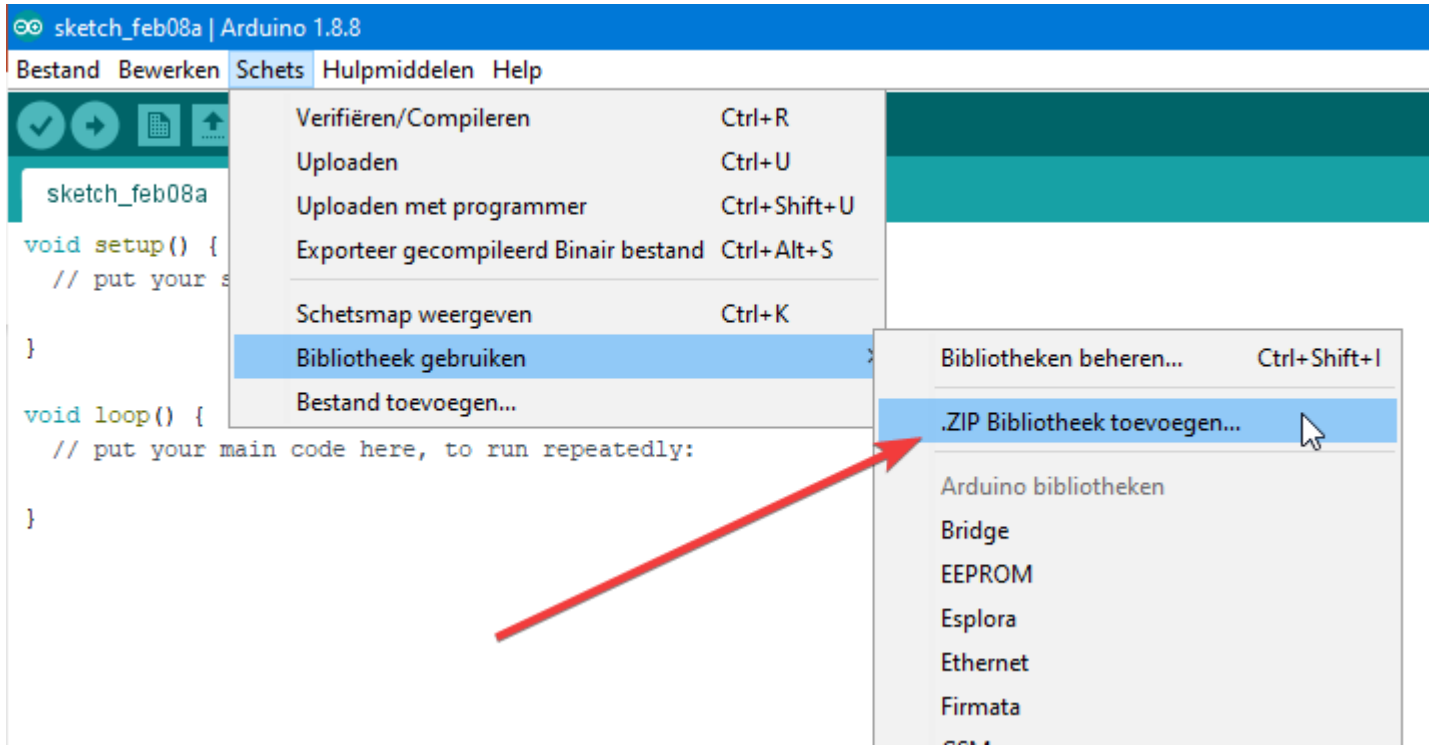
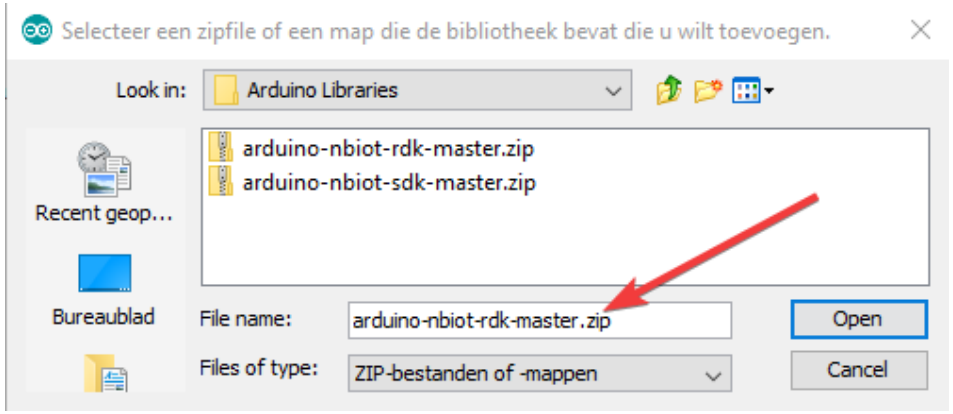
