

IOT

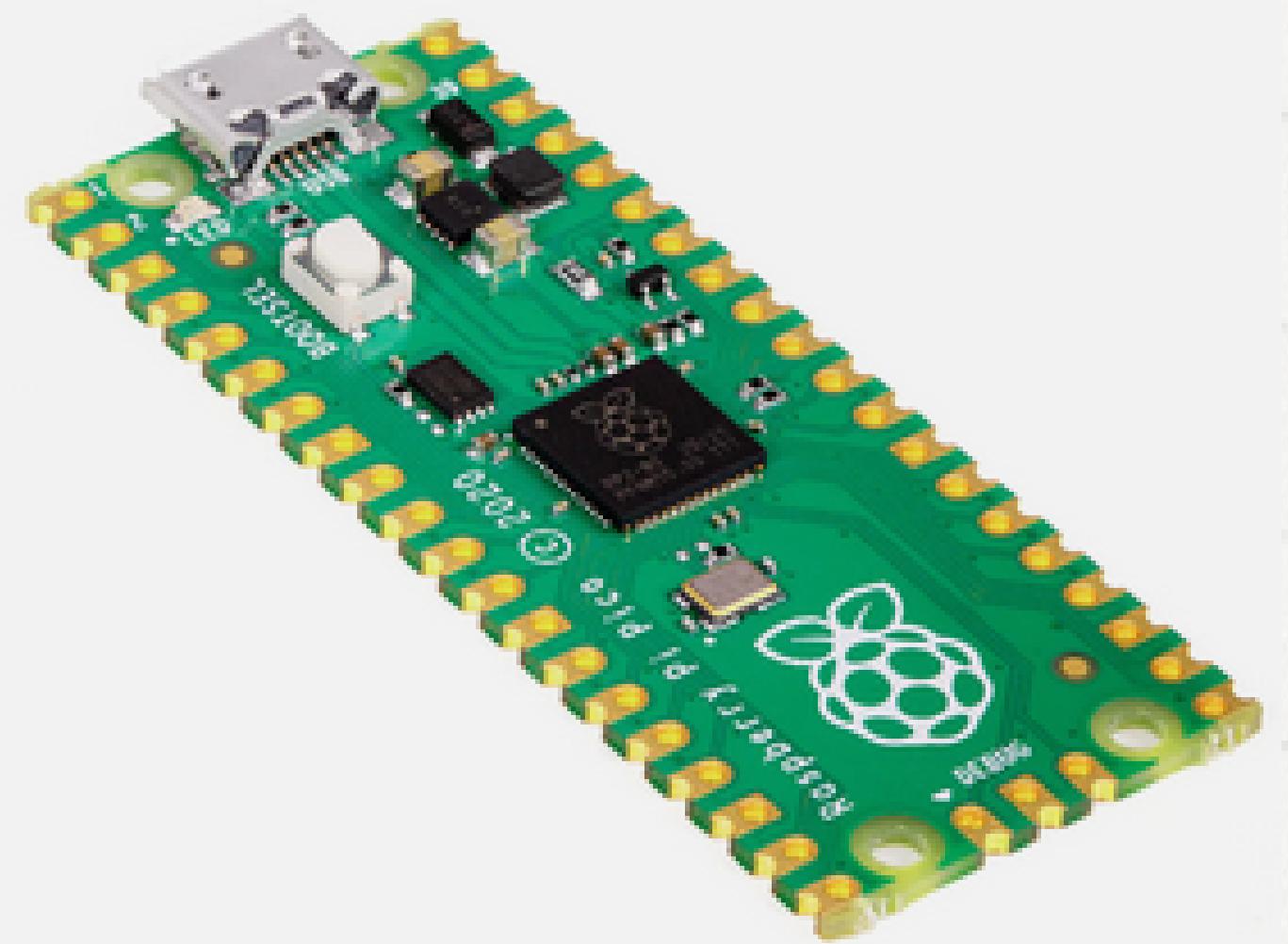
# Evaluacion parcial 1

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# Configuración del raspberry pi

