



# ToGo Board

Evaluation Kit For IoT Application

ToGo Board Google Firebase IoT Solution Quick Start Guide

# Contents

<b>Description</b>	<b>3</b>
<b>Requirement</b>	<b>3</b>
<b>Installation</b>	<b>4</b>
Firebase	4
Flutter	8
PSoC Creator	9
<b>Deploy</b>	<b>10</b>
Build web application	10
Deploy web application	11

# Description

This solution implements the Google Firebase IoT monitoring with ToGo Board. Using Infineon-PSoC 6 to collect Renesas-HS3001 sensor data and put it into Google Firebase realtime database by Microchip-ATWINC1510 RF module. It also includes the simple Flutter web source code to monitor the sensing data easier.

# Requirement

## Hardware

- ToGo Board base board
- ToGo Board Infineon PSoC 6 MCU daughter board
- ToGo Board Microchip ATWINC1510 RF daughter board
- ToGo Board Renesas HS3001 Sensor daughter board
- Infineon CY8CKIT-002

## Software

- PSoC Creator 4.4
- Flutter DSK
- Firebase CLI

# Installation

## Firebase

1. Apply Google account for firebase project creation.
2. Go to the firebase console. <https://console.firebase.google.com/>
3. Create a project for your application.



4. Input your project name for your application.

A light gray form with the title '請先輸入專案名稱?' (Please enter project name first?). Below the title is a label '專案名稱' (Project Name) and a text input field containing 'ToGo-Sense'. Underneath the input field is a button with a pencil icon and the text 'togo-sense'. Further down is a checkbox that is checked, followed by the text '我接受' (I accept) and a link 'Firebase 條款' (Firebase Terms). At the bottom is a large blue button with the text '繼續' (Continue).

5. Enable Google Analytics if you want.

☒ 啟用這項專案的 Google Analytics (分析) 功能  
建議做法

[上一部分](#) [繼續](#)

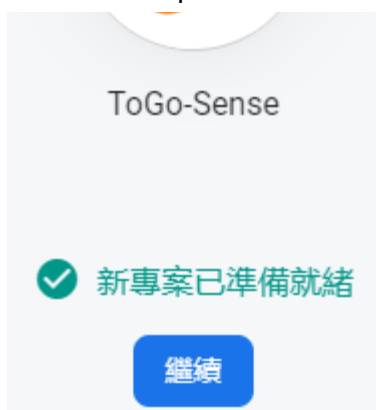
6. Accept if you enable Google Analytics and click “Create Project”.

☒ 我接受 [Google Analytics \(分析\) 的條款](#)

建立專案時，系統會建立新的 Google Analytics (分析) 資源，並將該資源連結至您的 Firebase 專案。連結完成後，資料就能在產品之間流通。從 Google Analytics (分析) 資源匯出到 Firebase 的資料需符合 Firebase 《服務條款》的規定；而匯入 Google Analytics (分析) 的 Firebase 資料則需符合 Google Analytics (分析) 《服務條款》的規定。 [瞭解詳情](#)。

[上一步](#) [建立專案](#)

7. Creation complete.



8. Initialize a web application.



9. Enable the hosting when creating.

**1 註冊應用程式**

應用程式暱稱 [?](#)

togosense

☒ 一併為這個應用程式設定 **Firebase 代管功能**。 [瞭解詳情](#)

您也可以之後再設定代管功能。您隨時可以開始免費使用這項服務。

 togo-sense (尚未部署任何項目) ▼

註冊應用程式

10. Install firebase SDK by the instruction.(if you have no npm tool, you can install Node.js indeed.)

**2 新增 Firebase SDK**

☒ 使用 npm [?](#) ☐ 使用 <script> 標記 [?](#)

如果你已使用 [npm](#) 和 [webpack](#) 或 [Rollup](#) 等模組整合工具，則可執行下列指令來安裝最新版 SDK：

\$ npm install firebase 

請初始化 Firebase，接著即可開始將 SDK 套用至要使用的產品。


// Import the functions you need from the SDKs you need  
import { initializeApp } from "firebase/app";  
import { getAnalytics } from "firebase/analytics";

