






# IoT hacking & Data Science Innovators Meetup Group

 Santiago, Chile

 125 members · Public group 

 Organized by **Adrian Fernandez** and **3 others**

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## What we're about

"Welcome IoT Edge lovers and AI, data scientists innovators far and wide! We're an online and in-person tech-enthusiast hackers group hosting live...

[Read more](#)

## Organizers



**Adrian Fernandez** and **3 others**

[Message](#)

**Members (125)**

# MXCHIP CON AZURE COGNITIVE SERVICES

ADRIÁN FERNÁNDEZ

CRISTÓBAL ZÚÑIGA





# AGENDA

Who we are

The Project

- Resources employed
- Architecture
- Demo!

Useful resources





# Microsoft Azure Training Day

## WHO WE ARE?

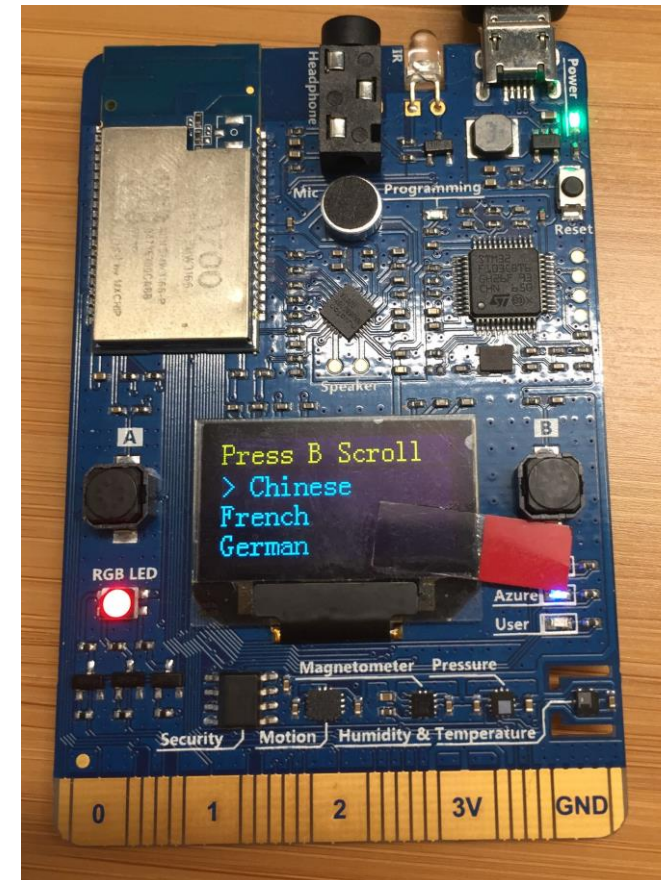
Adrián Fernández  
Sr Cloud Solution Architect  
Data scientist in Microsoft

