



Provider

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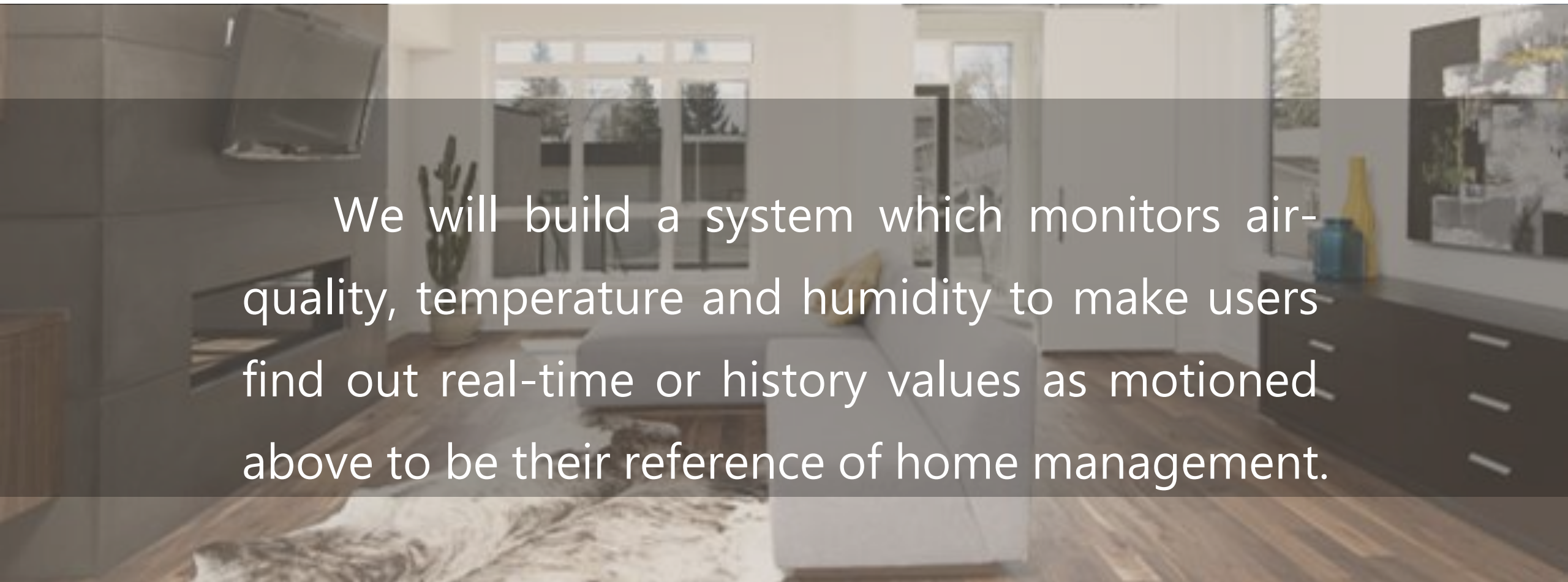


Introduction

■ Motivation

■ Propose

Introduction

A modern living room with a grey sofa, a large window, and a dark wooden cabinet. The room is well-lit and features a mix of contemporary and natural elements.

We will build a system which monitors air-quality, temperature and humidity to make users find out real-time or history values as motioned above to be their reference of home management.

Motivation

An aerial photograph of Taipei, Taiwan, featuring the Taipei 101 skyscraper on the left. The city is densely packed with buildings, and the surrounding mountains are visible in the background. Overlaid on the image are four semi-transparent dark grey circles, each containing a text label for a type of air pollution.