11. Install firebase CLI.

**3 安裝 Firebase CLI**

如要透過 Firebase 代管功能來代管您的網站，則必須使用 Firebase CLI 這項指令列工具。

執行下列 [npm](#) 指令，藉此安裝 CLI 或更新至最新版 CLI。

\$ npm install -g firebase-tools 

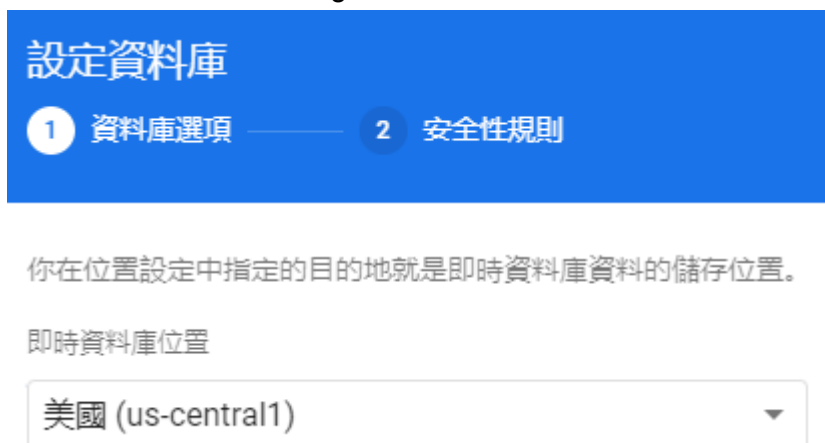
無法順利執行操作嗎？您不妨查看 [Firebase CLI 參考資源](#) 或變更您的 [npm 權限](#)