Cristóbal Zúñiga  
Customer acquisition Engineer  
Cloud Architect Infra & Apps



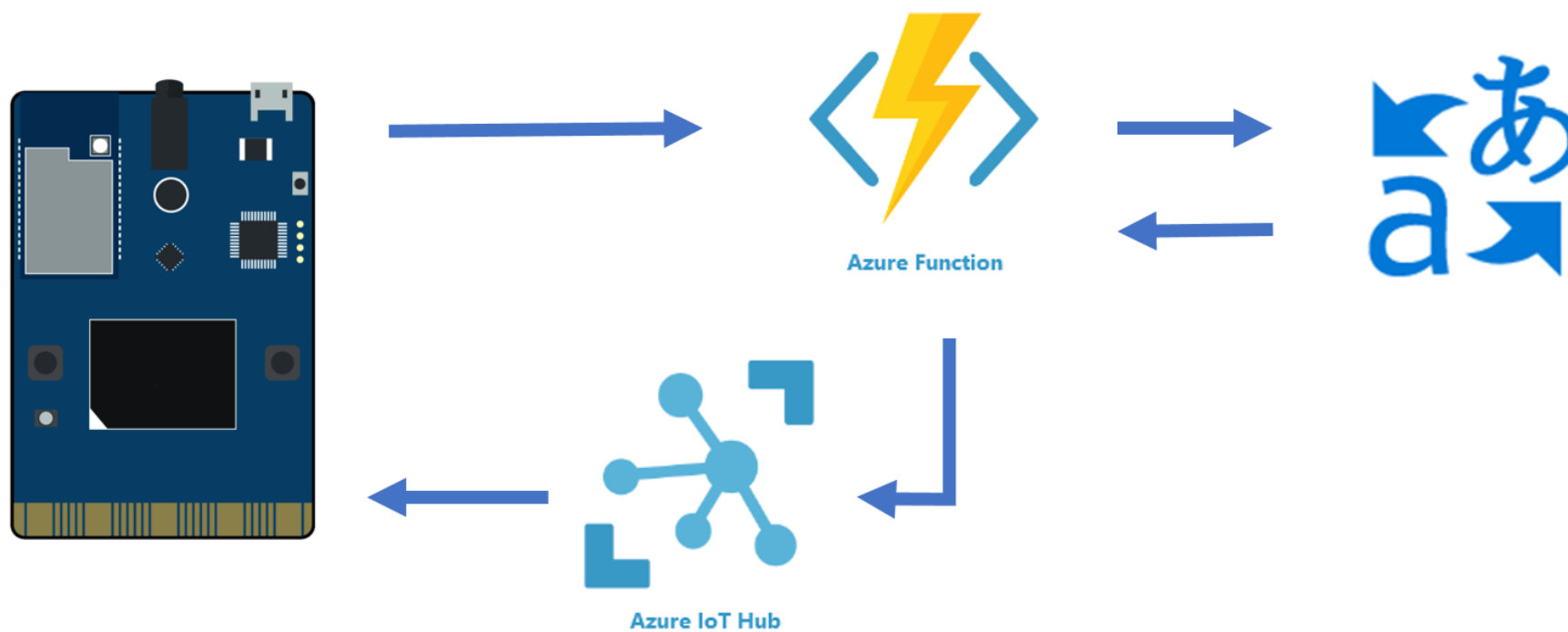
# WHAT WE DID?

A translator based in MX Chip and Azure services



Translation Cognitive service -> <https://azure.microsoft.com/en-us/services/cognitive-services/translator/>

# THE ARCHITECTURE





# WHAT WE USED?

Azure IoT hub

Azure Function

AZ3166 (MXChip dev kit)

Translation Cognitive service



LIVE DEMO!



File Edit Selection View Go Run Terminal Help DevKitTranslatorFunction.cs - DevKitTranslator (Workspace) - Visual Studio Code

EXPLORER

OPEN EDITORS

- DevKitTranslatorFunction.cs Functions
- DevKitTranslator.ino Device
- MXChip IoT DevKit samples - Azure IoT Device Workbench


DEVKITTRANSLATOR (WORKSPACE)

- Device
  - .vscode
  - azure\_config.h
  - DevKitTranslator.ino
  - Readme.md
- Functions
  - .vscode
  - bin
  - obj
  - .gitignore
  - DevKitTranslatorFunction.cs
  - Functions.csproj
  - host.json
  - local.settings.json
  - SpeechTranslation.cs

FUNCTIONS

```
1 using Microsoft.AspNetCore.Http;
2 using Microsoft.AspNetCore.Mvc;
3 using Microsoft.Azure.Devices;
4 using Microsoft.Azure.WebJobs;
5 using Microsoft.Azure.WebJobs.Extensions.Http;
6 using Microsoft.Extensions.Logging;
7 using System.Text;
8 using System.Threading.Tasks;
9
10 namespace DevKitTranslator
11 {
12     0 references
13     public static class DevKitTranslatorFunction
14     {
15         // Subscription Key of Speech Service
16         1 reference
17         const string speechSubscriptionKey = "0c47505413a249c0b017c7b3d40d7c05";
18
19         // Region of the speech service, see https://docs.microsoft.com/en-us/azure/cognitive-se
20         1 reference
21         const string speechServiceRegion = "westus";
22         // IoT Connection String
23         //const string iotHubConnectionString2 = "HostName=IoThubMXChip.azure-devices.net;Device
24         // Device ID_
25         1 reference
26         const string deviceName = "devkitdevice001";
```