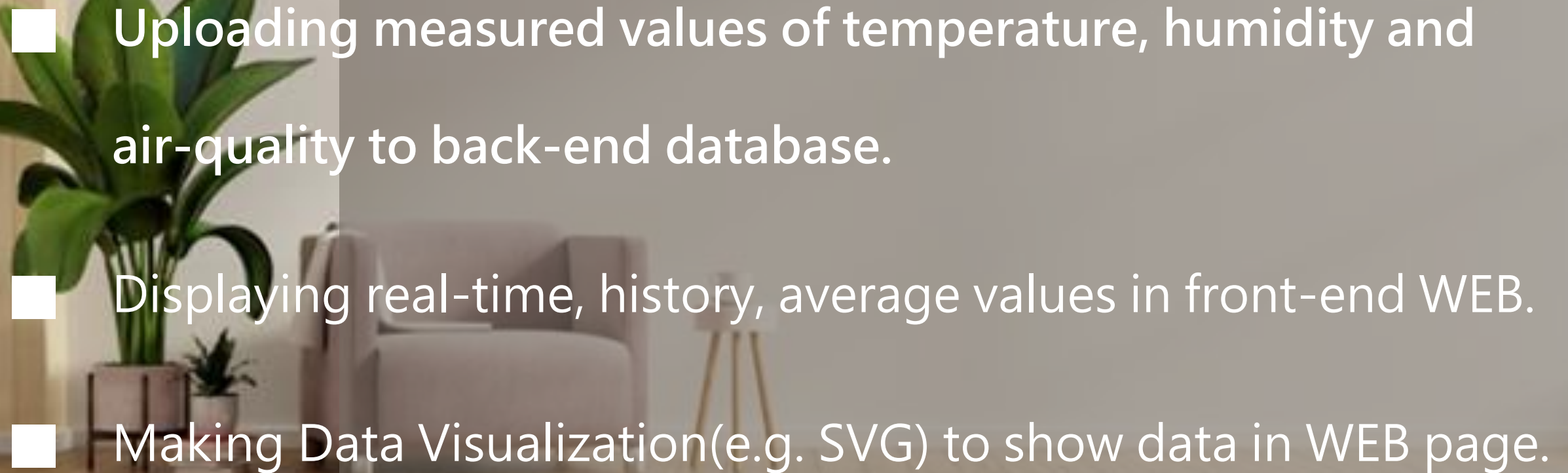
PM 2.5

Nitrogen
Oxides

Sulfide

Moisture

Purpose

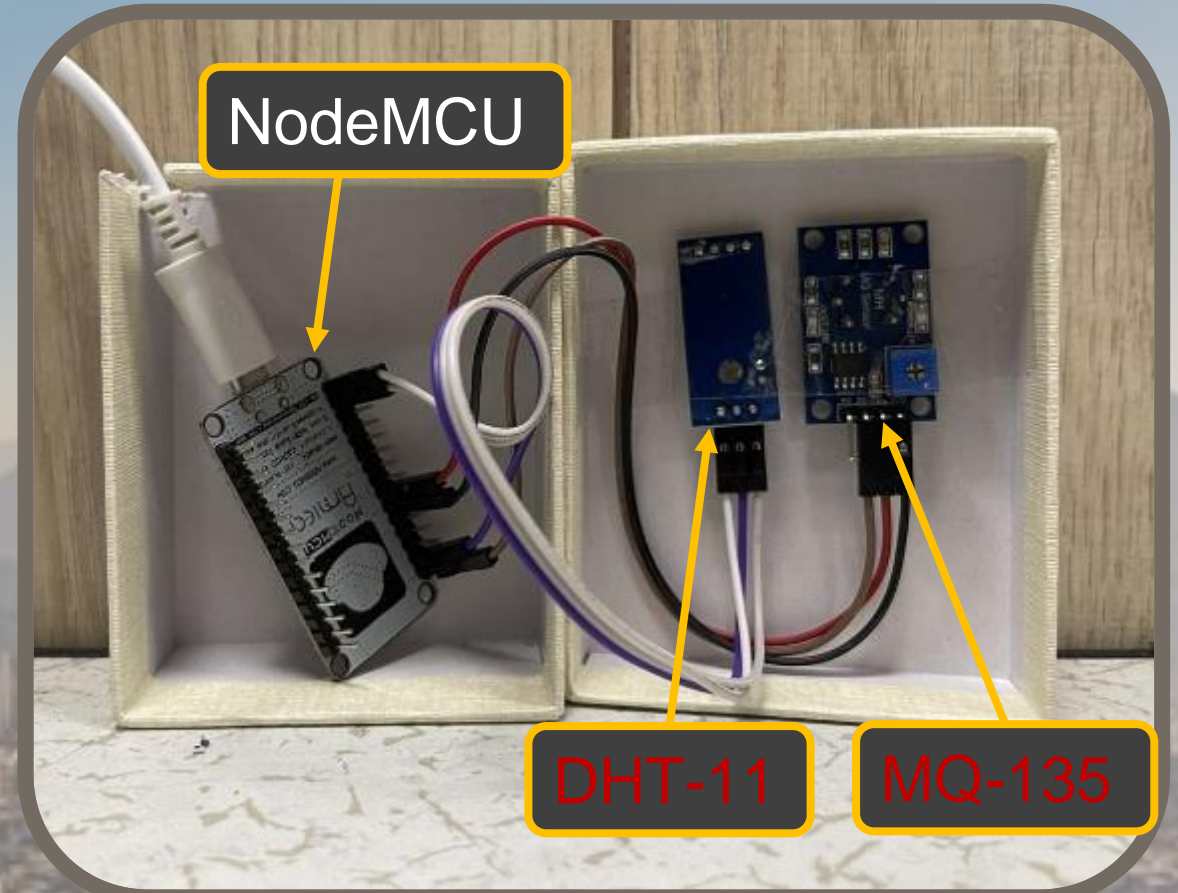
- 
- Uploading measured values of temperature, humidity and air-quality to back-end database.
 - Displaying real-time, history, average values in front-end WEB.
 - Making Data Visualization(e.g. SVG) to show data in WEB page.

