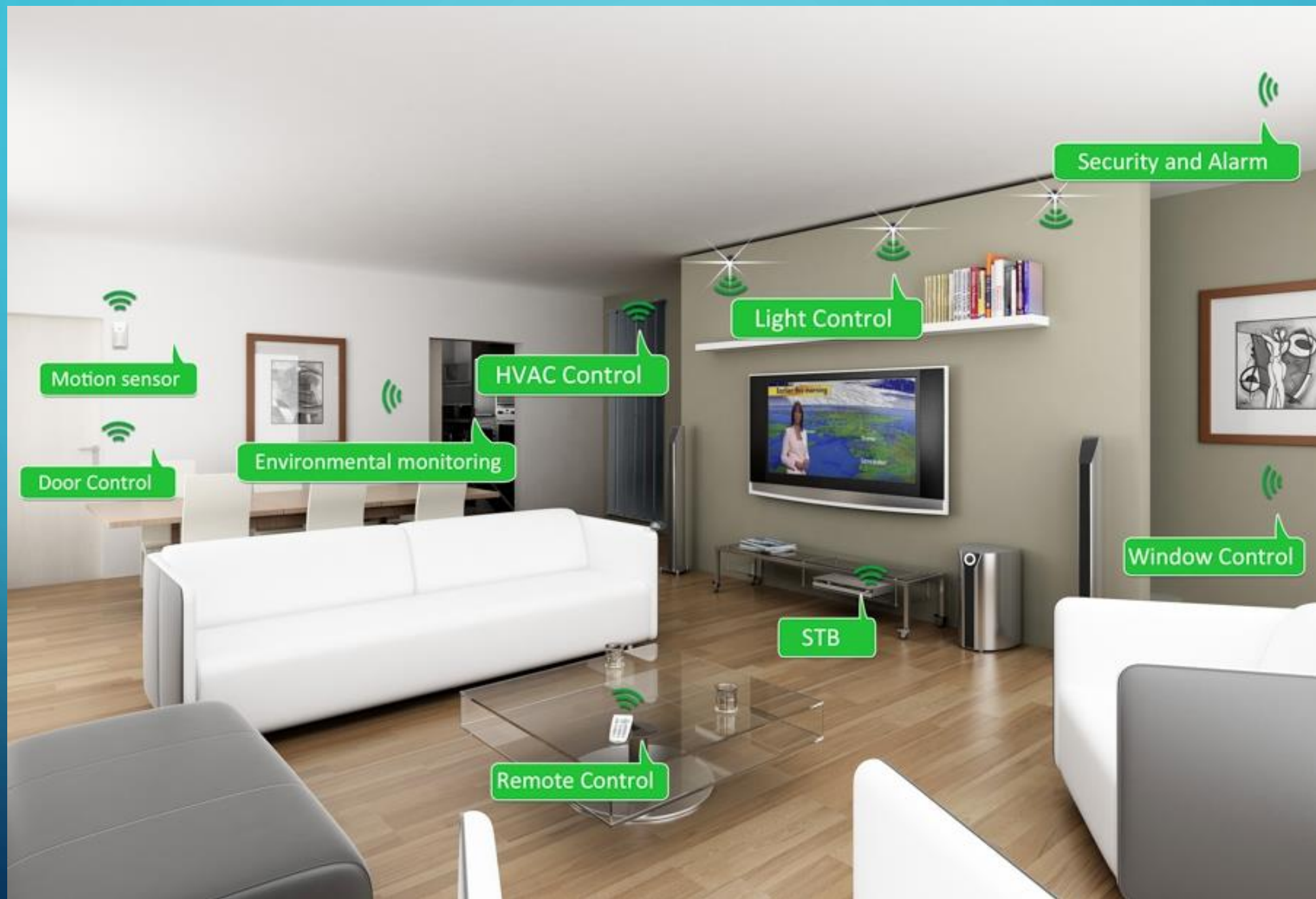


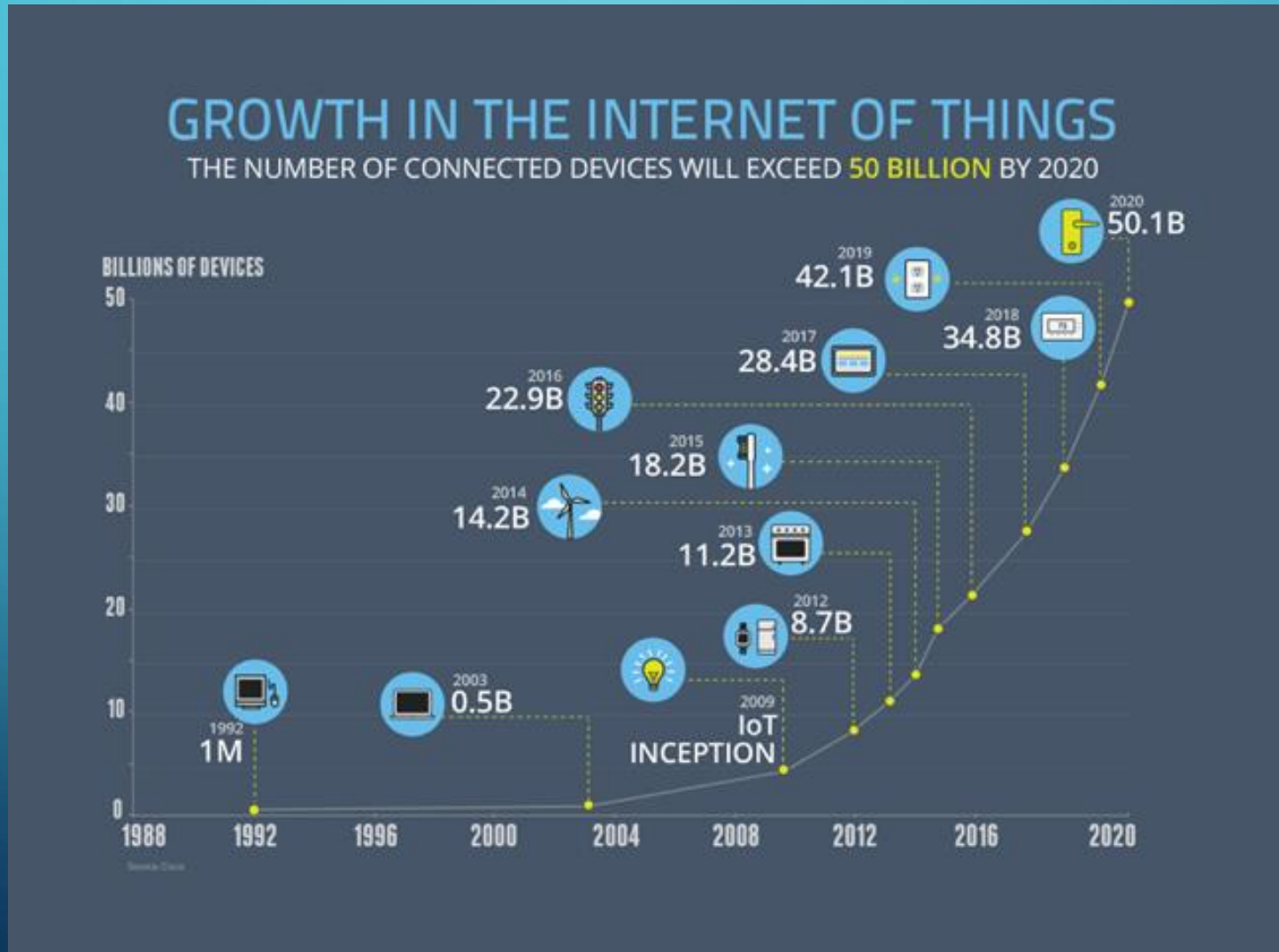
An abstract graphic on the left side of the slide, consisting of a network of white lines and small circles on a blue gradient background, resembling a circuit board or data flow diagram.

THINGSPEAK

FRI UNIZA



NUMBER OF DEVICES CONNECTED TO THE INTERNET(2020)



THINGSPEAK

- Cloud service for IoT.
- Data collection in the cloud with advanced data analysis using MATLAB.
- IoT analytics platform service that allows you to aggregate, visualize and analyze live data streams in the cloud.
- <https://thingspeak.com/>



SIGN UP

Sign up for ThingSpeak

In order to sign up for ThingSpeak, you must create a new MathWorks Account or log in to your MathWorks Account. The ThingSpeak service is operated by The MathWorks, Inc.

Create MathWorks Account

iot.fri.uniza@gmail.com	✓
FRIIoT	?
••••••••	✓
Slovakia	▼
IOT	✓
FRI	✓

By clicking continue, you agree to our [privacy policy](#)

Cancel

Continue

SIGN UP

[Channels](#)[Apps](#)[Community](#)[Support ▾](#)[How to Buy](#)[Log In](#)[Sign Up](#)

Sign up for ThingSpeak

In order to sign up for ThingSpeak, you must create a new MathWorks Account or log in to your MathWorks Account. The ThingSpeak service is operated by The MathWorks, Inc.