12. Initial complete.

13. Create a realtime database for your project.



14. Realtime Database setting.

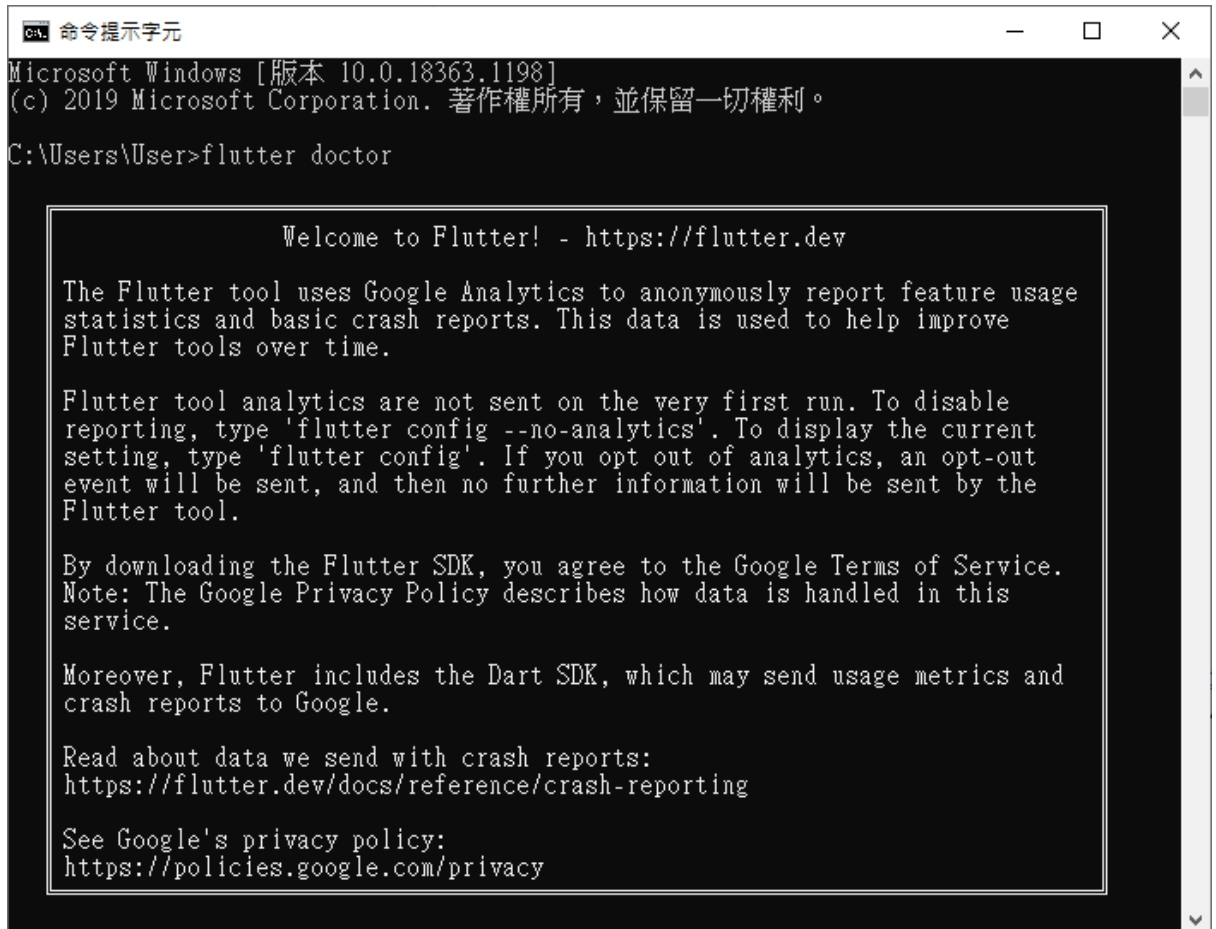


15. Complete and enable test mode for your realtime database.



## Flutter

1. Install Flutter SDK. <https://flutter.dev/docs/get-started/install/windows>
2. Follow the installation instructions from the above link.
3. Check Flutter using “flutter doctor”.



```
命令提示字元
Microsoft Windows [版本 10.0.18363.1198]
(c) 2019 Microsoft Corporation. 著作權所有，並保留一切權利。
C:\Users\User>flutter doctor

Welcome to Flutter! - https://flutter.dev

The Flutter tool uses Google Analytics to anonymously report feature usage
statistics and basic crash reports. This data is used to help improve
Flutter tools over time.

Flutter tool analytics are not sent on the very first run. To disable
reporting, type 'flutter config --no-analytics'. To display the current
setting, type 'flutter config'. If you opt out of analytics, an opt-out
event will be sent, and then no further information will be sent by the
Flutter tool.

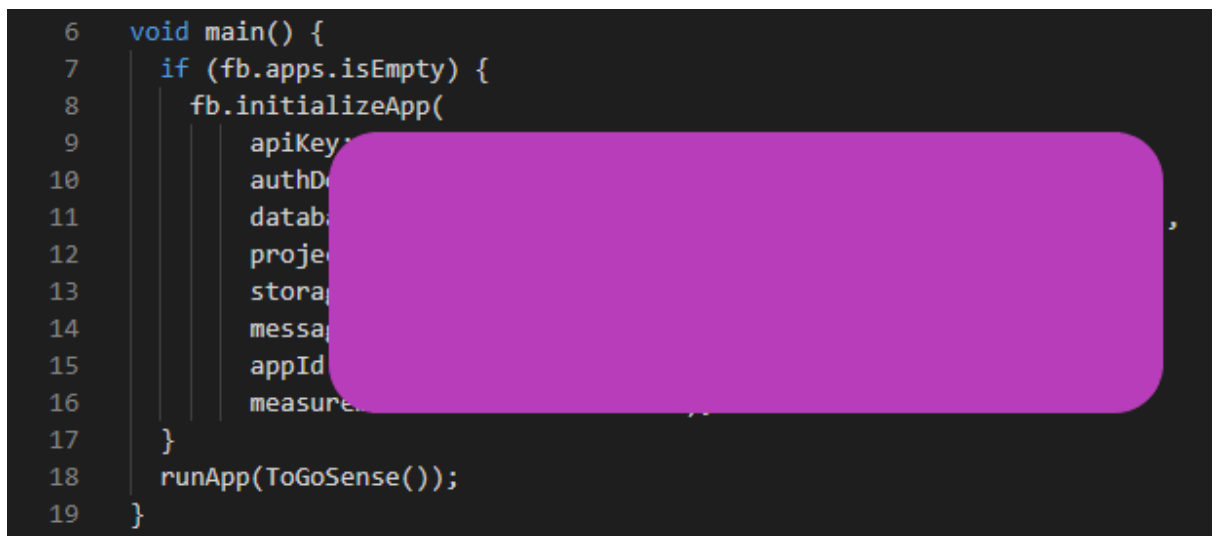
By downloading the Flutter SDK, you agree to the Google Terms of Service.
Note: The Google Privacy Policy describes how data is handled in this
service.

Moreover, Flutter includes the Dart SDK, which may send usage metrics and
crash reports to Google.

Read about data we send with crash reports:
https://flutter.dev/docs/reference/crash-reporting

See Google's privacy policy:
https://policies.google.com/privacy
```