The slide features a background image of a modern interior space. On the left, a large green plant in a white pot sits on a wooden floor. Behind it is a wooden sideboard with a white cabinet door. A small stack of books rests on the sideboard. Two pendant lights with conical shades hang from the ceiling. The title 'Indoor AirBox' is overlaid in large white text.

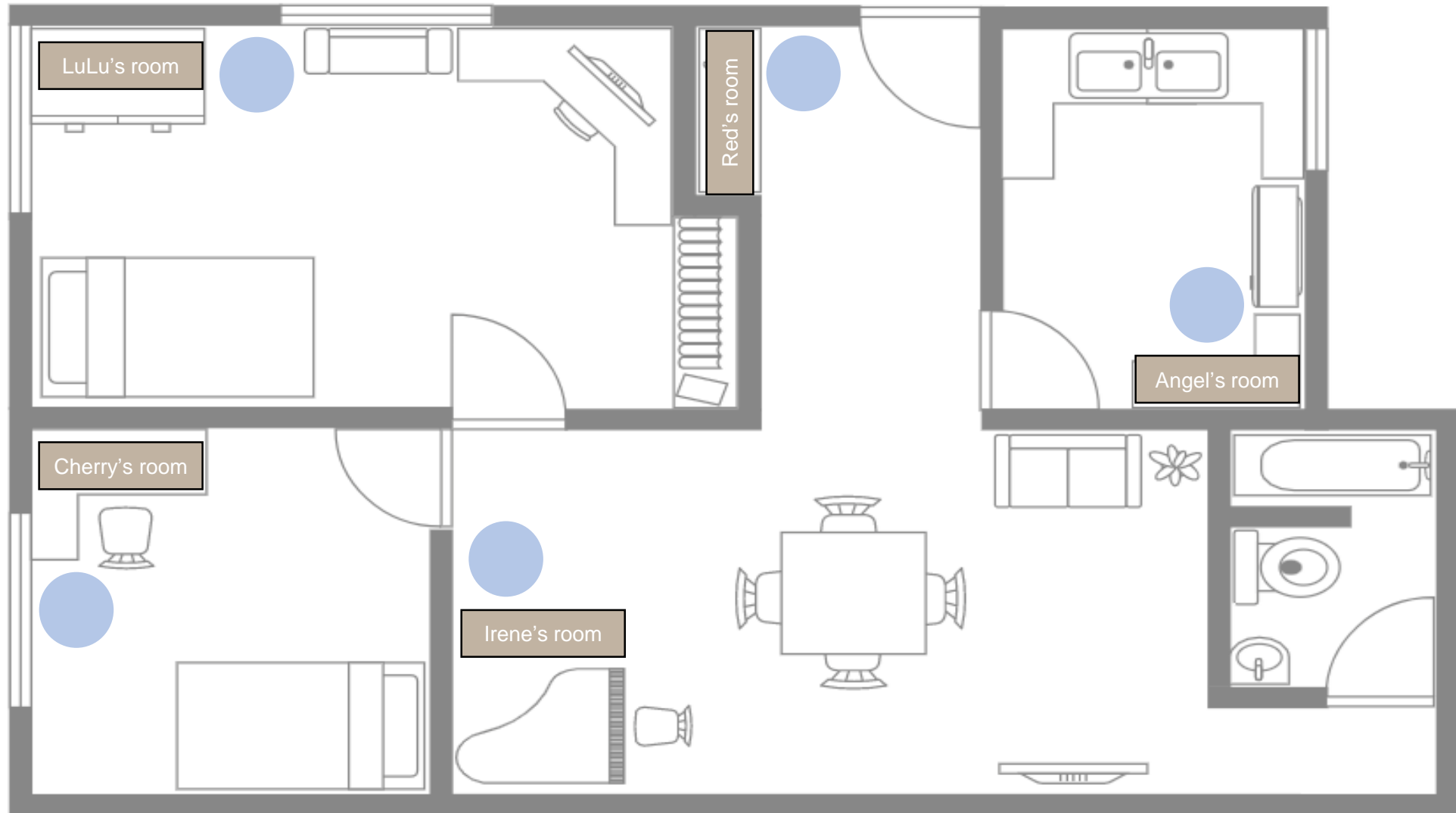
Indoor AirBox

- Style of AirBox
- Schematic Diagram
- AirBox-Hardware
- MariaDB
- System Architecture
- Flow Chart
- User Interface