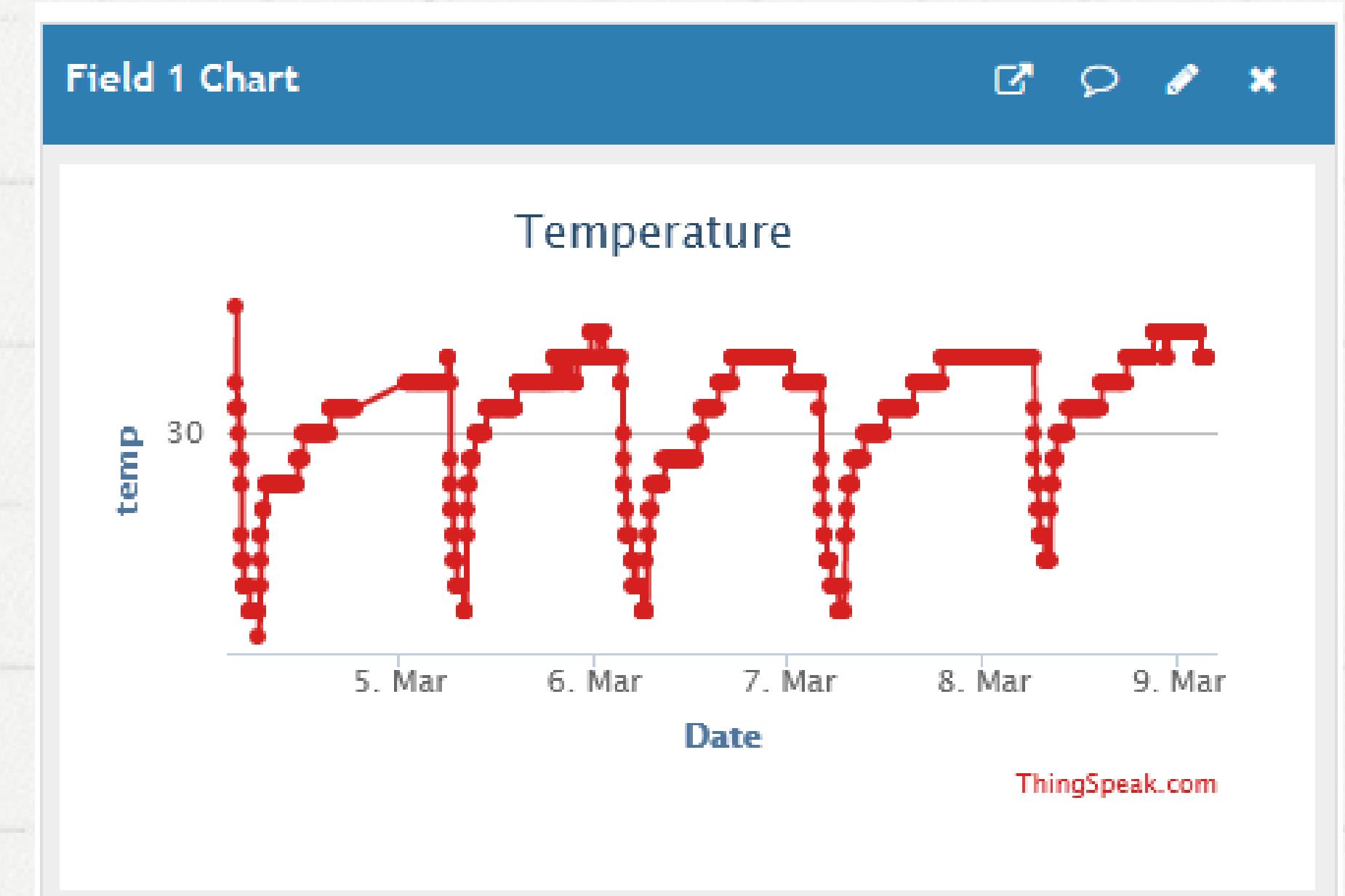
Con el código que ya teníamos implementado para que la raspberry pi leyera temperatura, humedad y envíe los datos al thingspeak, se configuro para que envie datos cada 5 minutos

El raspberry pi coleccióno datos por 5 dias.