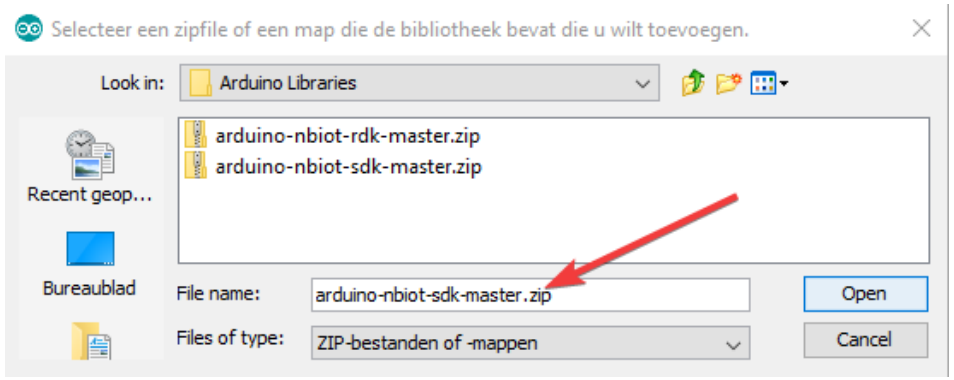
Add AllThingsTalk Software Libraries to Arduino IDE