Verify Your MathWorks Account

To finish creating your account, complete the following steps:

1. Go to your inbox for **iot.fri.uniza@gmail.com**.
2. Click the link in the email we sent you.

Once you've done this, click Continue.

Didn't get the email?

1. Check your spam folder.
2. [Send me the email again](#).
3. Contact [Customer Support](#) if you still do not have the email

[Cancel](#)[Continue](#)

CREATE A NEW CHANNEL

ThingSpeak™

Channels ▾

Apps

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Support ▾

How to Buy

Account ▾

Sign Out

My Channels

New Channel

Help

Collect data in a ThingSpeak channel from a device, from another channel, or from the web. Click **New Channel** to create a new ThingSpeak channel.

Learn to [create channels](#), explore and transform data.

Learn more about [ThingSpeak Channels](#).

Examples

- [Arduino](#)
- [Arduino MKR1000](#)
- [ESP8266](#)
- [Raspberry Pi](#)
- [Netduino Plus](#)

CREATE A NEW CHANNEL

New Channel

Name

IoT

Description

Svetelný senzor

Field 1

Svetelný senzor



Field 2



Field 3



Field 4



Field 5



Field 6



Field 7



Field 8



Help

Channels store all the data that a ThingSpeak application collects. Each channel includes eight fields that can hold any type of data, plus three fields for location data and one for status data. Once you collect data in a channel, you can use ThingSpeak apps to analyze and visualize it.

Channel Settings

- **Channel Name:** Enter a unique name for the ThingSpeak channel.
- **Description:** Enter a description of the ThingSpeak channel.
- **Field#:** Check the box to enable the field, and enter a field name. Each ThingSpeak channel can have up to 8 fields.
- **Metadata:** Enter information about channel data, including JSON, XML, or CSV data.
- **Tags:** Enter keywords that identify the channel. Separate tags with commas.
- **Latitude:** Specify the position of the sensor or thing that collects data in decimal degrees. For example, the latitude of the city of London is 51.5072.
- **Longitude:** Specify the position of the sensor or thing that collects data in decimal degrees. For example, the longitude of the city of London is -0.1275.
- **Elevation:** Specify the position of the sensor or thing that collects data in meters. For example, the elevation of the city of London is 35.052.
- **Make Public:** If you want to make the channel publicly available, check this box.
- **URL:** If you have a website that contains information about your ThingSpeak channel, specify the URL.

API KEYS

IoT

Channel ID: 233715

Author: friiot

Access: Public

Svetelný senzor

Private View

Public View

Channel Settings

API Keys

Data Import / Export

+ Add Visualizations

Data Export

MATLAB Analysis

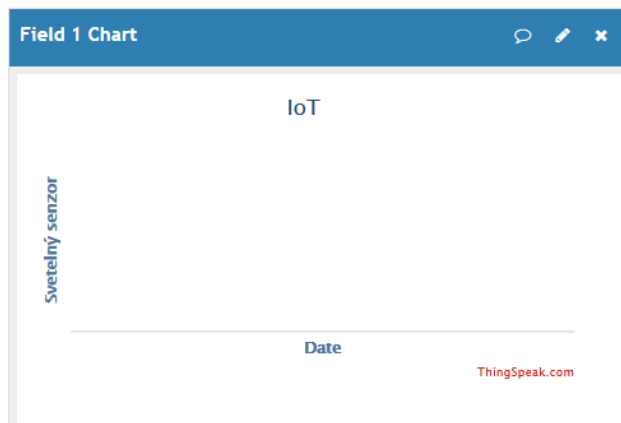
MATLAB Visualization

Channel Stats

Created: about a minute ago

Updated: about a minute ago

Entries: 0



API KEYS

ThingSpeak™

Channels ▾

Apps

Community

Support ▾

How to Buy

Account ▾

Sign Out

Write API Key

Key

QSBQSRMAAK97DBBG

Generate New Write API Key

Read API Keys

Key

QHBJNR5SPUYOZF

Note

Save Note

Delete API Key

Generate New Read API Key

Help

API keys enable you to write data to a channel or read data from a private channel. API keys are auto-generated when you create a new channel.