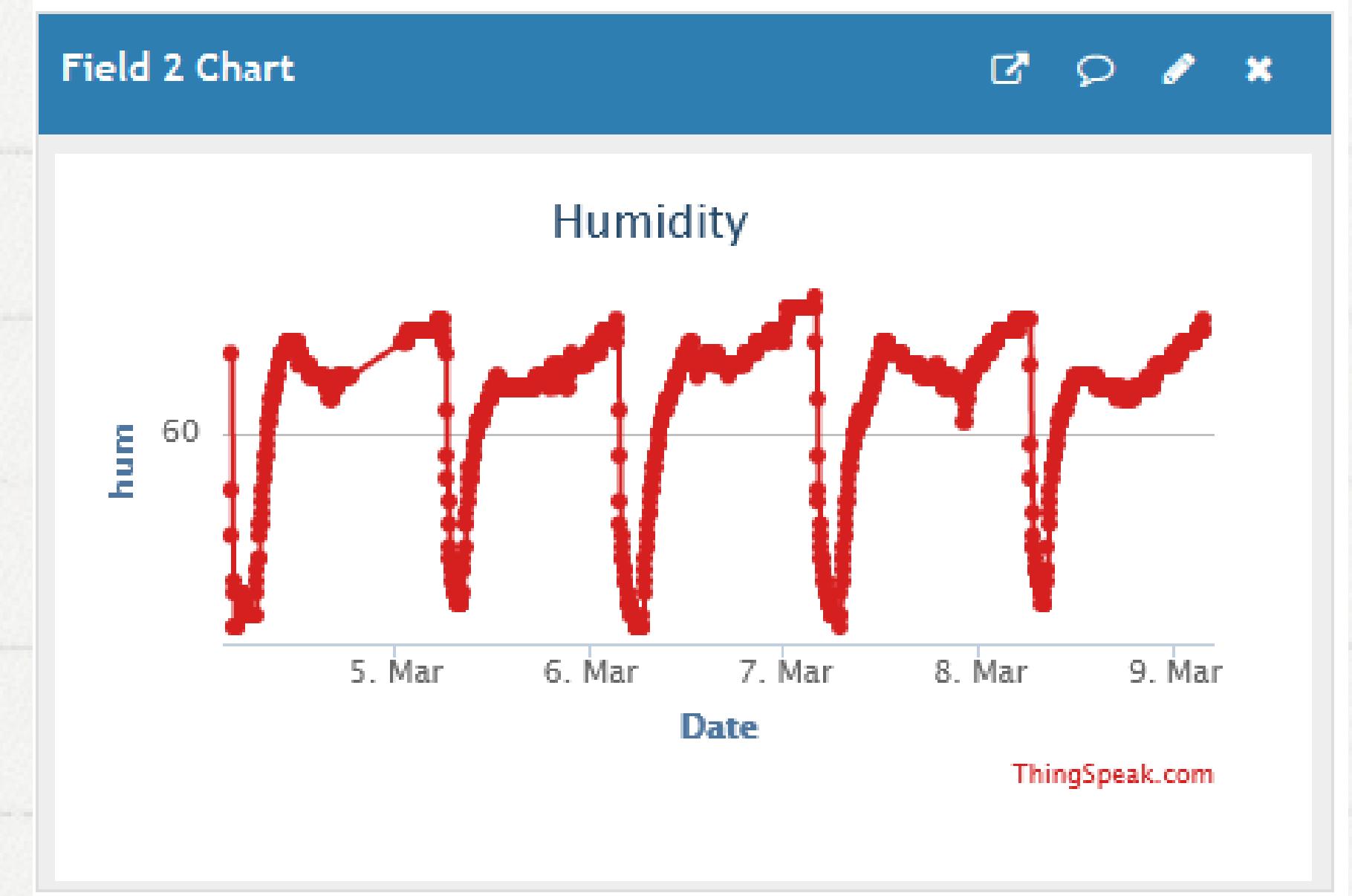
# Visión de datos: Temperatura

Esta es la gráfica de los datos  
colecciónados por 5 días.



# Visión de datos: Humedad

Esta es la gráfica de los datos  
colecciónados por 5 días.