Style of AirBox



Schematic Diagram



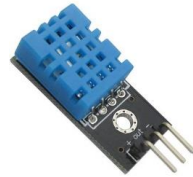
AirBox-Hardware

Range

Temp. : 0°C - 50°C

Humidity : 20% - 95%

DHT11 Module



Range

Air-Quality : 0ppm – 1023ppm

Normal : 100ppm – 150ppm

Alcohol : 700ppm

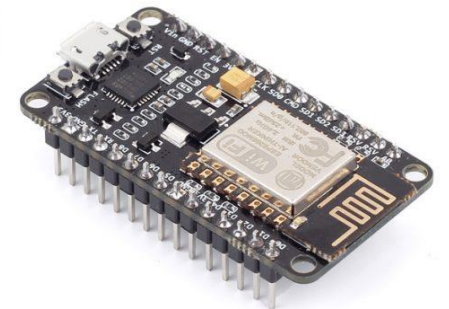
Natural Gas : 750ppm

MQ-135 Module

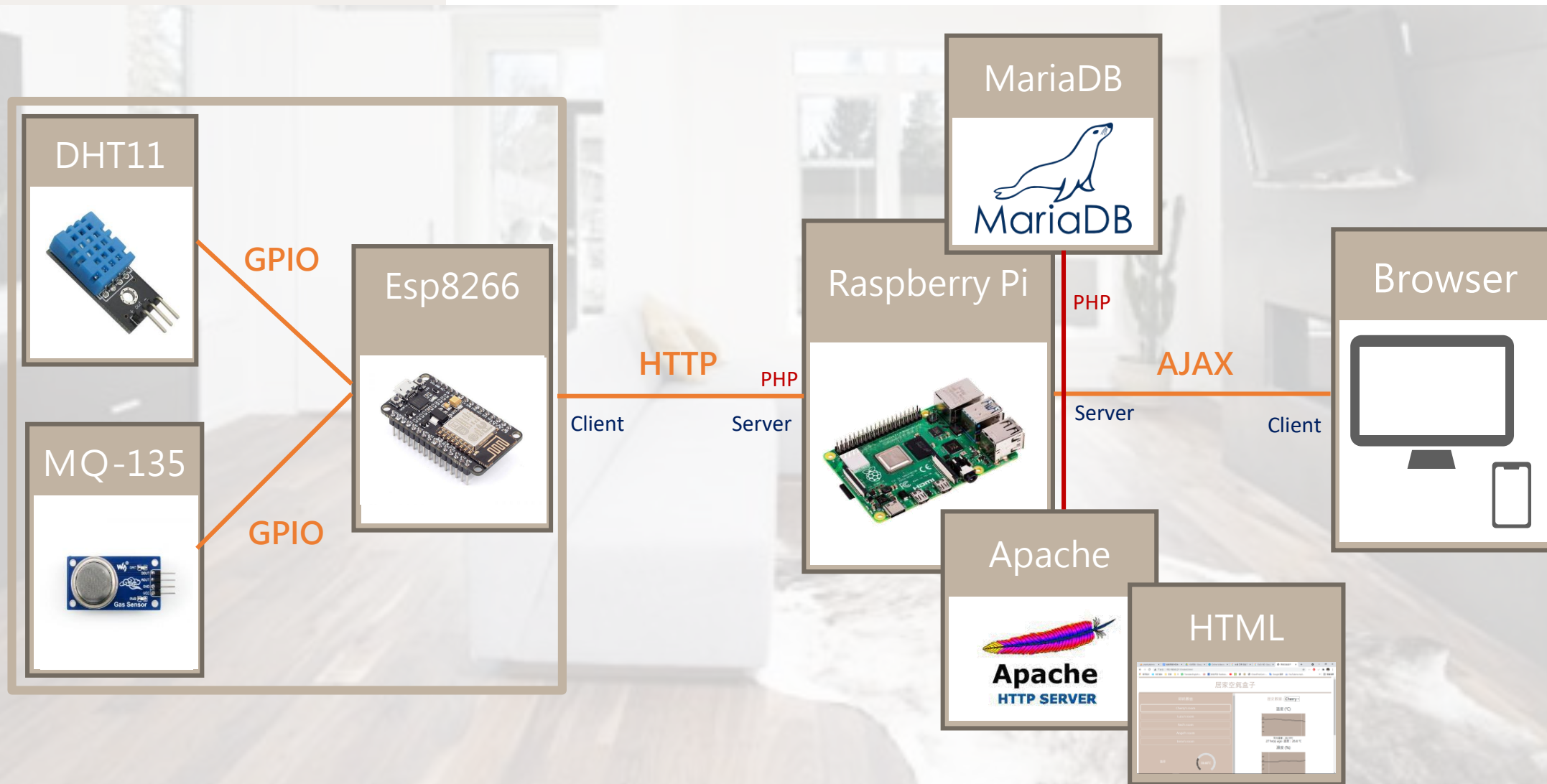


NodeMCU

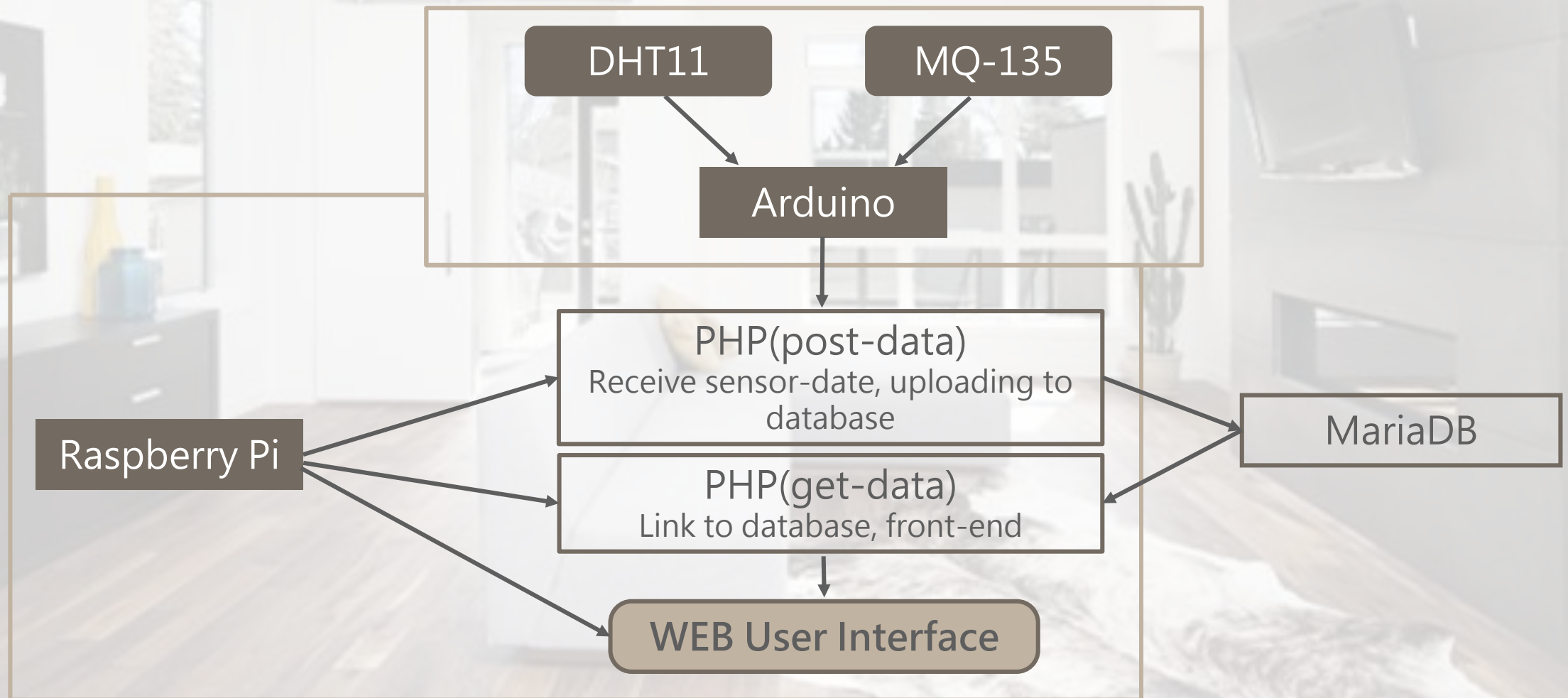
ESP8266



系統架構圖



System Archit



MariaDB

phpMyadmin

The screenshot shows the phpMyAdmin web interface in a browser. The URL is `192.168.43.211/phpmyadmin/sql.php?server=1&db=phpmyadmin&table=SensorData&pos=0&token=0681b9261944b47bf...`. The interface displays the structure of the 'SensorData' table with the following columns:

#	名稱	型態	編碼與排序	屬性	空值	預設值	備註	額外資訊	動作
1	id	int(6)		UNSIGNED	否	無		AUTO_INCREMENT	修改 刪除 更多
2	sensor	varchar(30)	utf8mb4_general_ci		否	無			修改 刪除 更多
3	location	varchar(30)	utf8mb4_general_ci		否	無			修改 刪除 更多
4	value1	varchar(10)	utf8mb4_general_ci		是	NULL			修改 刪除 更多
5	value2	varchar(10)	utf8mb4_general_ci		是	NULL			修改 刪除 更多
6	value3	varchar(10)	utf8mb4_general_ci		是	NULL			修改 刪除 更多
7	reading_time	timestamp		on update CURRENT_TIMESTAMP	否	CURRENT_TIMESTAMP	ON UPDATE CURRENT_TIMESTAMP		修改 刪除 更多

Below the table structure, there are options to '增加' (Add) or '刪除' (Delete) columns, and a '執行' (Execute) button. The '分區' (Partitions) section shows a message: '沒有已定義的分區!' (No partitions defined!).

The login form for phpMyAdmin. It features the phpMyAdmin logo and the text '歡迎使用 phpMyAdmin' (Welcome to use phpMyAdmin).