Camera



Ln 22, Col 53 Spaces: 4 UTF-8 LF C# <Select Programmer> DevKitTranslator.ino MXCHIP AZ3166 115200 X COM3

22:32 23-07-2020

# IDE ONLINE (EMULADOR MXCHIP)

MXChip IoT DevKit Simulator

▼ Shake Shake

► azureFunction

ShakeShake.ino

ShakeUI.h

ShakeUI.cpp

Configure

Deploy

connectionString

HostName=cz01iothub.azure-devices.net;DeviceId=

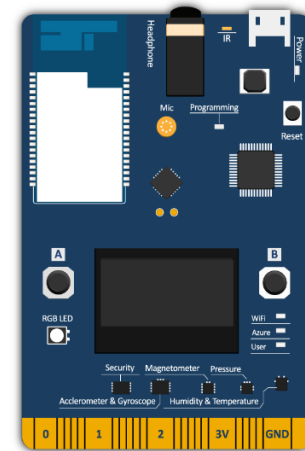
topic

song

▶ Run

```
1 // Copyright (c) Microsoft. All rights reserved.
2 // Licensed under the MIT license.
3 // To get started please visit https://microsoft.github.io/azure-iot-developer-kit
4 #include "AZ3166WiFi.h"
5 #include "AzureIoTHub.h"
6 #include "IoTHubMQTTClient.h"
7 #include "OledDisplay.h"
8 #include "Sensor.h"
9 #include "ShakeUI.h"
10 #include "SystemTickCounter.h"
11
12 #define RGB_LED_BRIGHTNESS 32
13 #define LOOP_DELAY 100
14
15 #define HEARTBEAT_INTERVAL 300000
16 #define PULL_TIMEOUT 15000
17
18 #define MSG_HEADER_SIZE 20
19 #define MSG_BODY_SIZE 200
20
21 #define SCROLL_OFFSET 16
22
23 static const char* iot_event = "{\"topic\":\"song\"}"; // The #hashtag is 'io
24 static const char* iot_event_heartbeat = "{\"topic\":\"\"}"; // Empty for he
25
26 // Application running status
27 // 0 - Idle
28 // 1 - shaking
29 // 2 - do work
30 static int app_status;
31
32 // Peripherals
33 static DevI2C *ext_i2c;
34 static LSM6DSLSensor *acc_gyro;
35 static RGB_LED rgbLed;
36
37 // Tweet message
38 static char msgHeader[MSG_HEADER_SIZE];
39 static char msgBody[MSG_BODY_SIZE];
40 static int msgStart = 0;
41
42 // Indicate whether WiFi is ready
43 static bool hasWifi = false;
44
45 // Time interval check for heart beat
46 static uint64_t hb_interval_ms;
47 // Time interval check for retrieving the tweet
48 static uint64_t tweet_timeout_ms;
49
50 // Shake shake processing status
51 // 0 - Not start
52 // 1 - Shaked and sending message to IoT hub
```

Get a kit



---

# USEFUL RESOURCES

Azure iot hub -> <https://azure.microsoft.com/en-us/services/iot-hub/>

Azure Function -> <https://azure.microsoft.com/en-us/services/functions/>

AZ3166 (MXChip dev kit) -> <https://docs.microsoft.com/en-us/azure/iot-hub/iot-hub-arduino-iot-devkit-az3166-translator>

Translation Cognitive service -> <https://azure.microsoft.com/en-us/services/cognitive-services/translator/>

# VSCODE - AZURE IOT WORKBENCH SAMPLE

The screenshot displays the 'MXChip IoT DevKit samples - Azure IoT Device Workbench' interface. It features a grid of sample projects, each with a thumbnail image, a title, a brief description, and buttons for 'View Tutorial' and 'Open Sample'.