- Download to your PC
  - NB-IoT Software Development Kit Library
  - https://github.com/allthingstalk/arduino-nbiot-sdk/archive/master.zip
  - NB-IoT Rapid Development Kit Library
  - https://github.com/allthingstalk/arduino-nbiot-rdk/archive/master.zip

Add AllThingsTalk Software Libraries to Arduino IDE







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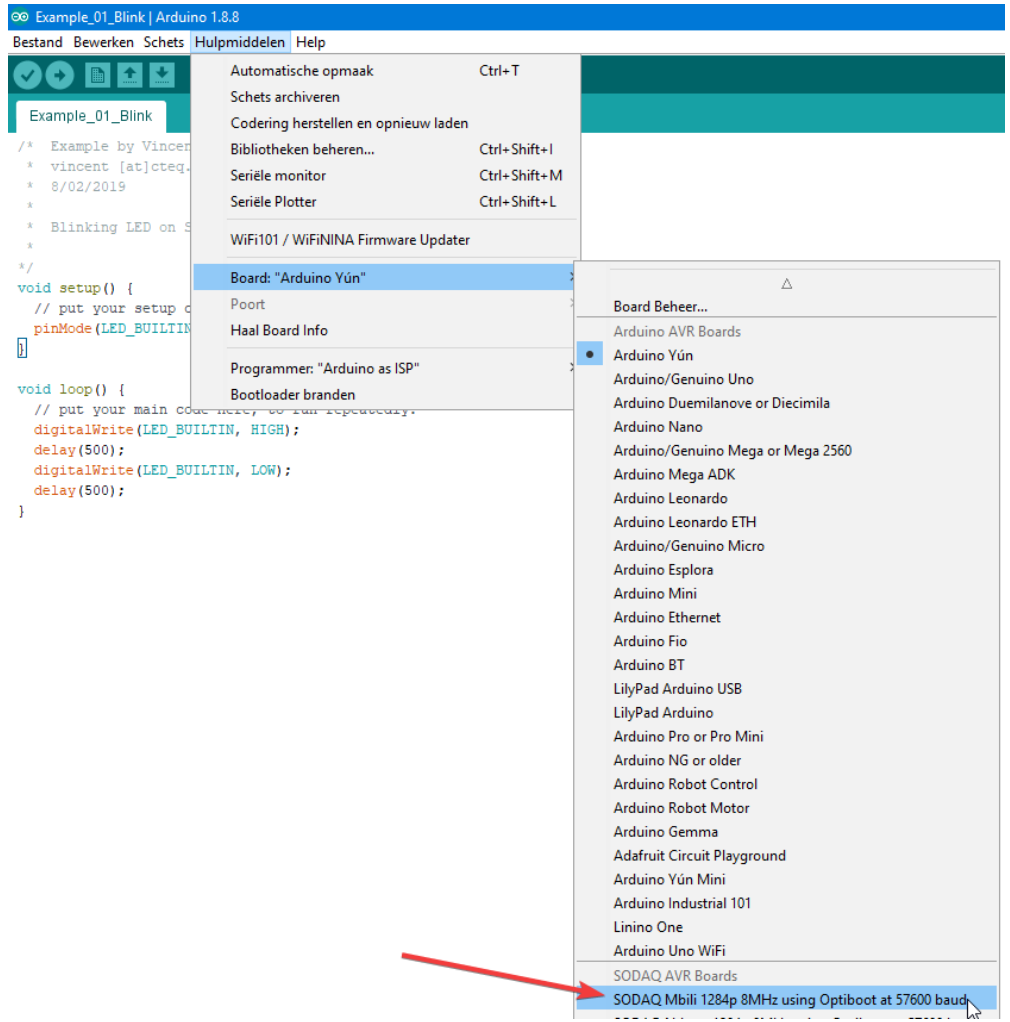
Example_01_Blink.ino

Example_01_Blink | Arduino 1.8.8

Bestand Bewerken Schets Hulpmiddelen Help

Example_01_Blink

```
/*  Example by Vincent Claes
 *  vincent [at]cteq.eu
 *  8/02/2019
 *
 *  Blinking LED on SODAQ MBili board
 *
*/
void setup() {
  // put your setup code here, to run once:
  pinMode(LED1, OUTPUT);
}

void loop() {
  // put your main code here, to run repeatedly:
  digitalWrite(LED1, HIGH);
  delay(500);
  digitalWrite(LED1, LOW);
  delay(500);
}
```



