



Orientation Project 2023

IoT Basics - Blynk application

Orig. slides: Aku Valmu

Part 1- Blynk App

1. Intro to IoT and Blynk
2. Creating login to blynk.io
3. Quick start template
4. Creating device in Blynk
5. Importing Blynk definitions to Arduino
6. Virtual Pins
7. Assignments

2. Creating login to blynk.io

- § Open blynk.io
- § Create new login – do not use @metropolia.fi email address

Quick start template

In your browser, open *blynk.cloud*

Start by creating your first template

Template is a digital model of a physical object. It is used in Blynk platform as a template to be assigned to devices.

+ New Template

Quick start template

Create New Template

NAME

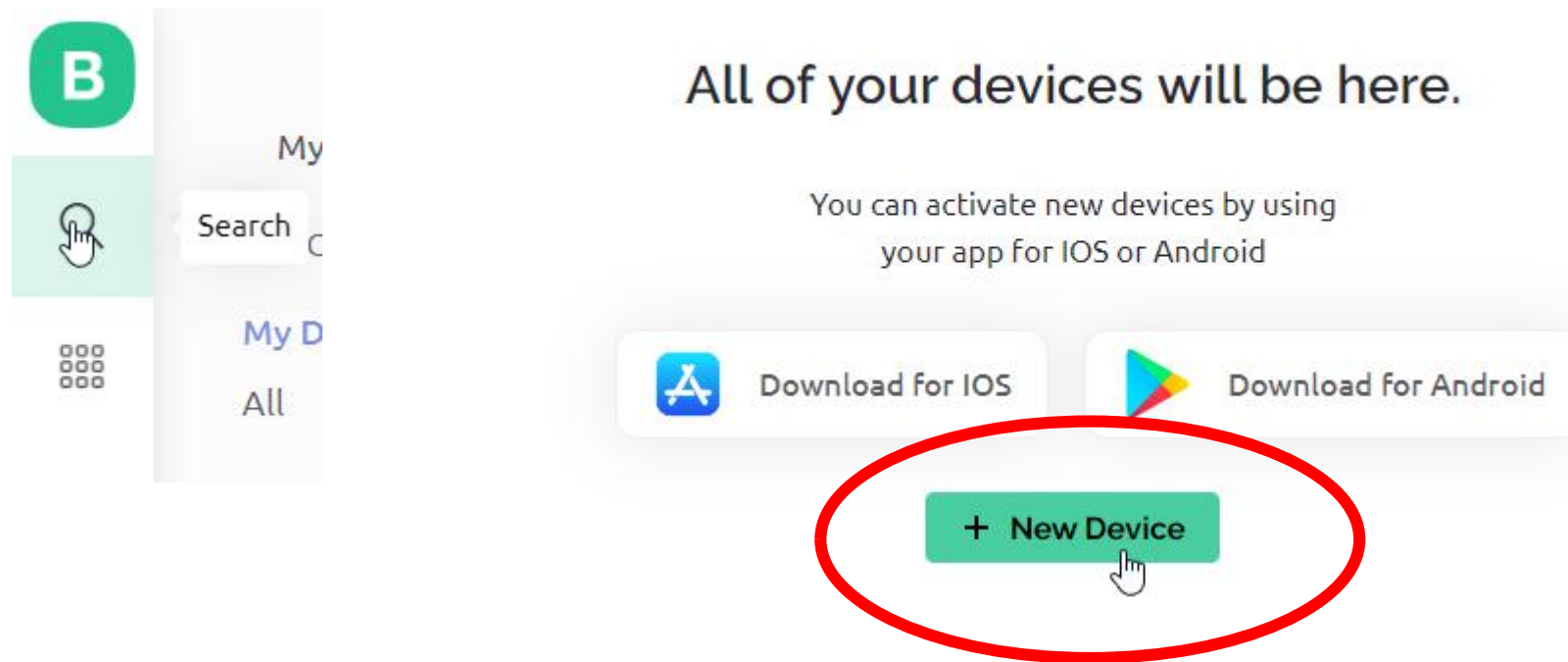
HARDWARE CONNECTION TYPE

DESCRIPTION

19 / 128

Create a new template with the contents shown on left and first click "Done", then "Save"