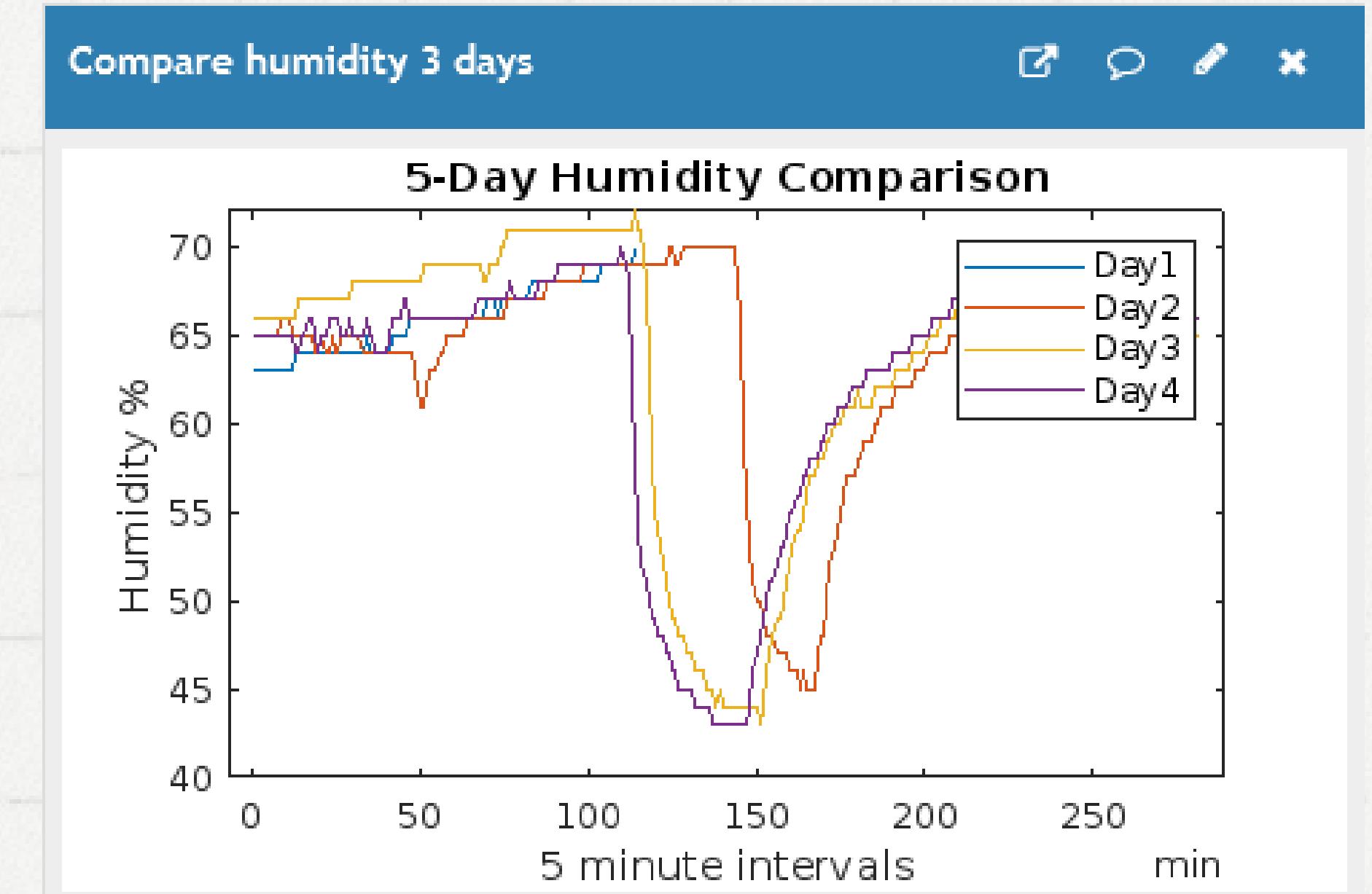
# Código MATLAB

Este es el código que se uso para la visualizacion de datos de humedad

```
6 % Field 4 contains temperature data.
7
8 % Channel ID to read data from
9 readChannelID = 2455688;
10 % Temperature Field ID
11 myFieldID = 2;
12 % One day date range
13 oneDay = [datetime('yesterday') datetime('today')];
14
15 % Channel Read API Key
16 % If your channel is private, then enter the read API key between the '' below:
17 readAPIKey = 'JKWRWZENRBHF8XR2';
18
19 % Read Temperature Data. Learn more about the THINGSPEAKREAD function by
20 % going to the Documentation tab on the right side pane of this page.
21 temperatureDay1 = thingSpeakRead(readChannelID,'Fields',myFieldID, ...
22                               'dateRange',oneDay-days(1),'ReadKey',readAPIKey);
23 temperatureDay2 = thingSpeakRead(readChannelID,'Fields',myFieldID, ...
24                               'dateRange', oneDay-days(2),'ReadKey',readAPIKey);
25 temperatureDay3 = thingSpeakRead(readChannelID,'Fields',myFieldID, ...
26                               'dateRange', oneDay-days(3),'ReadKey',readAPIKey);
27 temperatureDay4 = thingSpeakRead(readChannelID,'Fields',myFieldID, ...
28                               'dateRange', oneDay-days(4),'ReadKey',readAPIKey);
29 temperatureDay5 = thingSpeakRead(readChannelID,'Fields',myFieldID, ...
30                               'dateRange', oneDay-days(5),'ReadKey',readAPIKey);
31
32 % Create array of durations
33 myTimes1 = minutes(1:length(temperatureDay1));
34 myTimes2 = minutes(1:length(temperatureDay2));
35 myTimes3 = minutes(1:length(temperatureDay3));
36 myTimes4 = minutes(1:length(temperatureDay4));
37 myTimes5 = minutes(1:length(temperatureDay5));
38
39 % Visualize the data
40 plot(myTimes1,temperatureDay1, myTimes2,temperatureDay2, myTimes3, temperatureDay3, myTimes4, temperatureDay4, myTimes5, temperatureDay5)
41 legend({'Day1','Day2','Day3','Day4','Day5'});
42 xlabel('5 minute intervals');
43 ylabel('Humidity %');
44 title('5-Day Humidity Comparison');
```