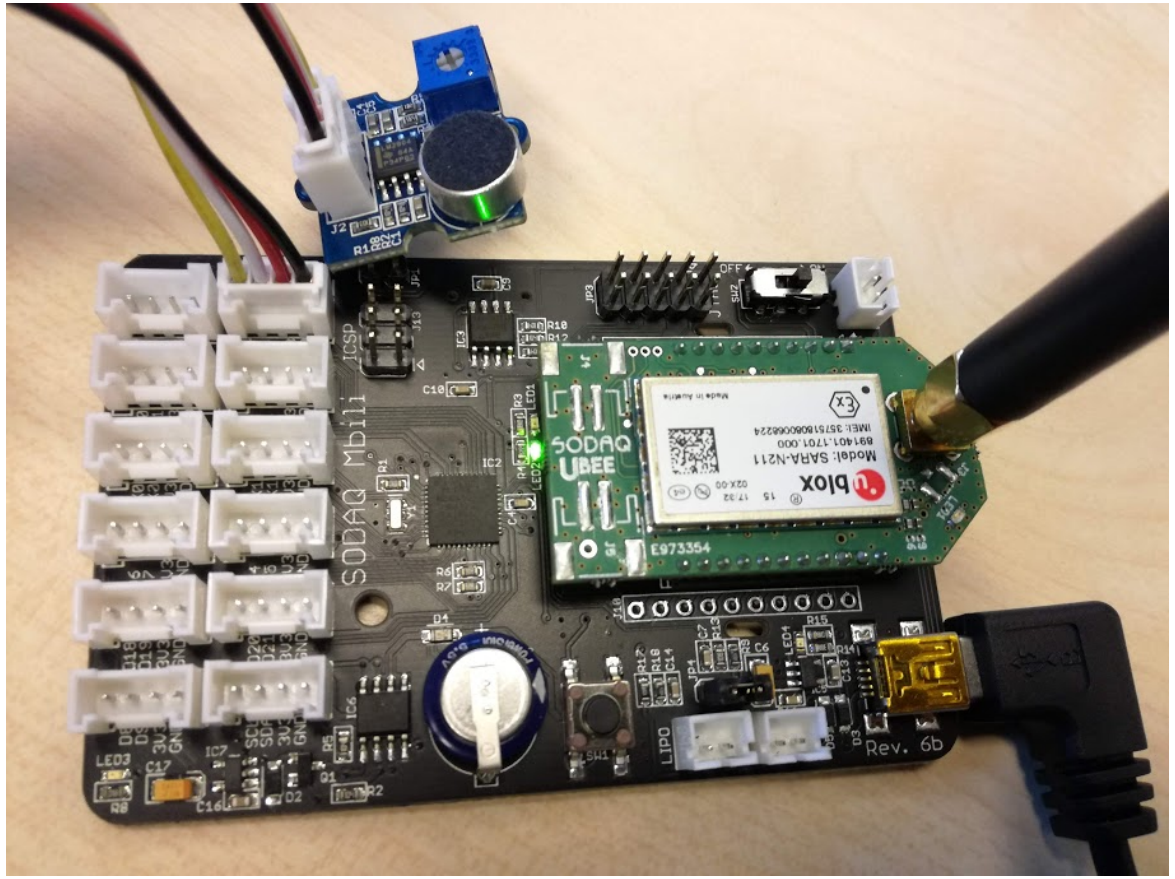
Compile and Upload Sketch

Exercises

- There is another onboard LED called LED2, try to make an application that alternates between the 2 LEDs every second.

- Create an application that writes “Hello World!” over Serial Port to the computer, you can use the serial terminal from the Arduino IDE to validate your application

Connecting a Sensor to the MBili



- Connect the Grove – Loudness Sensor to the A4/A5 connector of the SODAQ Mbili board
- http://wiki.seeedstudio.com/Grove-Loudness_Sensor/

Parameter	Value/Range
Voltage	3.5~10 VDC
Working Frequency	50~2000 Hz
Sensitivity	-48~66 dB
Signal-to-noise Ratio	>58 dB
Output Signal range	Analog Signal (0-1023)