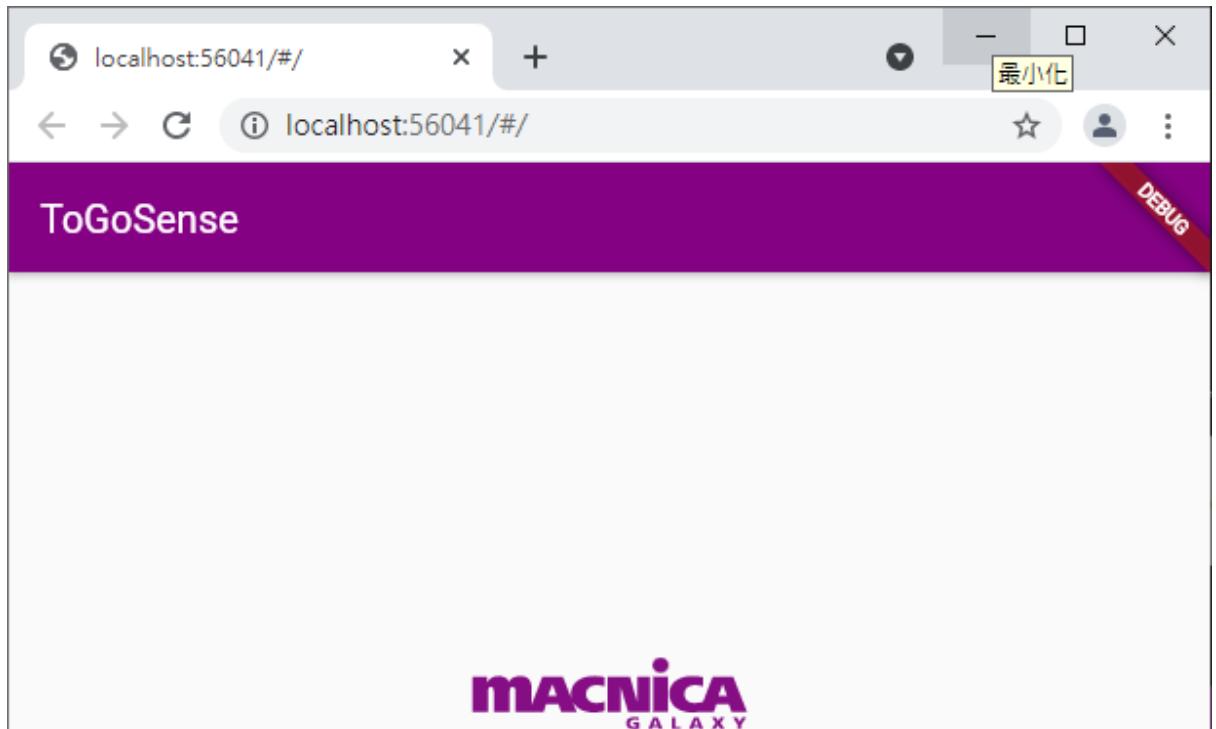
4. Download the ToGoSense flutter source code and unzip it.
5. Modify the ToGoSense>lib>main.dart for your own firebase configuration that comes from the firebase section.



```
6 void main() {
7   if (fb.apps.isEmpty) {
8     fb.initializeApp(
9       apiKey:
10      authDomain:
11      databaseURL:
12      projectId:
13      storageBucket:
14      messagingSenderId:
15      appId:
16      measurementId:
17    );
18   runApp(ToGoSense());
19 }
```