Creating device in Blynk

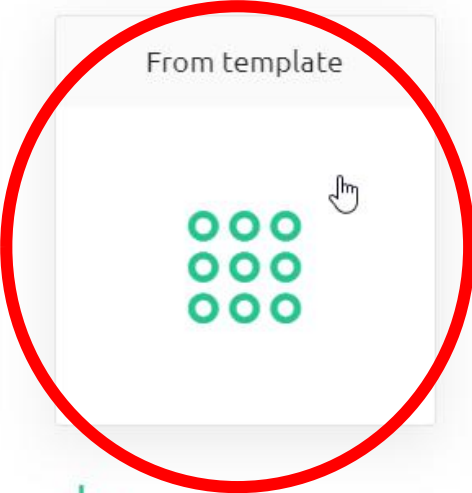



Devicen luominen


New Device

Choose a way to create new device


From template




Scan QR code



Manual entry



 Create a device by filling in a simple form

Cancel

Devicen luominen

New Device

Create new device by filling in the form below

TEMPLATE

Ardu

DEVICE NAME

Ardu

Cancel Create

Importing Blynk definitions to Arduino



Ardu

Offline



Aku



My organization - 3719UI



Add Tag

Dashboard

Timeline

Device Info

Metadata

Actions Log

Latest

Last Hour

6 Hours

1 Day

1 Week

1 Month

3 Months

Custom

No Dashboard widgets

New Device Created!



```
#define BLYNK_TEMPLATE_ID "TMPLQE4n5T9s"  
#define BLYNK_DEVICE_NAME "Ardu"  
#define BLYNK_AUTH_TOKEN "2D-W7EN0xycnhWm6_-hi5xP9K-XIfAmS"
```

Template ID, Device Name, and AuthToken should be declared at the very top of the firmware code.

[Documentation](#)

[Copy to clipboard](#)

New Device Created!



```
#define BLYNK_TEMPLATE_ID "TMPLQE4n5T9s"  
#define BLYNK_DEVICE_NAME "Ardu"  
#define BLYNK_AUTH_TOKEN "2D-W7EN0xycnhWm6_-hi5xP9K-XIfAmS"
```

Template ID, Device Name, and AuthToken should be declared at the very top of the firmware code.

[Documentation](#)

[Copy to clipboard](#)

Importing Blynk definitions to Arduino

Paste the copied lines (from previous slide) as the very first lines of code in your Arduino sketch.



```
sketch_oct31b.ino ●
1  #define BLYNK_TEMPLATE_ID "TMPLmwqzgUdX"
2  #define BLYNK_DEVICE_NAME "Ardu"
3  #define BLYNK_AUTH_TOKEN "L3faqW0qUtqS20WCPGLXDqt6TvkGpm1f"
4
5  void setup() {
6      // put your setup code here, to run once:
7
8  }
9
10 void loop() {
11     // put your main code here, to run repeatedly:
12
13 }
```