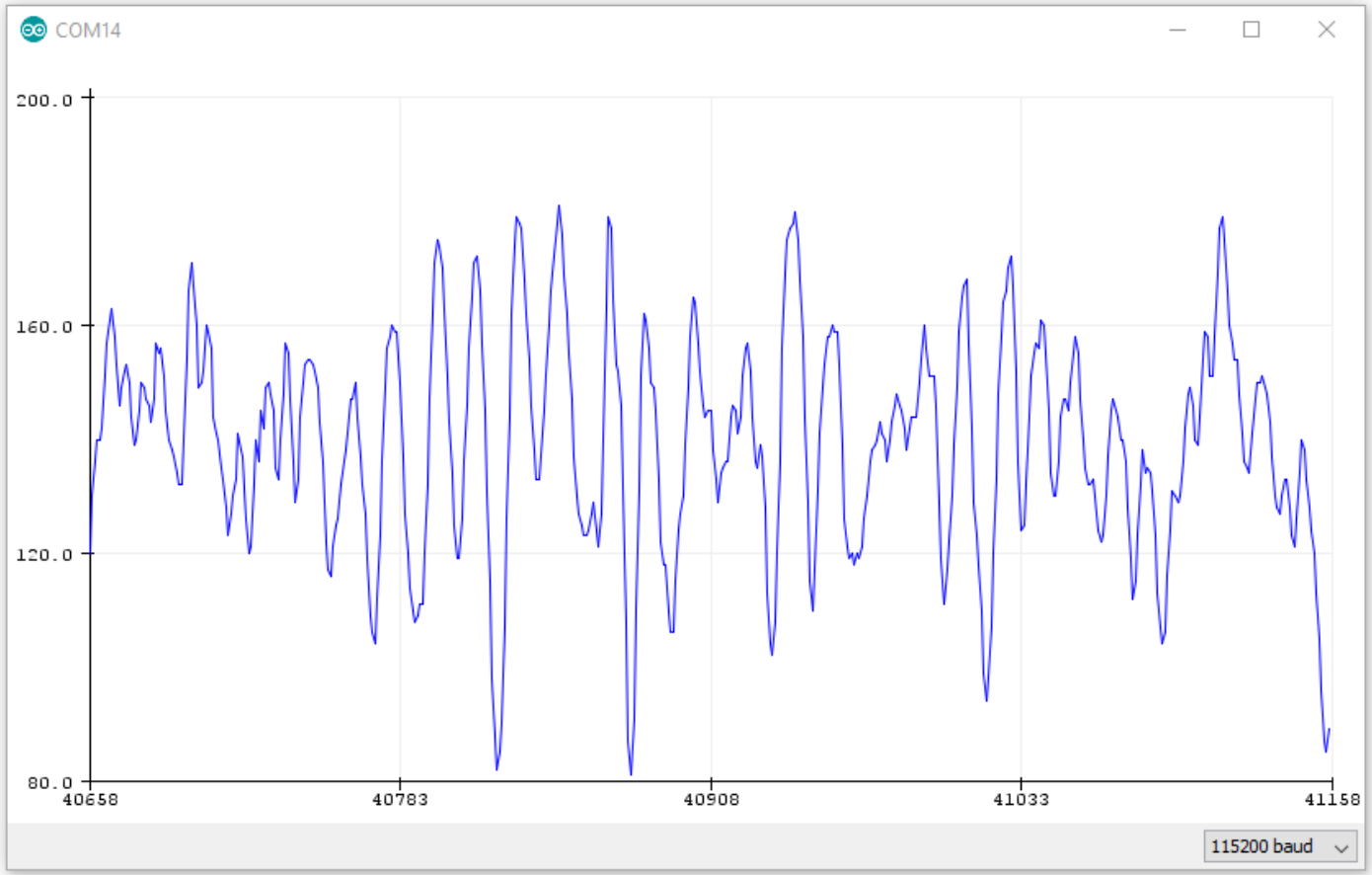
Example_02_Loudness_Sensor (Analoge sensor)