Sample Name	Difficulty	Description	Buttons
Get Started	EASY	Send sensor data from DevKit to Azure IoT Hub.	<a href="#">View Tutorial</a> <a href="#">Open Sample</a>
Firmware OTA	EASY	Use IoT Hub to perform firmware OTA update for DevKit.	<a href="#">View Tutorial</a> <a href="#">Open Sample</a>
Remote Monitoring	EASY	Send status of sensors on DevKit to Azure IoT Suite for monitoring.	<a href="#">View Tutorial</a> <a href="#">Open Sample</a>
DevKit State	EASY	Monitor DevKit states and control the user LED with Azure IoT Hub device twins.	<a href="#">View Tutorial</a> <a href="#">Open Sample</a>
MQTT Client	EASY	Use DevKit as a client to send messages to MQTT server.	<a href="#">View Tutorial</a> <a href="#">Open Sample</a>
Device Registration with DPS	MEDIUM	Use the Device Provisioning Service to automatically provision security enable...	<a href="#">View Tutorial</a> <a href="#">Open Sample</a>
DevKit Translator	MEDIUM	Turn DevKit as a translator by using Bing Speech Translator service.	<a href="#">View Tutorial</a> <a href="#">Open Sample</a>
Shake, Shake for a Tweet	ARCHIVED	Use the motion sensor to detect shaking and find a random tweet with a #hash...	<a href="#">View Tutorial</a> <a href="#">Open Sample</a>
Door Monitor	ARCHIVED	Use magnetic sensor to detect the change of magnetic field, and send notifica...	<a href="#">View Tutorial</a> <a href="#">Open Sample</a>
IoT Devkit Dictionary	ARCHIVED	Learn how to configure DevKit to use Azure Speech Service and Oxford dictiona...	<a href="#">View Tutorial</a> <a href="#">Open Sample</a>



53:09

Request control



Leave



Gonzalo Huerta Cneps (Guest) ...



Cristobal Zuniga (CONSULTORA MARCO CHILE CIA LTD)



Marcelo Rovai (Guest)



Leonardo Garcs

## Participants

Invite someone or dial a number

Currently in this meeting (12)

Mute all

- Adrian Fernandez
- Carlos Pizarro (Invitado)  
Guest
- Cristobal Zuniga (CONSULT...  
Organizer
- Gonzalo Huerta Cneps (Guest)  
Guest
- Leandro Gallo
- Leonardo Garcs  
Outside your organization
- Marcelo Rovai (Guest)  
Guest
- Marcos Marcano (Guest)  
Guest
- Nestor Borre Granados  
Outside your organization
- Pablo Campos
- Sebastian Domenech  
Guest



Gonzalo Huerta Cneps (G...



51:56

Request control



Leave

# Ledger of Things

IoT Meetup  
2020-07-23



INGENIERÍA

## Participants

Invite someone or dial a number

### Waiting in lobby (1)

Carlos Pizarro (Invitado)  
Guest ☒ ☐

### Currently in this meeting (11)

Mute all

Adrian Fernandez

Cristobal Zuñiga (CONSULT...  
Organizer ☒

Gonzalo Huerta Cánepa (Guest)  
Guest ☒

Leandro Gallo ☒

Leonardo Garcés  
Outside your organization ☒

Marcelo Rovai (Guest)  
Guest ☒

Marcos Marcano (Guest)  
Guest ☒

Nestor Borre Granados  
Outside your organization ☒

Pablo Campos ☒

Sebastian Demarech ☒

Gonzalo Huerta Cánepa (Guest)










[Leave](#)