Creating a device in Blynk



My Devices

1 Device



Device name



Device owner



Status



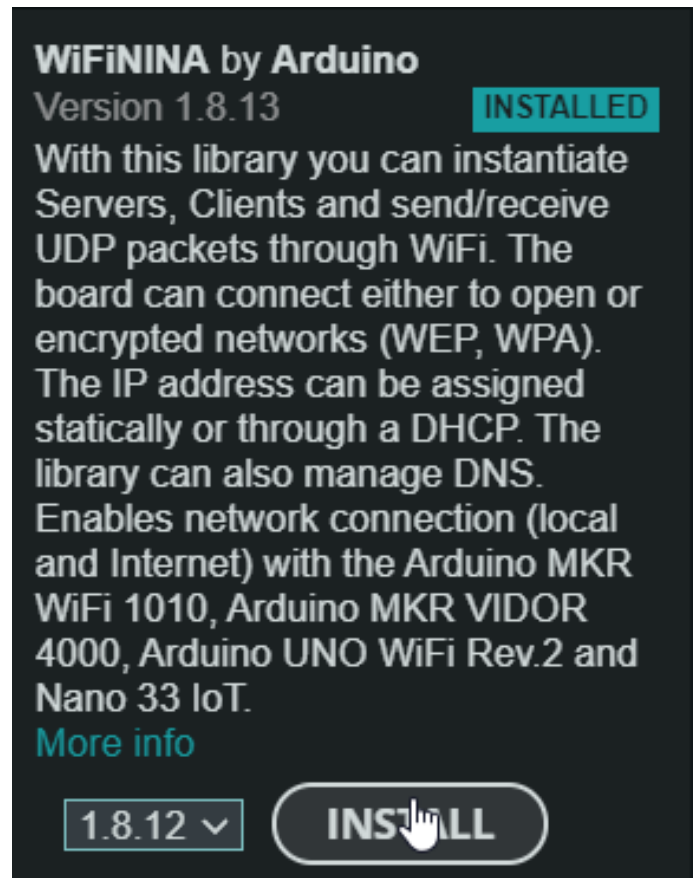
Ardu

Aku

Offline

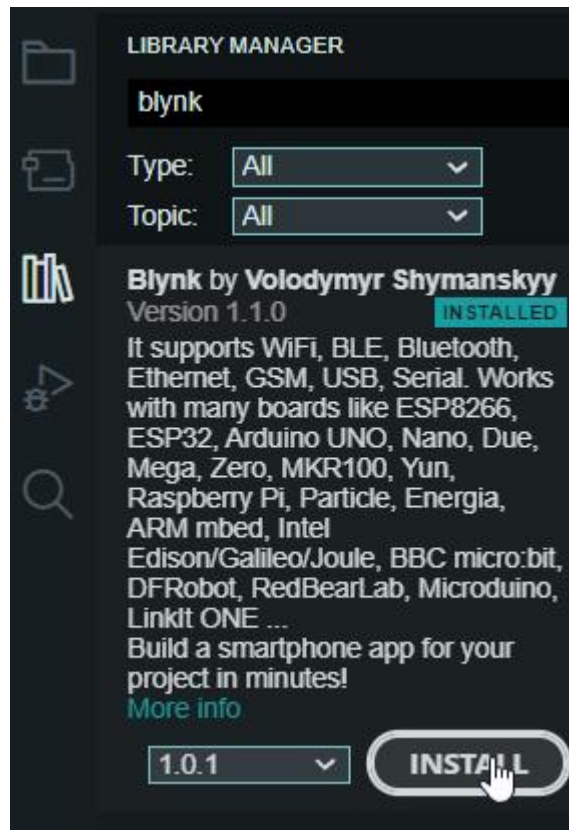
Importing required Wi-Fi-NINA library

Install the *Wi-Fi-NINA* library in Arduino IDE from the Library Manager on left side control bar



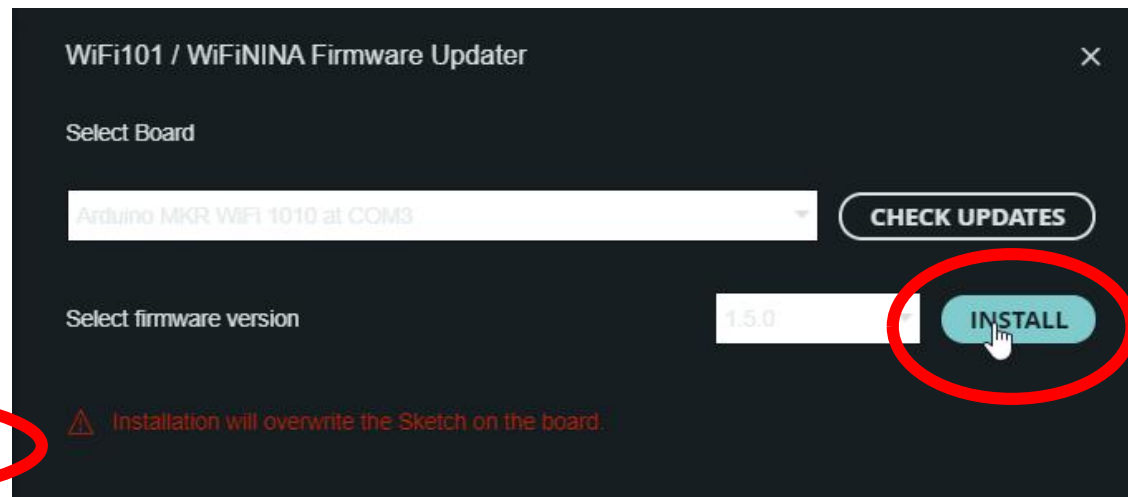
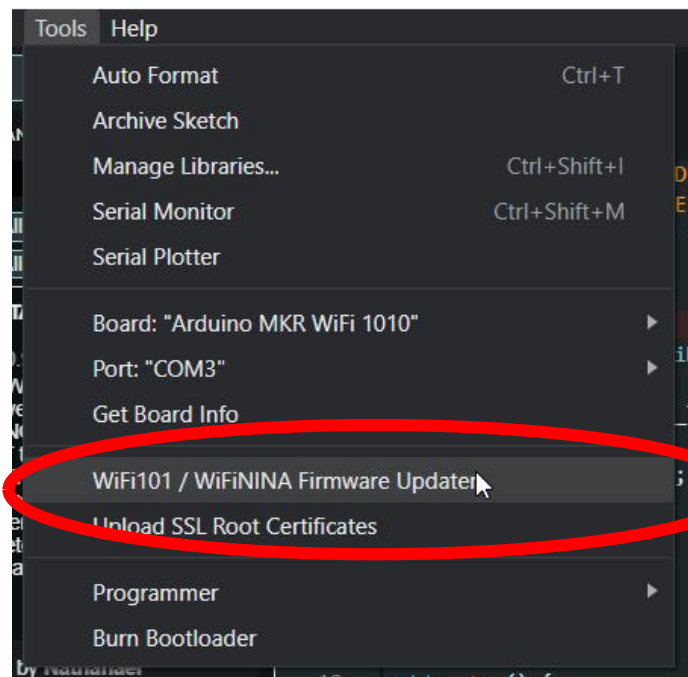
Importing required Wi-FiNINA library

