

Internet of Things Publishing Temperature and Humidity Data on Cloud







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What will you do?



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What will you do?

- In this project, we are providing you a microcontroller (evive), a ESP8266 module, DHT11 sensor, jumper wires and 10 k0hm resistor.
- You will make the project to publish temperature and humidity sensor data on ThingSpeak cloud.
- You have to perform the following activities:
 - 1. Connect the DHT11 sensor.
 - 2. Make a code in PictoBlox.
 - 3. Upload the code onto evive.
 - 4. Test the project and enjoy 😳







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What is Internet of Things?



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What is Internet?

• The Internet of Things means taking all the things in the world and connecting them to the internet.









ThingSpeak

IoT Cloud Platform

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ThinkSpeak

- An open source IoT application and API to store and retrieve data from *things*.
- Applications
 - Sensor logging applications
 - Location tracking applications
 - Social network of things with status updates

ThingSpeak





Creating Channel on ThingSpeak

- Go to **thingspeak.com** & create a <u>ThingSpeak</u> account.
- Create a new channel:

□ ThingSpeak ™	Channels -	Apps 🗸	Community	Support 🗸
My Channel	S			
New Channel	Sear	ch by tag		



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Creating Channel on ThingSpeak

• You can store up to 8 fields on 1 channel. We will store 2 parameters – Temperature and Humidity.

New Channel

Name	Potentiometer Data		
escription			G
Field 1	Potentiom	×	
Field 2			
Field 3			
Field 4			
Field 5			
Field 6			
Field 7			
Field 8			
Metadata			



Creating Channel on ThingSpeak

• When a new channel is created, you can see graphs for each parameter:

Field	1 Chart		ß	Q	1	×
Potentiometer		Potentiometer Data				
		Date	Thi	ngSpea	k.com	



• Get the Channel ID of your Channel (To be used while connecting to the channel):

Creating Channel on ThingSpeak

• Here Channel ID is 733269

Potentiometer Data

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Channel ID: **733269** Author: pverma13461 Access: Private









• Get the **Read and Write API** from API tab:

Private View	Public View	Channel Settings	Sharing	API Keys
Write A	PI Key			
Ke	ey 4WZ2Y	Z5QVK853RU2		
	Genera	ate New Write API Key		
Read A	PI Keys			
Ke	ey 3IP02	ZREAJD2BONB		
No	te			li
	Save N	Note Delete API H	Key	
	Genera	ate New Read API Key		



Connecting evive to Internet

- To connect evive with the internet we will use the ESP8266 module.
- Connect ESP8266 Module to its header on evive:









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Programming the evive



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Interfacing evive with PictoBlox

- Connect evive to your laptop/PC and open PictoBlox.
- In PictoBlox, go to the menu and click on the Boards Select the evive.

Board Connect 💉	My Project					Save		
evive								
ESP32	1.1							
Arduino Uno	1.							
Arduino Nano	1							
Arduino Mega								





Interfacing evive with PictoBlox

• Once you've selected the board, click on the Connect tab and connect the board.

? Нер	nnect to Port 🛛 🗙			
Serial Ports	Bluetooth Ports			
COM1	Connect			
Device name COM26	Connect			
Select your dev	ice in the list above.			
• • •				
Ref	resh 🏷			

? Help	Connect to Port
	Serial Ports Bluetooth Ports
	Connected to COM26
	•••
Disconnec	Go to Editor





PictoBlox Program

• Add Internet of Things extension in PictoBlox by clicking on the add extension button on the bottom left corner.





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• **Connect to Wi-Fi () with password ()** block connects ESP8266 module connected to evive to the Wi-Fi. The user has to specify the Wi-Fi name and password in the block.

connect to Wifi Wifi Name with password Password

• This block connects to the ThingSpeak Channel using Channel ID, read API and write API. The user has to specify the channel ID, read API and write API.

connect to ThingSpeak channel Channel ID & write API Write API & read API Read API



• Send data to cloud () delay () sec block sends input data to the specified read API. This data is always Field 1 for the channel.



• Send multiple data to cloud () delay () sec The block sends multiple data (upto 8 fields) to the ThingSpeak channel.







Sensor Extension

- **Get () from DHT sensor** at pin () block is a stack block available in sensors extension.
- The block reports either the temperature or humidity (selected from the dropdown menu) from the DHT sensor connected to the digital pin selected from the drop-down menu.





PictoBlox Script

• Make the Script.





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PictoBlox Script

• Upload the code onto evive by clicking on the Upload Code Button:







Sending Data

- When you start your evive, you will see two things happening:
- M1 LED glowing:
 - Yellow: Connected to Wi-Fi.
 - Red: Not connected to Wi-Fi. Check if your Wi-Fi name and password are correct.
- M2 LED glowing:
 - Yellow: Connected to ThingSpeak.
 - Red: Not connected to ThingSpeak.