 **Nestor Borre Granados**  
Outside your organization

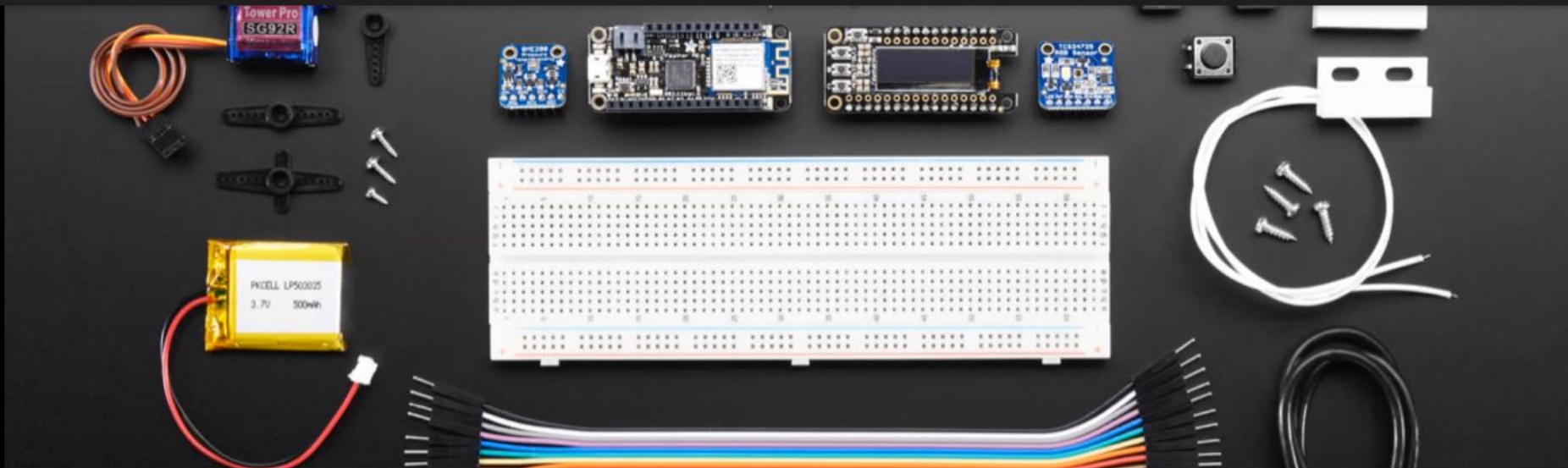


01:42:40

Request control



Leave



# IoT - Innovando en lo Cotidiano



Pablo Campos  
Cloud Solution Architect

pcampos@microsoft.com



Leonardo Garcés  
Primer Ejecutivo

leonardo@robotics.cl

## Participants

Invite someone or dial a number

- Alfaro, Luis**  
Outside your organization
- Carlos Pizarro (Invitado)**  
Guest
- Cristian (Invitado)**  
Guest
- Cristian Orellana Vega**  
Outside your organization
- Cristobal Zúñiga (CONSULT...)**  
Organizer
- Gonzalo Huerta Cánepa (Gu...)**  
Guest
- Jorge Alejandro Fernández ...**  
Outside your organization
- Jose Jeria (Invitado)**  
Guest
- Leonardo Garcés**  
Outside your organization
- Marcelo Rovai (Guest)**  
Guest
- Marcos Marcano (Guest)**  
Guest
- Pablo Campos**

Pablo Campos

+10

TN

LG

Pablo Campos

Marcelo Rovai (Guest)

Cristobal Zúñiga (CON...)

Gonzalo Huerta Cáne...



Inbox - Ad...



Microsoft ...



Make trans...



devkit\_tran...



(1) WhatsA...



DEVKIT\_TR...



C:\\_%&amp;\$...



C:\\_DEMO...



MXChip co...



azure\_conf...