Example_02_Loudness_Sensor | Arduino 1.8.8

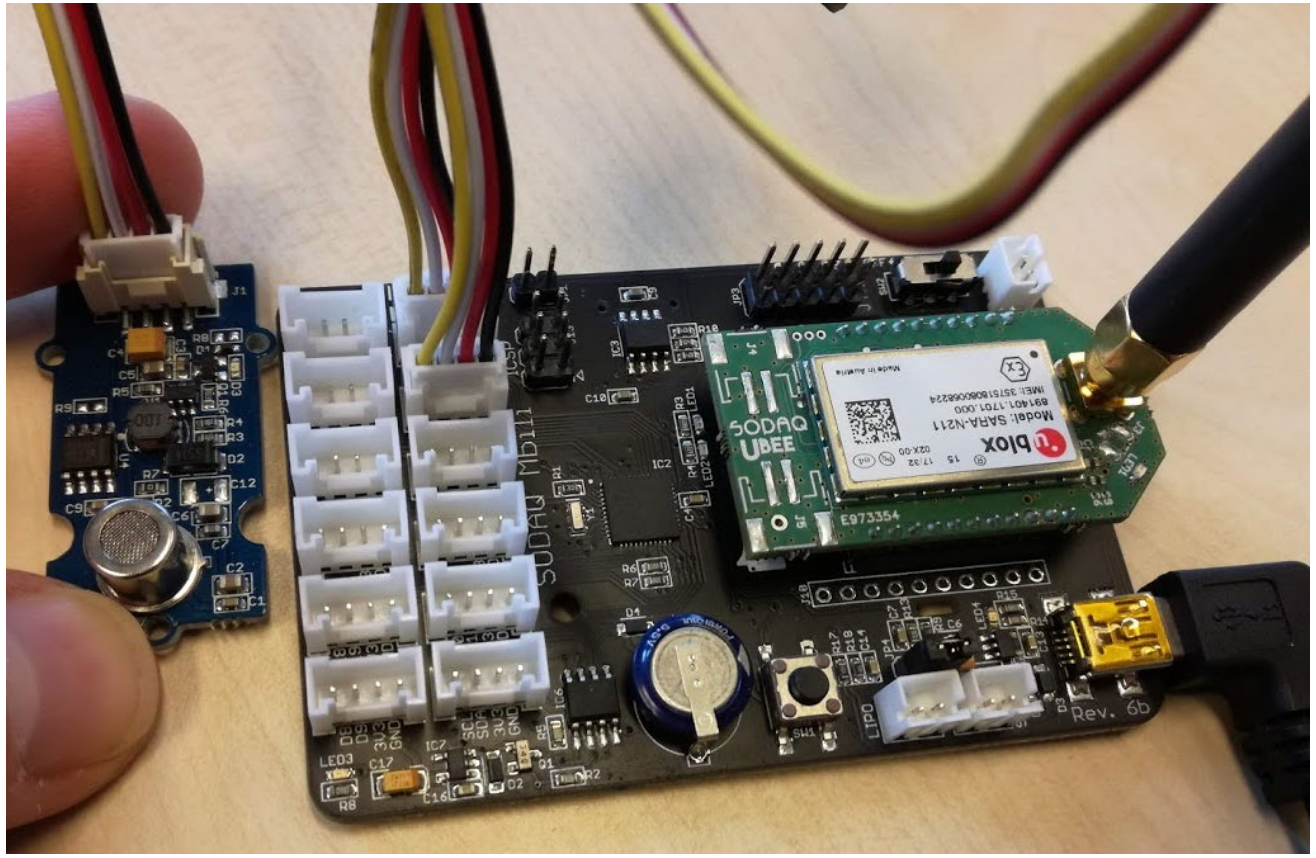
Bestand Bewerken Schets Hulpmiddelen Help

Example_02_Loudness_Sensor

```
/*  Example by Vincent Claes
 *  vincent [at]cteq.eu
 *  8/02/2019
 *
 *  Loudness Sensor on SODAQ MBili board
 *
*/

#define SoundSensorPin A4

int SoundValue;

void setup() {
  // put your setup code here, to run once:
  Serial.begin(115200);
  pinMode(SoundSensorPin, INPUT);
}

void loop() {
  // put your main code here, to run repeatedly:
  SoundValue = analogRead(SoundSensorPin);
  Serial.println(SoundValue);
  delay(10);
}
```