Install the Blynk library from Library Manager



Importing required Wi-FiNINA library

One more thing – update Arduino firmware



Virtual pins..

```
BLYNK_WRITE(V0) {  
  value = param.asInt()  
}
```

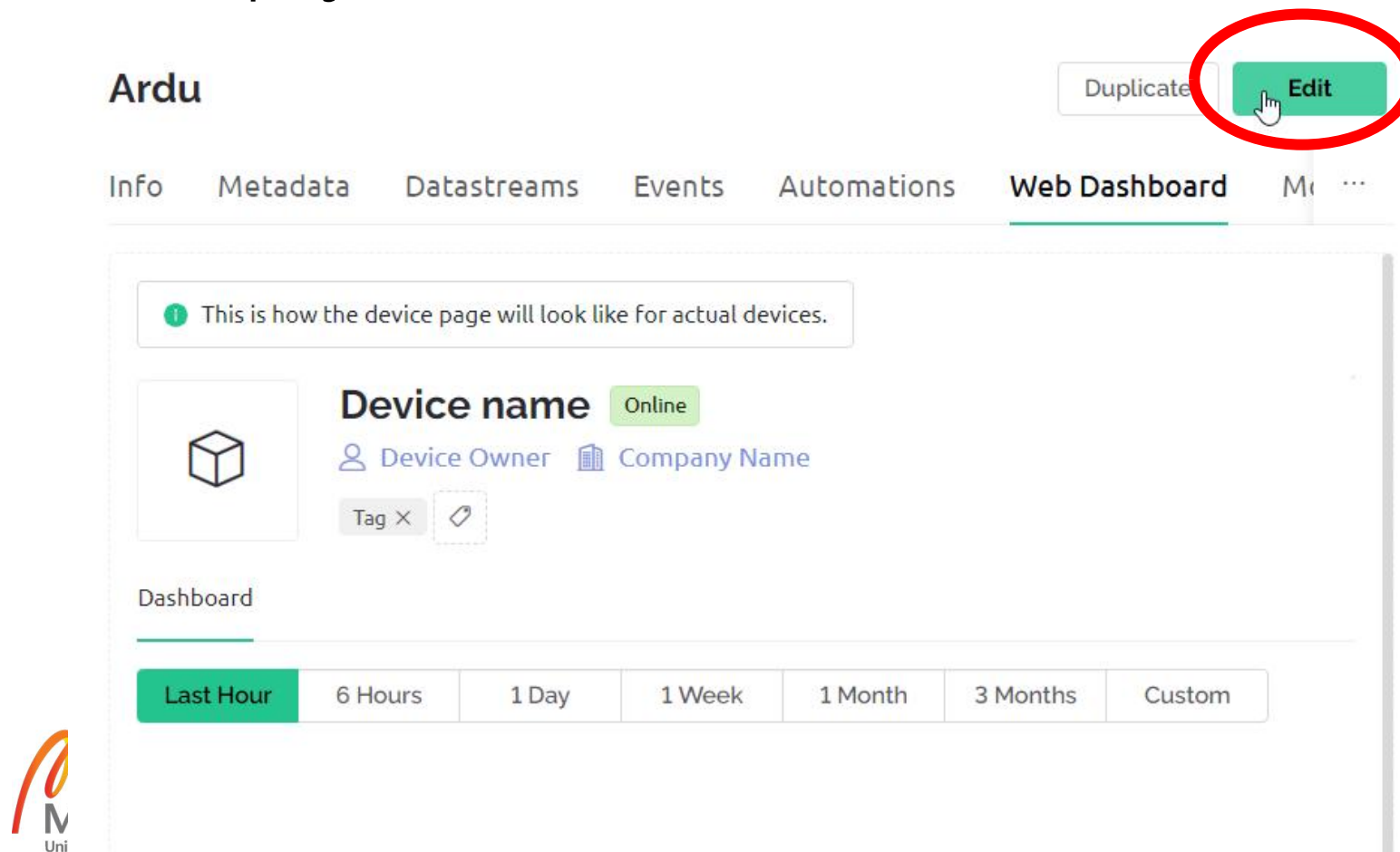
Creating encrypted channel between Arduino board and Blynk