ESP



17:57

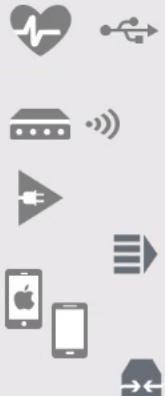
23-07-2020



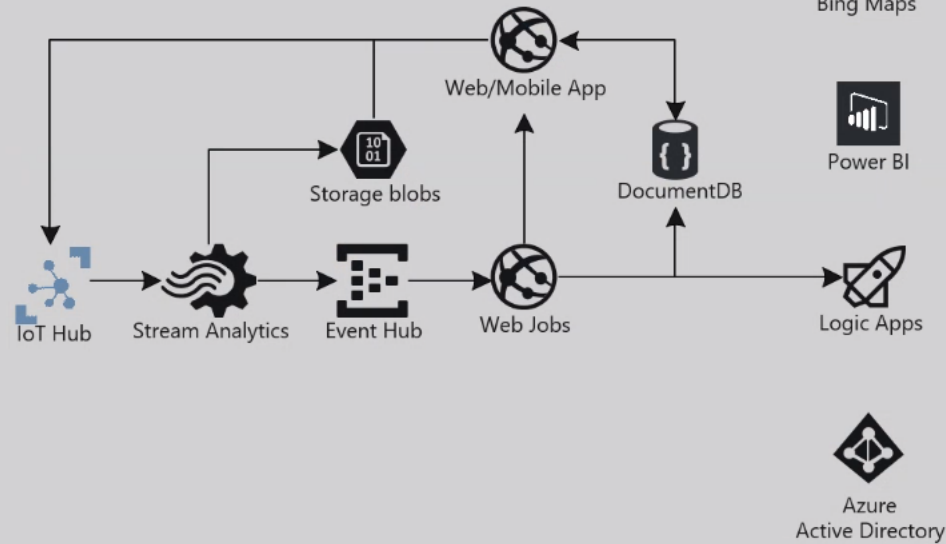


# Azure IoT Suite

## Devices & Gateways



## Azure IoT – Suite - Remote Monitoring



## Add-On Services



## Participants

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Currently in this meeting (17)

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- Jorge Alejandro Fernández ...  
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- Jose Jeria (Invitado)  
Guest
- Leonardo Garcés  
Outside your organization
- Marcelo Rovai (Guest)  
Guest

Pablo Campos

Pablo Campos

Marcelo Rovai (Guest)

Cristobal Zuñiga (CON...

Gonzalo Huerta Cánepa...