語系 - Language

中文 - Chinese traditional

登入


使用者名稱: phpmysadmin

密碼:

執行

MariaDB


Rows of data-table



#	名稱	型態	編碼與排序	屬性	空值	預設值
1	id	int(6)		UNSIGNED	否	無
2	sensor	varchar(30)	utf8mb4_general_ci		否	無
3	location	varchar(30)	utf8mb4_general_ci		否	無
4	value1	varchar(10)	utf8mb4_general_ci		是	NULL
5	value2	varchar(10)	utf8mb4_general_ci		是	NULL
6	value3	varchar(10)	utf8mb4_general_ci		是	NULL
7	reading_time	timestamp		on update CURRENT_TIMESTAMP	否	CURRENT_TIMESTAMP

#	名稱	型態	編碼與排序	屬性	空值	預設值
1	id	int(6)		UNSIGNED	否	無
2	sensor	varchar(30)	utf8mb4_general_ci		否	無
3	location	varchar(30)	utf8mb4_general_ci		否	無
4	value1	varchar(10)	utf8mb4_general_ci		是	NULL
5	value2	varchar(10)	utf8mb4_general_ci		是	NULL
6	value3	varchar(10)	utf8mb4_general_ci		是	NULL
7	reading_time	timestamp		on update CURRENT_TIMESTAMP	否	CURRENT_TIMESTAMP

Data-table



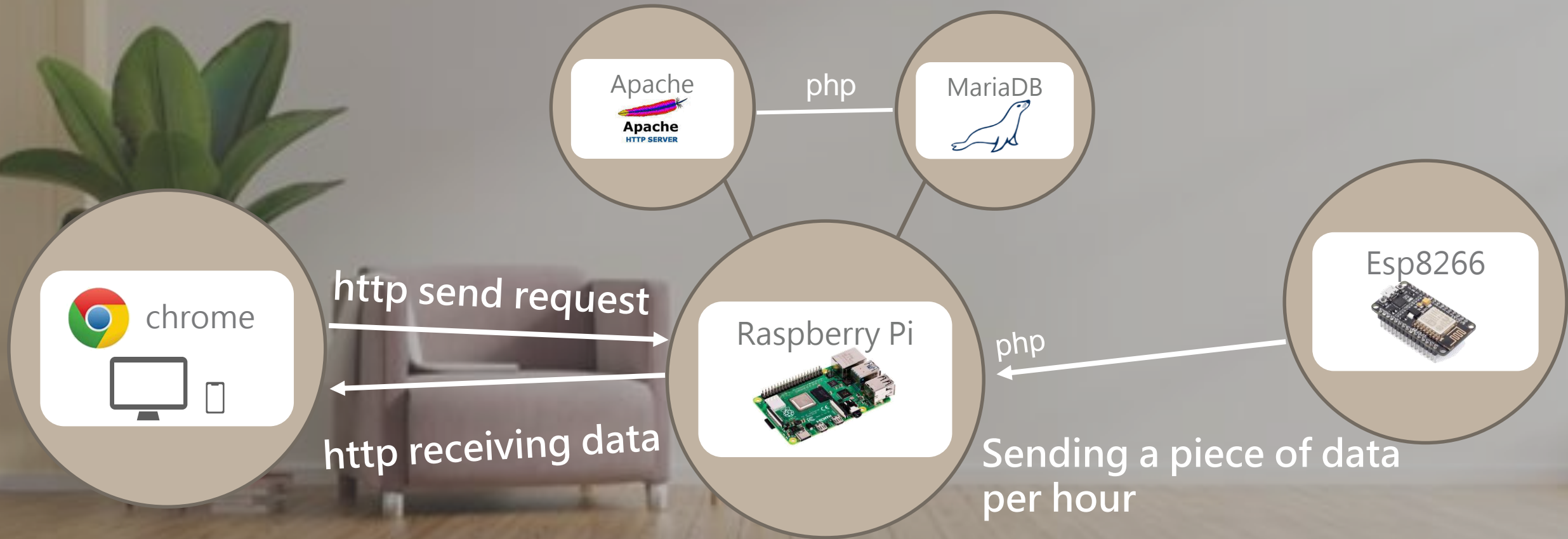
顯示第 0 - 24 列 (總計 1665 筆, 查詢花費 0.0008 秒) [id: 1665... - 1641...]