1031-test.ino

```
1  #define BLYNK_TEMPLATE_ID "TMPLmwqzgUdX"
2  #define BLYNK_DEVICE_NAME "Ardu"
3  #define BLYNK_AUTH_TOKEN "L3faqWOqUtqS20WCPGLXDqt6Tvkgpm1f"
4
5  #include <SPI.h>
6  #include <WiFiNINA.h>
7  #include <BlynkSimpleWiFiNINA.h>
8
9  char auth[] = BLYNK_AUTH_TOKEN;
10 char ssid[] = "verkko";
11 char pass[] = "salasana";
12 BlynkTimer timer;
13
14 // Kirjoittaa jatkuvasti käynnistyksestä
15 // kulunutta aikaa sekunteina virtuaalipinniin V2
16 void myTimerEvent() {
17     Blynk.virtualWrite(V2, millis() / 1000);
18 }
19
20 void setup() {
21     Blynk.begin(auth,ssid,pass);
22     timer.setInterval(1000L, myTimerEvent);
23 }
24
25 void loop() {
26     Blynk.run();
27     timer.run();
28 }
```


Creating encrypted channel between Arduino board and Blynk

Add a display on Dashboard that shows time after reset.



Arduino and Blynk

Ardu

Info Metadata Datastreams Events Automations Web

Widget Box

0 of 30 widgets

DISPLAY

LED



Device
Owner

Company
Name

Tag X



Dashboard



La...

6 H...

1 D...

1 ...

1

Label

112



wid

the

the canvas

Label



Label Settings

TITLE (OPTIONAL)

Label

Datastream

You have no datastreams to select

+ Create Datastream

Digital

Analog

Virtual Pin

Enumerable

Location

UPGRADE



Arduino and Blynk

Ardu

Info Metadata Datastreams Events Automations Web

Widget Box

0 of 30 widgets

DISPLAY

LED



Device
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6 H...

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1 ...

1

Label

112



wid

the

the canvas

Label



Label Settings

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UPGRADE

Arduino and Blynk

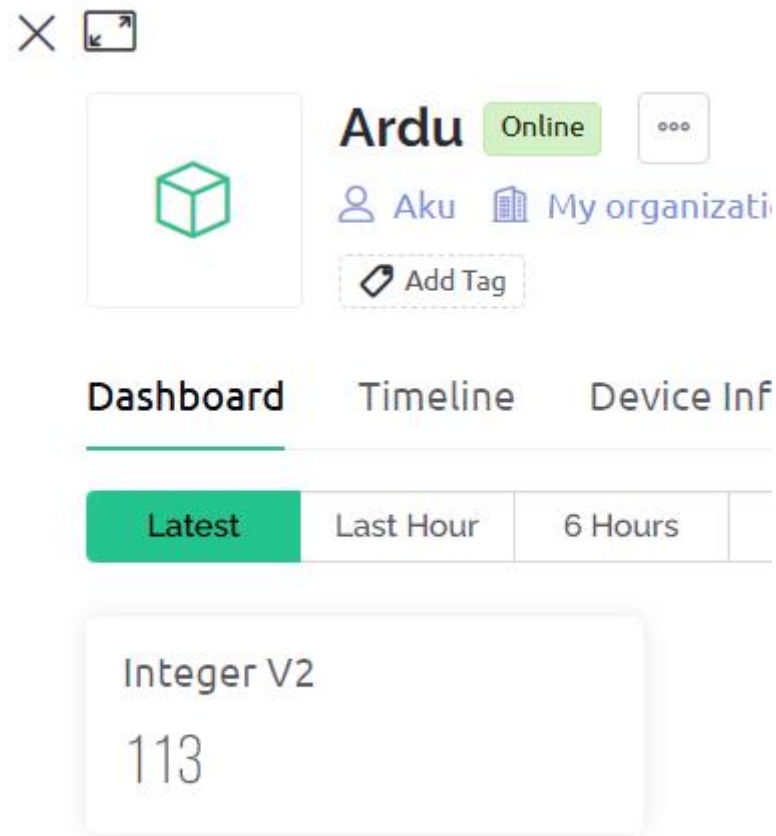
Virtual Pin Datastream

PIN	DATA TYPE	
V2	Integer	
UNITS		
None		
MIN	MAX	DEFAULT VALUE
0	3600	0

Cancel

Create

Arduino and Blynk



Assignment

1. Add a button on your dashboard, which controls the on board LED.
2. Modify your code to control also the external LED.