6. Save it and run the “flutter run” command in the same folder.



## PSoC Creator

1. Download the last PSoC creator from the website.  
<https://www.cypress.com/products/psoc-creator-integrated-design-environment-ide>
2. Download the PsoC creator project source code.
3. Modify the firebase database url from CM4(Core

1)>m1a\_winc1500>app>firmware>src>winc1500\_firebase.c

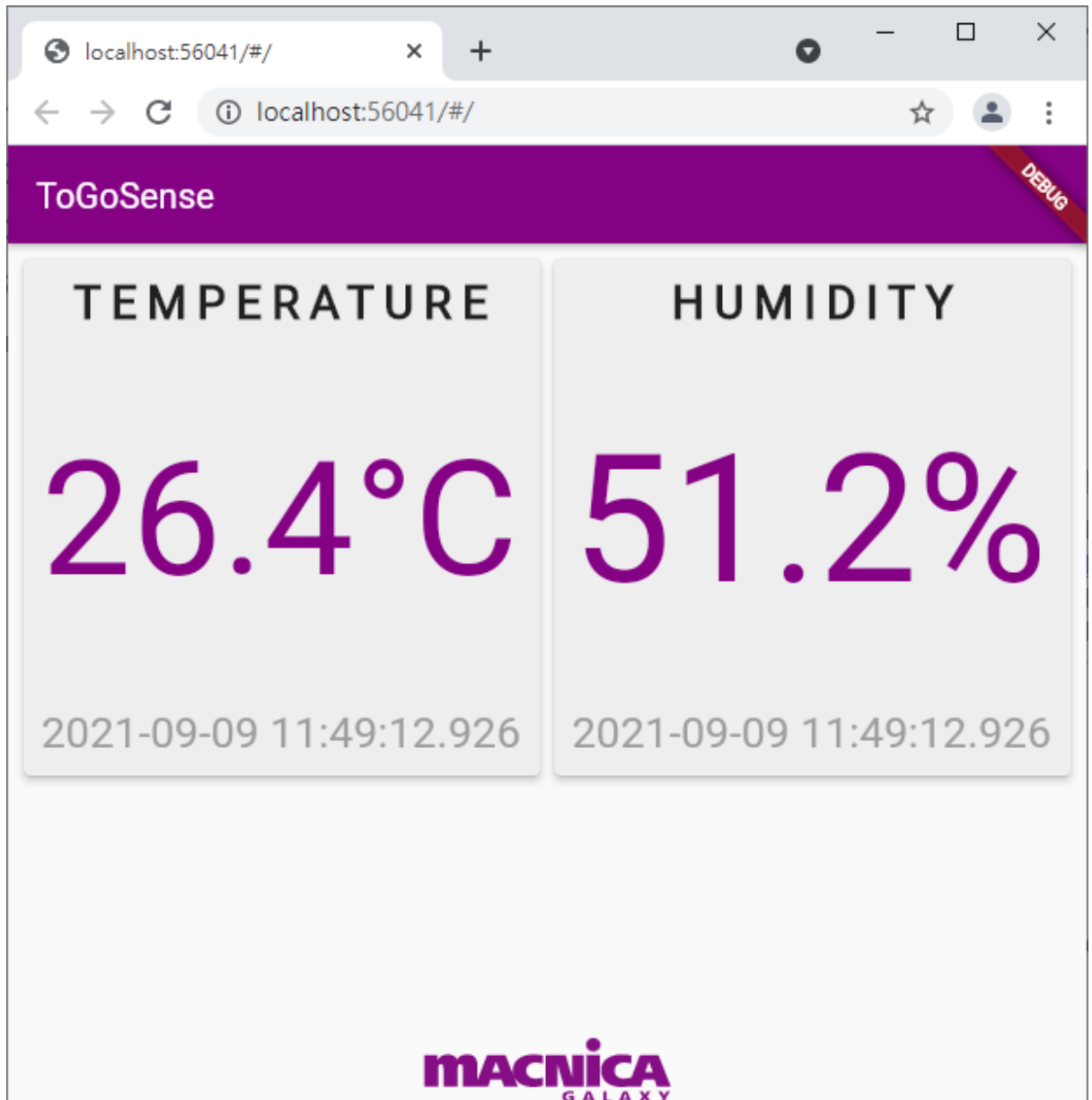
```

61 /* Firebase realtime database url */
62 #define HTTPS_FIREBASE_URL      "https://xxx.firebaseio.com/sensors.json?"
63 #define EXOSITE_EXAMPLE_HTTP_CONTENT_TYPE  "application/json"
64
65 /** Wi-Fi Settings */
66 #define WLAN_SSID                "DEMO AP" /* < Destination SSID */
67 #define WLAN_AUTH                M2M_WIFI_SEC_WPA_PSK /* < Security manner */
68 #define WLAN_PSK                "12345678" /* < Password for Destination SSID */
69