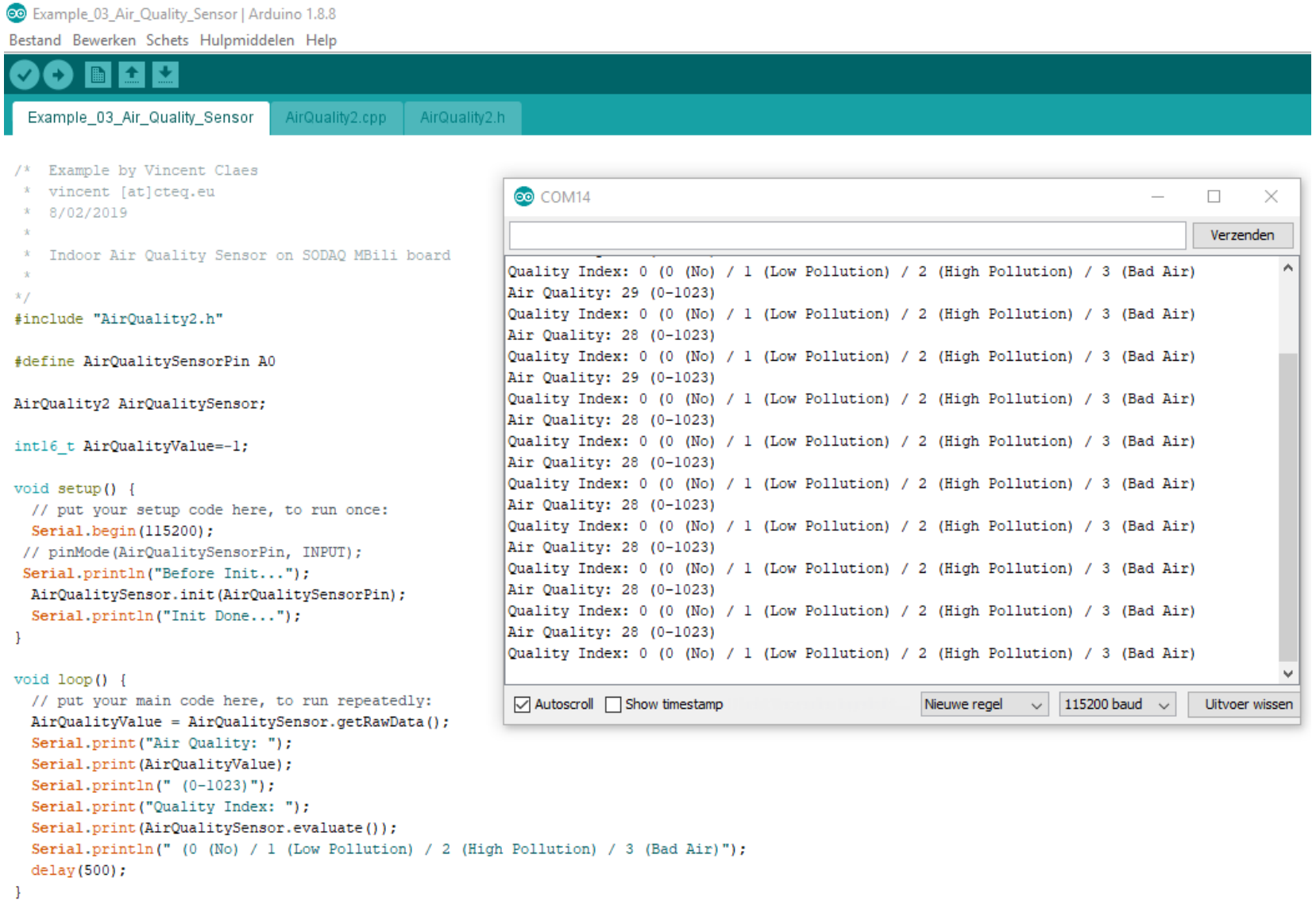


Connecting a Sensor to the MBili



- Connect the Grove – Air Quality Sensor to the A0/A1 connector of the SODAQ Mbili board
- Import the AirQuality Sensor Library Into Arduino IDE
- http://wiki.seeedstudio.com/Grove-Air_Quality_Sensor_v1.3/

Example_03_Air_Quality (Analoge sensor)



Exercises

- Build an Application to read out the TPH v2 sensor
  - See also: https://support.sodaq.com/sodaq-one/tph-v2/
- Build an Application to read out the Light sensor
- Build an Application to read out the Grove GPS sensor