API Keys Settings

- **Write API Key:** Use this key to write data to a channel. If you feel your key has been compromised, click **Generate New Write API Key**.
- **Read API Keys:** Use this key to allow other people to view your private channel feeds and charts. Click **Generate New Read API Key** to generate an additional read key for the channel.
- **Note:** Use this field to enter information about channel read keys. For example, add notes to keep track of users with access to your channel.

Create a Channel

POST `https://api.thingspeak.com/channels.json`
`api_key=7WCLB048AAYE0LE4`
`name=My New Channel`

Update a Channel

PUT `https://api.thingspeak.com/channels/233715`
`api_key=7WCLB048AAYE0LE4`
`name=Updated Channel`

Clear a Channel

DELETE `https://api.thingspeak.com/channels/233715/feeds.json`
`api_key=7WCLB048AAYE0LE4`

Delete a Channel

DELETE `https://api.thingspeak.com/channels/233715`
`api_key=7WCLB048AAYE0LE4`

Learn More

DATA IMPORT/EXPORT

ThingSpeak™

Channels ▾

Apps

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Sign Out

Access: Public

Private View

Public View

Channel Settings

API Keys

Data Import / Export

Import

Upload a CSV file to import data into this channel

Prehľadávať...

Nie je zvolený súbor.

Time Zone (GMT+00:00) UTC ▾

Upload

Export

Download all of this Channel's feeds in CSV format.

Download

Help

Select a CSV file on your hard drive and import all of its data directly into this channel. Your CSV file should contain a date field in the first column. If your data doesn't contain timezone info, select one appropriately.

[Learn More](#)

API Requests

Update Channel Feed - GET

GET `https://api.thingspeak.com/update?api_key=QSBQSRMAAK97DBBG&field1=73`

Update Channel Feed - POST

POST `https://api.thingspeak.com/update.json`
`api_key=QSBQSRMAAK97DBBG`
`field1=73`

Get a Channel Feed

GET `https://api.thingspeak.com/channels/233715/feeds.json?results=2`

Get a Channel Field Feed

GET `https://api.thingspeak.com/channels/233715/fields/1.json?results=2`

Get Status Updates

GET `https://api.thingspeak.com/channels/233715/status.json`

CHART OPTIONS

ThingSpeak™ Channels Apps Community Support How to Buy Account Sign

[+ Add Visualizations](#) [Data](#)

Channel Stats

Created: [13 minutes ago](#)
Updated: [13 minutes ago](#)
Entries: 0

Field 1 Chart

Svetelný senzor

ThingSpeak.com

Field 1 Chart Options

Title:

X-Axis:

Y-Axis:

Color:

Background:

Type:

Dynamic?:

Days:

Results:

Timescale:

Average:

Median:

Sum:

Rounding:

Data Min:

Data Max:

Y-Axis Min:

Y-Axis Max:

[Save](#) [Cancel](#)

CHANNEL SHARING SETTINGS

ThingSpeak™

Channels ▾

Apps ▾

Devices ▾

Support ▾

Commercial Use

How to Buy

LF

ESP32

Channel ID: 1721203

Author: lukasff1

Access: Private

Private View

Public View

Channel Settings

Sharing

API Keys

Data Import / Export

Channel Sharing Settings

☒ Keep channel view private

☐ Share channel view with everyone

☐ Share channel view only with the following users:

Email Address

Enter email here

Add User

Help

ThingSpeak allows you to control who can view the data in your channel. Irrespective of the settings on this tab, reading data from or writing data to the fields of a channel requires the appropriate API key for the channel.