```

4. Compile and download the image to MCU.

5. Check the result on your simulation device(in this example is Chrome)



## Deploy

### Build web application

1. Go to the Flutter folder and run the command “flutter build web”.



2. The web application has been created in Flutter project>build> web.

## Deploy web application

1. Login the firebase account using command "firebase login".
2. Add the current folder for the firebase project using command "firebase init".



```
命令提示字元 - firebase init
C:\Users\User\Documents\togosense>firebase init

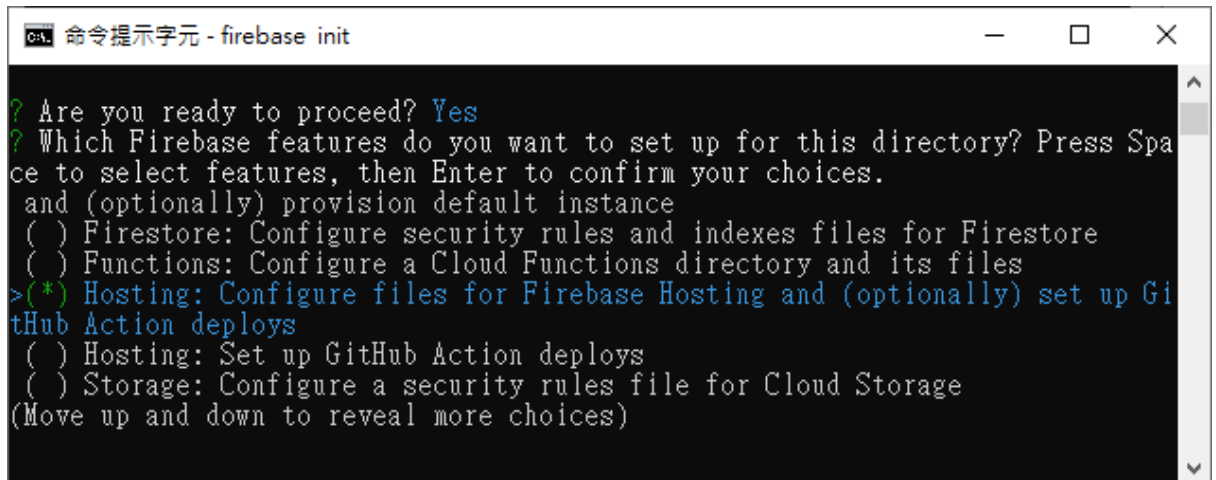
#####  #####  #####  #####  #####  #####  #####  #####
##      ##  ##  ##  ##      ##  ##  ##  ##  ##      ##
#####  ##  #####  #####  #####  #####  #####  #####
##      ##  ##  ##  ##      ##  ##  ##  ##  ##      ##
##      #####  ##  #####  #####  ##      ##  #####  #####

You're about to initialize a Firebase project in this directory:

  C:\Users\User\Documents\togosense

? Are you ready to proceed? (Y/n) Y
```