+8

MM

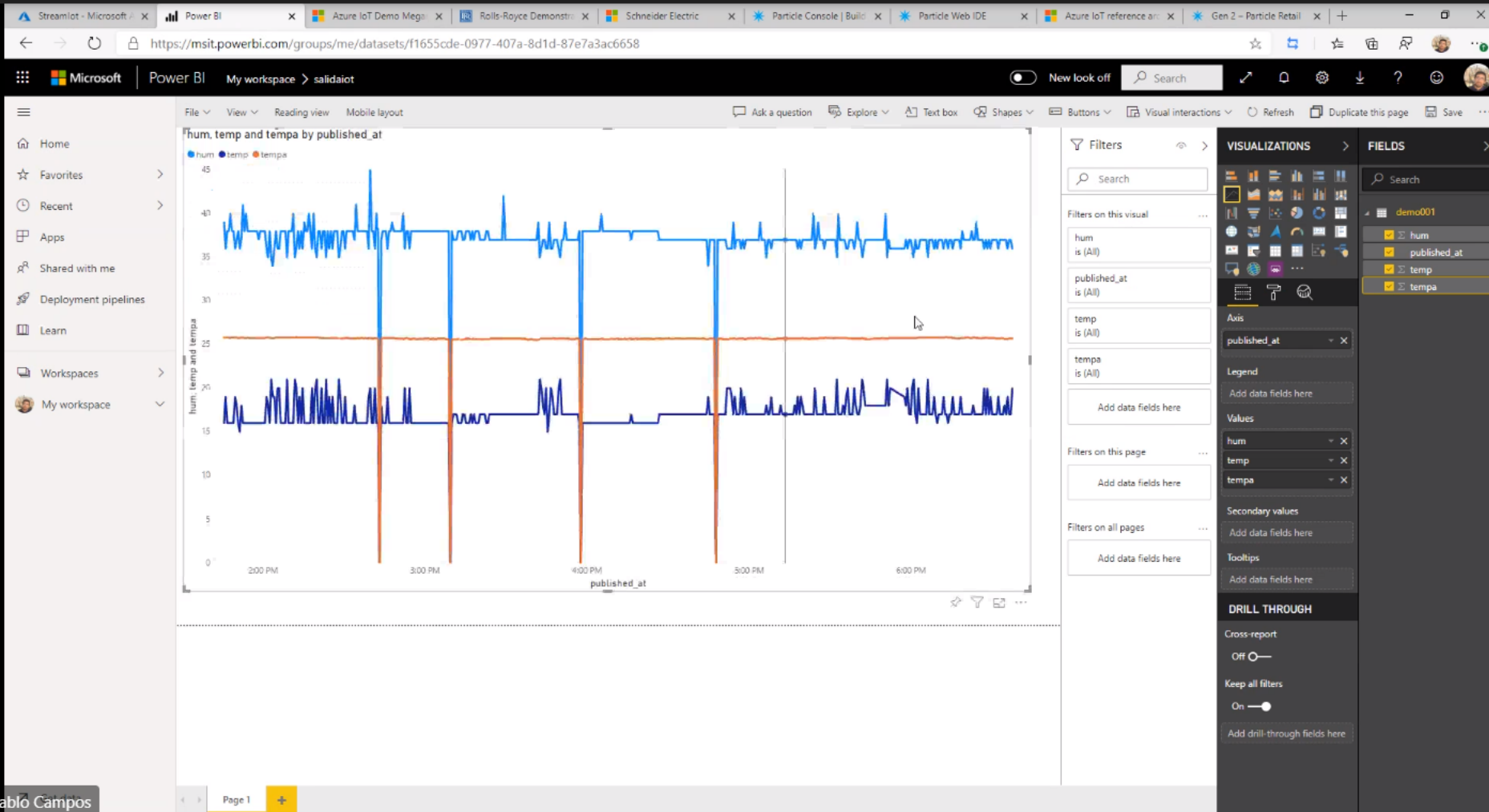
SD

TN

LG

01:58:45

Request control



## Participants

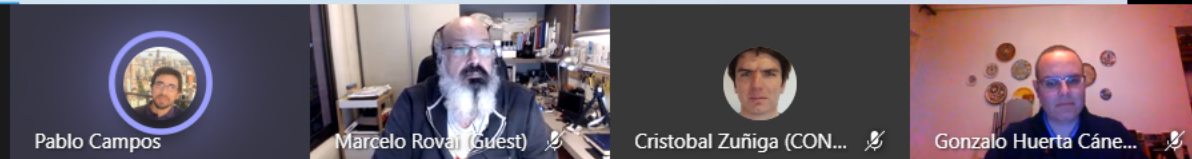
Invite someone or dial a number

Currently in this meeting (15)

Mute all

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Guest
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Outside your organization
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Organizer
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Guest
- Leonardo Garcés  
Outside your organization
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Guest
- Pablo Campos

Pablo Campos





02:00:15

Request control



Streamlit - Microsoft X Power BI X Azure IoT Demo Mega X Rolls-Royce Demonstr X Schneider Electric X Particle Console | Build X Particle Web IDE X Azure IoT reference ar X Gen 2 - Particle Retail X

https://azure-iot-megamap.azurewebsites.net/dashboard

**Azure IoT DEMO MEGAMAP** Microsoft

Industry & Solutions  
Product Demos  
With Devices  
Resource & Readiness  
System

**Agriculture** Select demo:  
SCADAfarm  
ScadaFARM Demo

Pablo Campos

18:14 23-07-2020

## Participants

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Guest
- Pablo Campos**