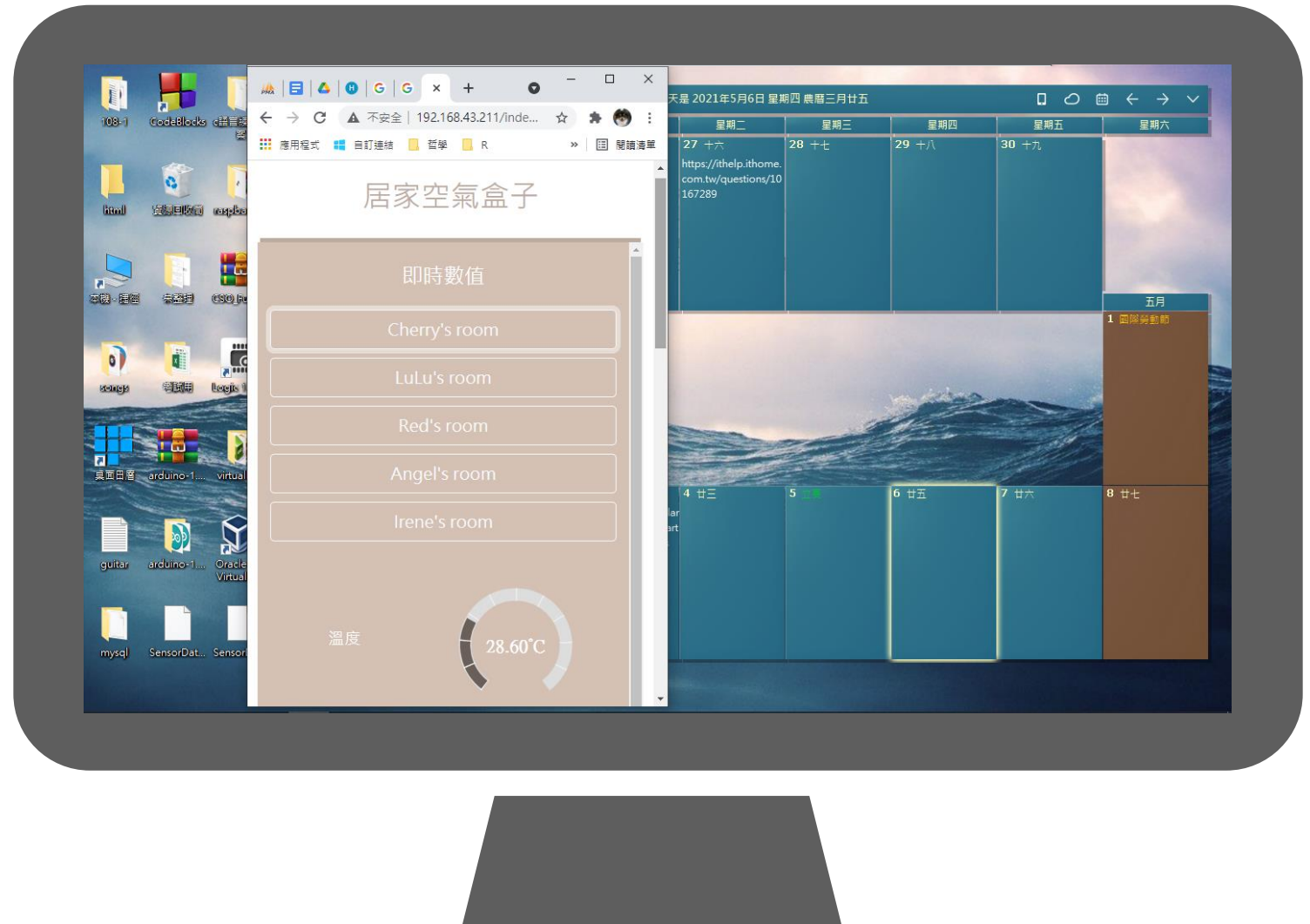
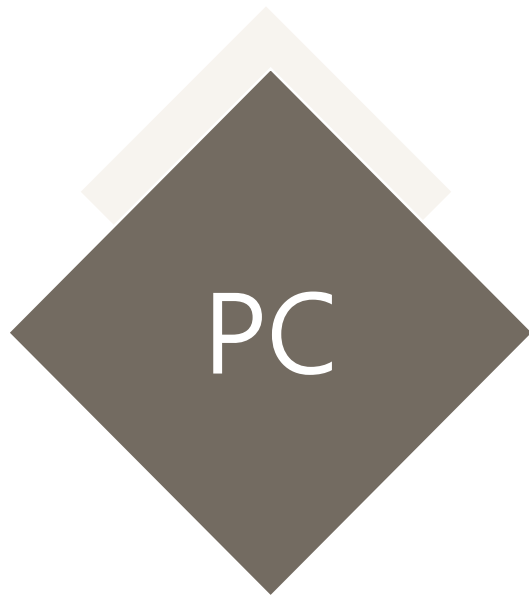
```
SELECT * FROM `SensorData` ORDER BY `id` DESC
```

1 > >> 資料列數: 25 搜尋資料列: 搜尋此資料表 依主鍵排序: PRIMARY (DESC)