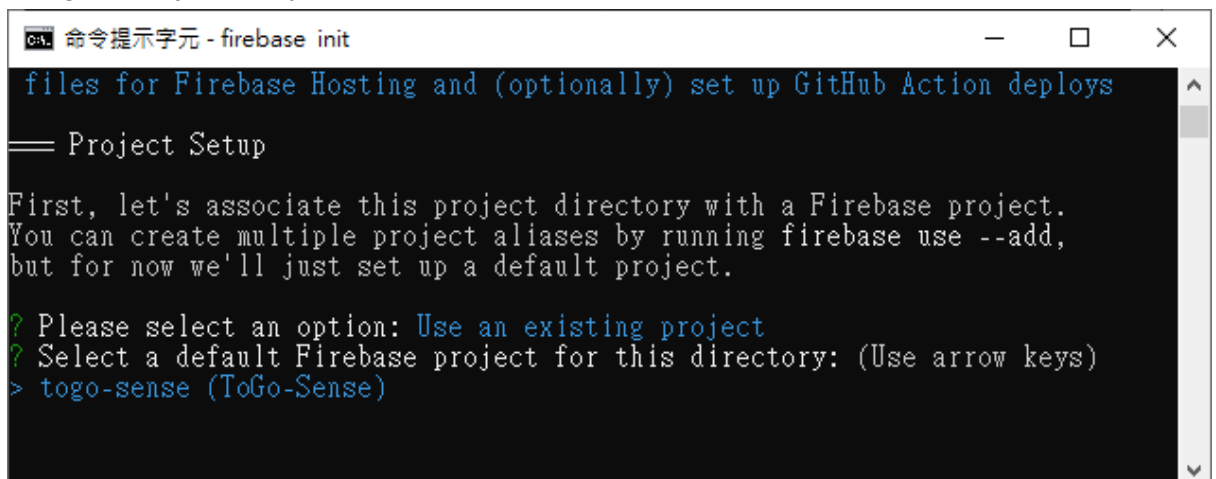
3. Choose Hosting.



```
命令提示字元 - firebase init

? Are you ready to proceed? Yes
? Which Firebase features do you want to set up for this directory? Press Spa
ce to select features, then Enter to confirm your choices.
and (optionally) provision default instance
( ) Firestore: Configure security rules and indexes files for Firestore
( ) Functions: Configure a Cloud Functions directory and its files
>(*) Hosting: Configure files for Firebase Hosting and (optionally) set up Gi
tHub Action deploys
( ) Hosting: Set up GitHub Action deploys
( ) Storage: Configure a security rules file for Cloud Storage
(Move up and down to reveal more choices)
```

4. Using the project that you created before.



```
命令提示字元 - firebase init

files for Firebase Hosting and (optionally) set up GitHub Action deploys

== Project Setup

First, let's associate this project directory with a Firebase project.
You can create multiple project aliases by running firebase use --add,
but for now we'll just set up a default project.

? Please select an option: Use an existing project
? Select a default Firebase project for this directory: (Use arrow keys)
> togo-sense (ToGo-Sense)
```

5. Hosting setup.

```
命令提示字元

i .firebaseconfig already has a default project, using togo-sense.

== Hosting Setup

Your public directory is the folder (relative to your project directory) that
will contain Hosting assets to be uploaded with firebase deploy. If you
have a build process for your assets, use your build's output directory.

? What do you want to use as your public directory? build\web
? Configure as a single-page app (rewrite all urls to /index.html)? No
? Set up automatic builds and deploys with GitHub? No
? File build\web\404.html already exists. Overwrite? No
i Skipping write of build\web\404.html
? File build\web\index.html already exists. Overwrite? No
i Skipping write of build\web\index.html

i Writing configuration info to firebase.json...
i Writing project information to .firebaseconfig...

+ Firebase initialization complete!
```

6. Deploy your web application by using command "firebase deploy"

```
命令提示字元

C:\Users\User\Documents\togosense>firebase deploy

== Deploying to 'togo-sense'...

i deploying hosting
i hosting[togo-sense]: beginning deploy...
i hosting[togo-sense]: found 15 files in build\web
+ hosting[togo-sense]: file upload complete
i hosting[togo-sense]: finalizing version...
+ hosting[togo-sense]: version finalized
i hosting[togo-sense]: releasing new version...
+ hosting[togo-sense]: release complete

+ Deploy complete!

Project Console: https://console.firebase.google.com/project/togo-sense/overview
Hosting URL: https://togo-sense.web.app

C:\Users\User\Documents\togosense>
```

7. Now your web application is online.