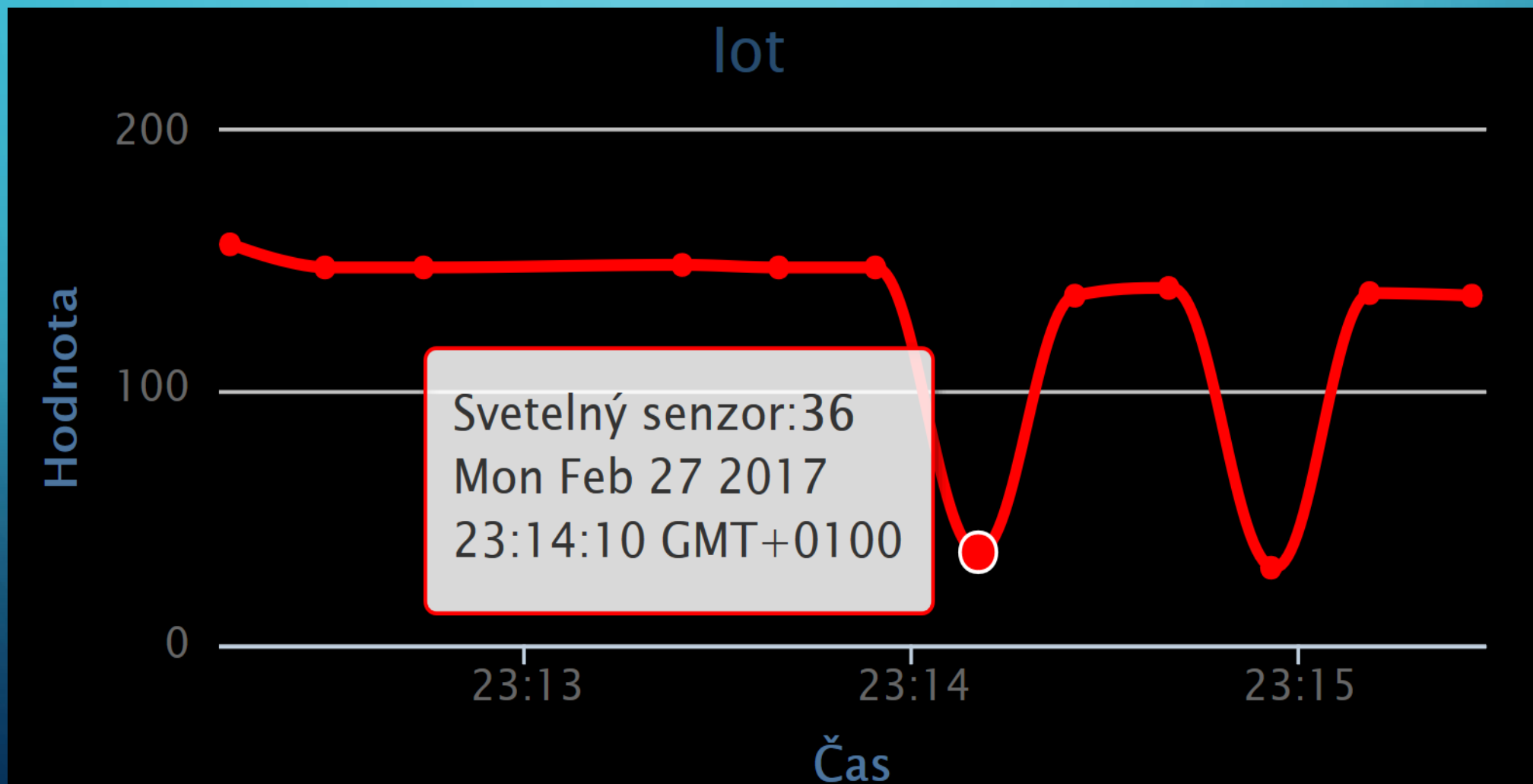
Channel Sharing Settings

• **Keep channel view private:** Selecting this option keeps your channel private. Only you will be able to see the channel view.

• **Share channel view with everyone:** Selecting this option makes the public view of your channel viewable by anyone browsing the ThingSpeak website.

• **Share channel view only with the following users:** Selecting this option shares the private view of your channel only with specific ThingSpeak users.

EXAMPLE



MICROPYTHON

```
33
34 import urequests
35 import esp32
36
37 HTTP_HEADERS = {'Content-Type': 'application/json'}
38 THINGSPEAK_WRITE_API_KEY = 'YOUR_API_KEY'
39
40 measured_values = {'field1':(esp32.raw_temperature()-32)*0.5556, 'field2':esp32.hall_sensor()}
41 request = urequests.post('http://api.thingspeak.com/update?api_key=' + THINGSPEAK_WRITE_API_KEY,
42 json = measured_values, headers = HTTP_HEADERS )
43 request.close()
44
45 print("Upload values:", end=" ")
46 print(measured_values)
```

Shell ×

Upload values: {'field1': 51.6708, 'field2': 55}

>>>

GUIDE

1. Connect ESP32 to AP with internet connection.
2. Set Write_Api_Key.
3. Upload measured values. (free account: interval ≥ 15 s.).

TASKS

1. Create own account & channel on ThingSpeak.
2. Upload measured values (temperature & humidity & photoresistor) in periodic interval ($\geq 15s$).
3. Upload measured values when button is pressed.
4. Make pairs. The first board will upload measured values. The second board will download the measured values and print to the terminal.