		id	sensor	location	value1	value2	value3	reading_time
<input type="checkbox"/>	編輯 複製 刪除	1540	Irene	myroom	26.80°C	62.00%	755.52ppm	2021-05-04 15:10:05
<input type="checkbox"/>	編輯 複製 刪除	1539	Irene	myroom	27.00°C	58.00%	735.00ppm	2021-05-05 02:38:48
<input type="checkbox"/>	編輯 複製 刪除	1538	Irene	myroom	27.10°C	63.00%	643.34ppm	2021-05-05 02:39:14
<input type="checkbox"/>	編輯 複製 刪除	1537	Irene	myroom	27.50°C	65.00%	67.20ppm	2021-05-05 02:42:37
<input type="checkbox"/>	編輯 複製 刪除	1536	Red	myroom	27.00°C	59.00%	644.00ppm	2021-05-05 02:42:12
<input type="checkbox"/>	編輯 複製 刪除	1535	Angel	myroom	24.60°C	62.00%	713.32ppm	2021-05-05 02:42:52
<input type="checkbox"/>	編輯 複製 刪除	1534	LuLu	myroom	25.00°C	61.00%	723.21ppm	2021-05-05 02:43:23
<input type="checkbox"/>	編輯 複製 刪除	1533	Irene	myroom	26.70°C	61.00%	623.65ppm	2021-05-05 02:43:46
<input type="checkbox"/>	編輯 複製 刪除	1532	cherry	myroom	28.60°C	59.00%	755.25ppm	2021-05-04 15:10:27

Flow Chart





WEB User Interface

Phone

Data
Visualization
SVG Chart



WEB User Interface



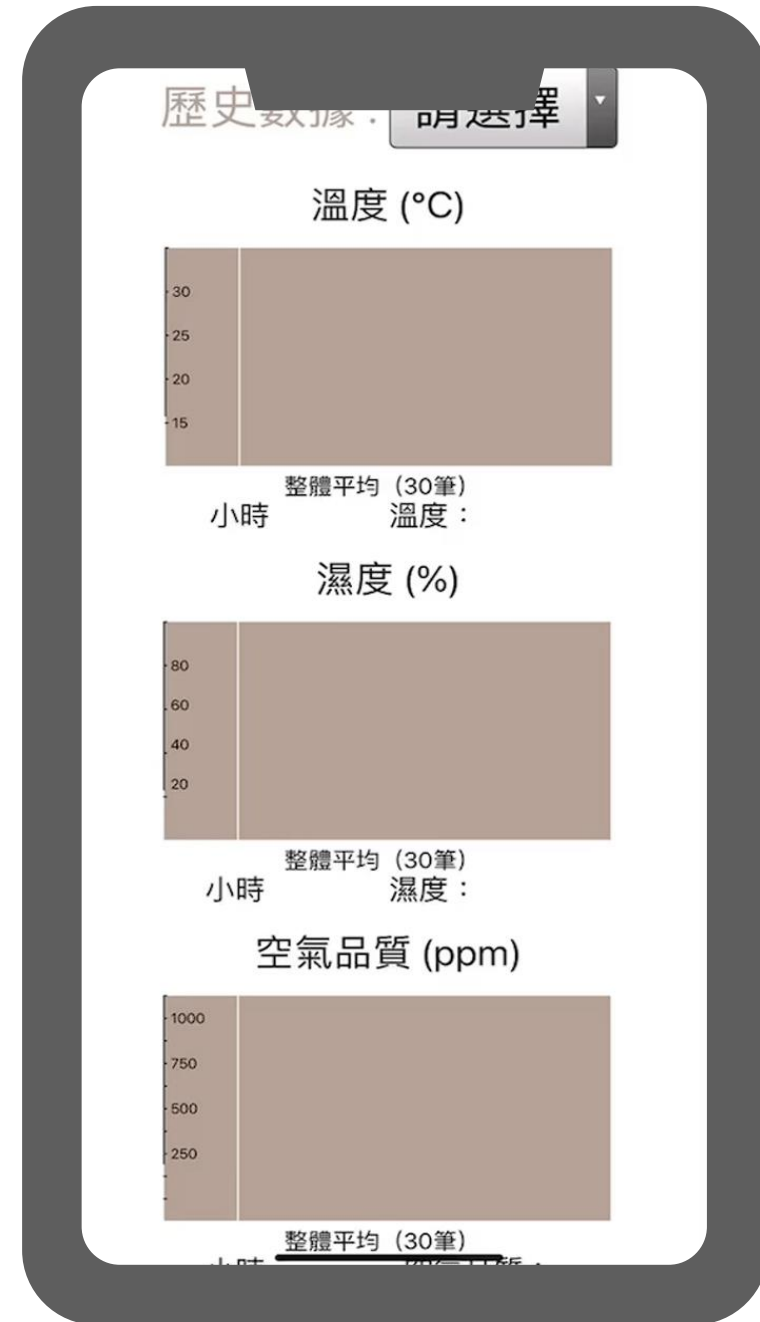
- Real-time
(SVG)
- Button
(Outline button)



WEB User Interface

Phone

- History Values
- Drop-down Menu



A photograph of a modern interior space. On the left, a large green plant in a white pot sits on a small wooden stool. Next to it is a wooden sideboard with a white cabinet door. On top of the sideboard are two more potted plants and a stack of books. Two orange pendant lights hang from the ceiling. The floor is made of light-colored wood.

Appendix

■ Reference

■ Model

Reference

- W3schools

<https://www.w3schools.com/>

- Random Nerd Tutorials

<https://randomnerdtutorials.com/esp32-esp8266-mysql-database-php/>

Model



Thank you for listening.