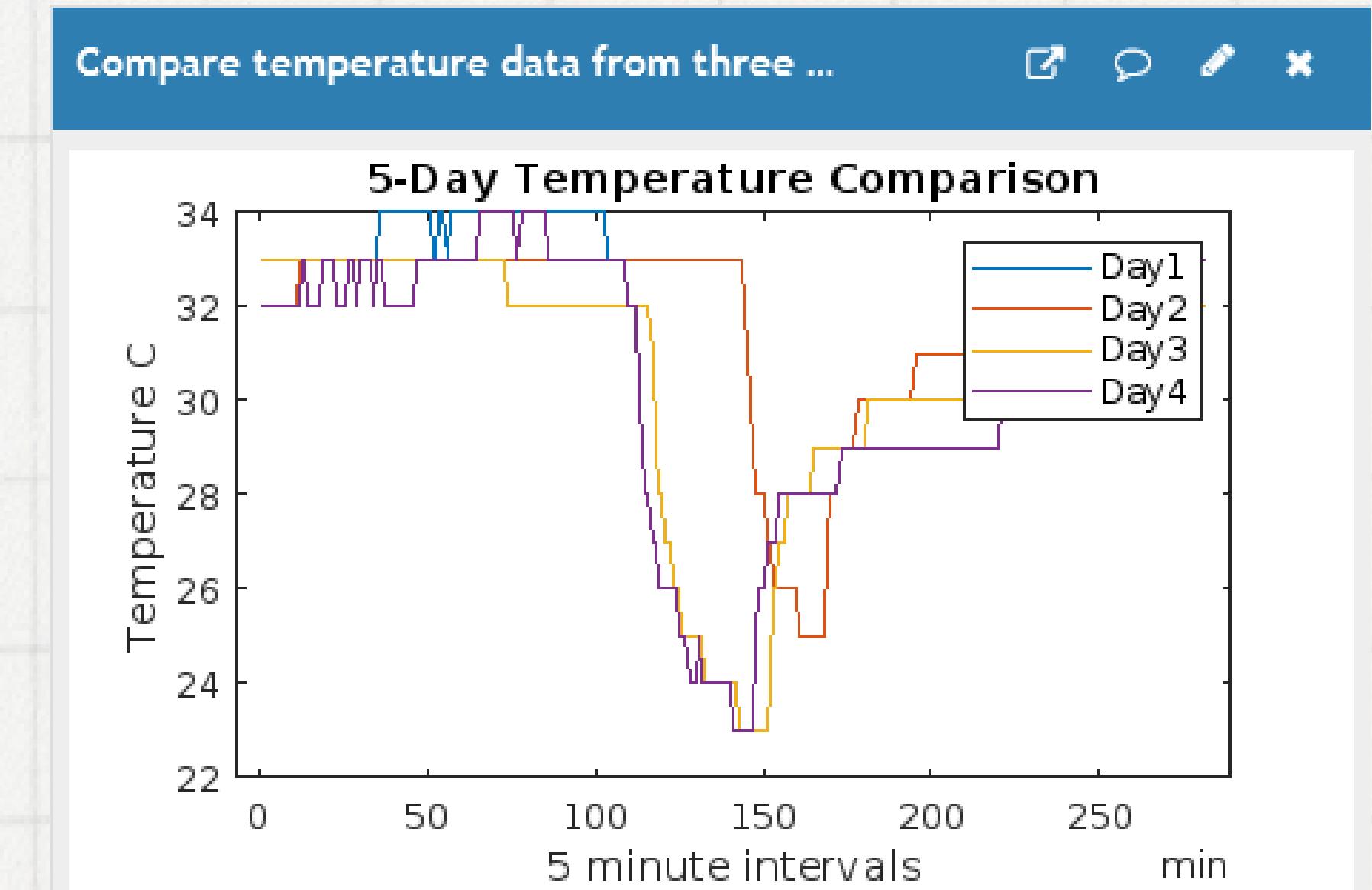
# Comparación de datos: Humedad

Estas son las gráficas que nos brindo MATLAB, para la comparación de humedad



# Comparación de datos: Temperatura

Estas son las gráficas que nos brindo MATLAB, para la comparación de temperatura



# Código MATLAB

Este es el código que se uso para la visualizacion de datos de temperatura

```
7 % Channel ID to read data from
8 readChannelID = 2455688;
9 % Temperature Field ID
10 myFieldID = 1;
11 % One day date range
12 oneDay = [datetime('yesterday') datetime('today')];
13
14 % Channel Read API Key
15 % If your channel is private, then enter the read API key between the '' below:
16 readAPIKey = 'JKWRWZENRBFH8XR2';
17
18
19 % Read Temperature Data. Learn more about the THINGSPEAKREAD function by
20 % going to the Documentation tab on the right side pane of this page.
21 temperatureDay1 = thingSpeakRead(readChannelID,'Fields',myFieldID, ...
22                               'dateRange',oneDay-days(1),'ReadKey',readAPIKey);
23 temperatureDay2 = thingSpeakRead(readChannelID,'Fields',myFieldID, ...
24                               'dateRange', oneDay-days(2),'ReadKey',readAPIKey);
25 temperatureDay3 = thingSpeakRead(readChannelID,'Fields',myFieldID, ...
26                               'dateRange', oneDay-days(3),'ReadKey',readAPIKey);
27 temperatureDay4 = thingSpeakRead(readChannelID,'Fields',myFieldID, ...
28                               'dateRange', oneDay-days(4),'ReadKey',readAPIKey);
29 temperatureDay5 = thingSpeakRead(readChannelID,'Fields',myFieldID, ...
30                               'dateRange', oneDay-days(5),'ReadKey',readAPIKey);
31
32 % Create array of durations
33 myTimes1 = minutes(1:length(temperatureDay1));
34 myTimes2 = minutes(1:length(temperatureDay2));
35 myTimes3 = minutes(1:length(temperatureDay3));
36 myTimes4 = minutes(1:length(temperatureDay4));
37 myTimes5 = minutes(1:length(temperatureDay5));
38
39 % Visualize the data
40 plot(myTimes1,temperatureDay1, myTimes2,temperatureDay2, myTimes3, temperatureDay3, myTimes4, temperatureDay4, myTimes5, temperatureDay5)
41 legend({'Day1','Day2','Day3','Day4','Day5'});
42 xlabel('5 minute intervals');
43 ylabel('Temperature C');
44 title('5-Day Temperature Comparison');
```