IndoorAirBox

Provider

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  - System Architecture
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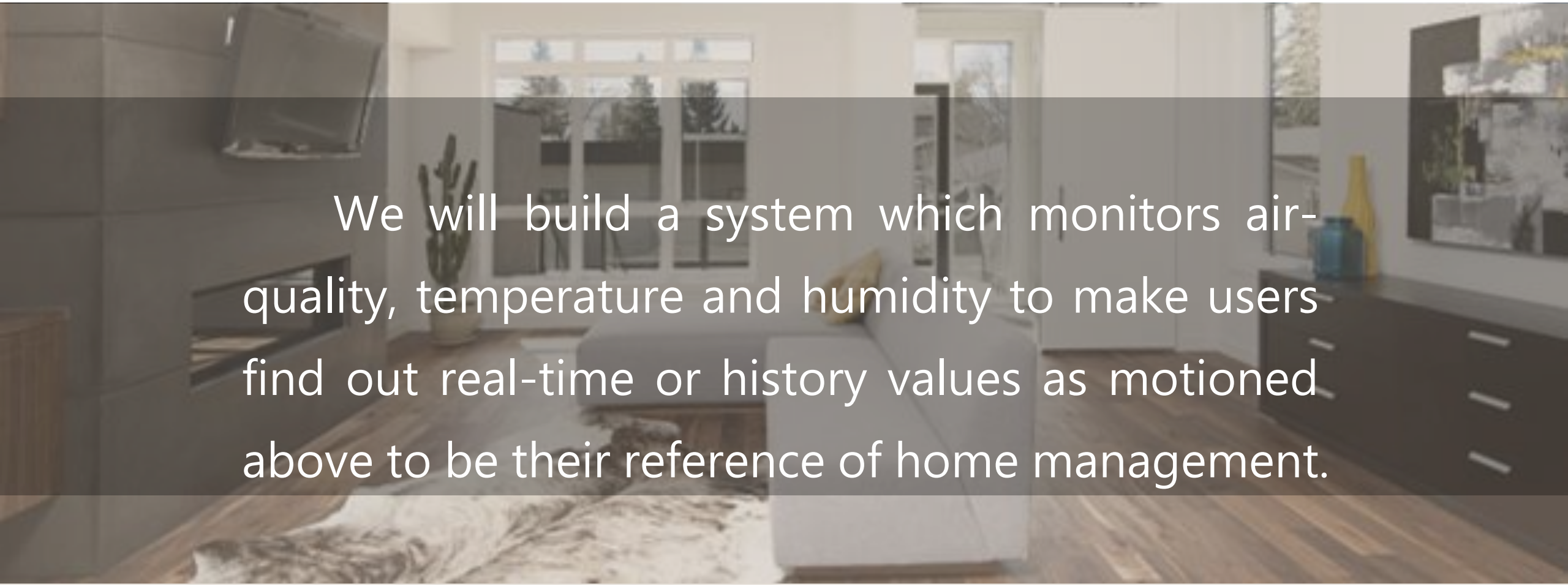
Introduction

- Motivation
- Propose

Introductio



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

Purpose

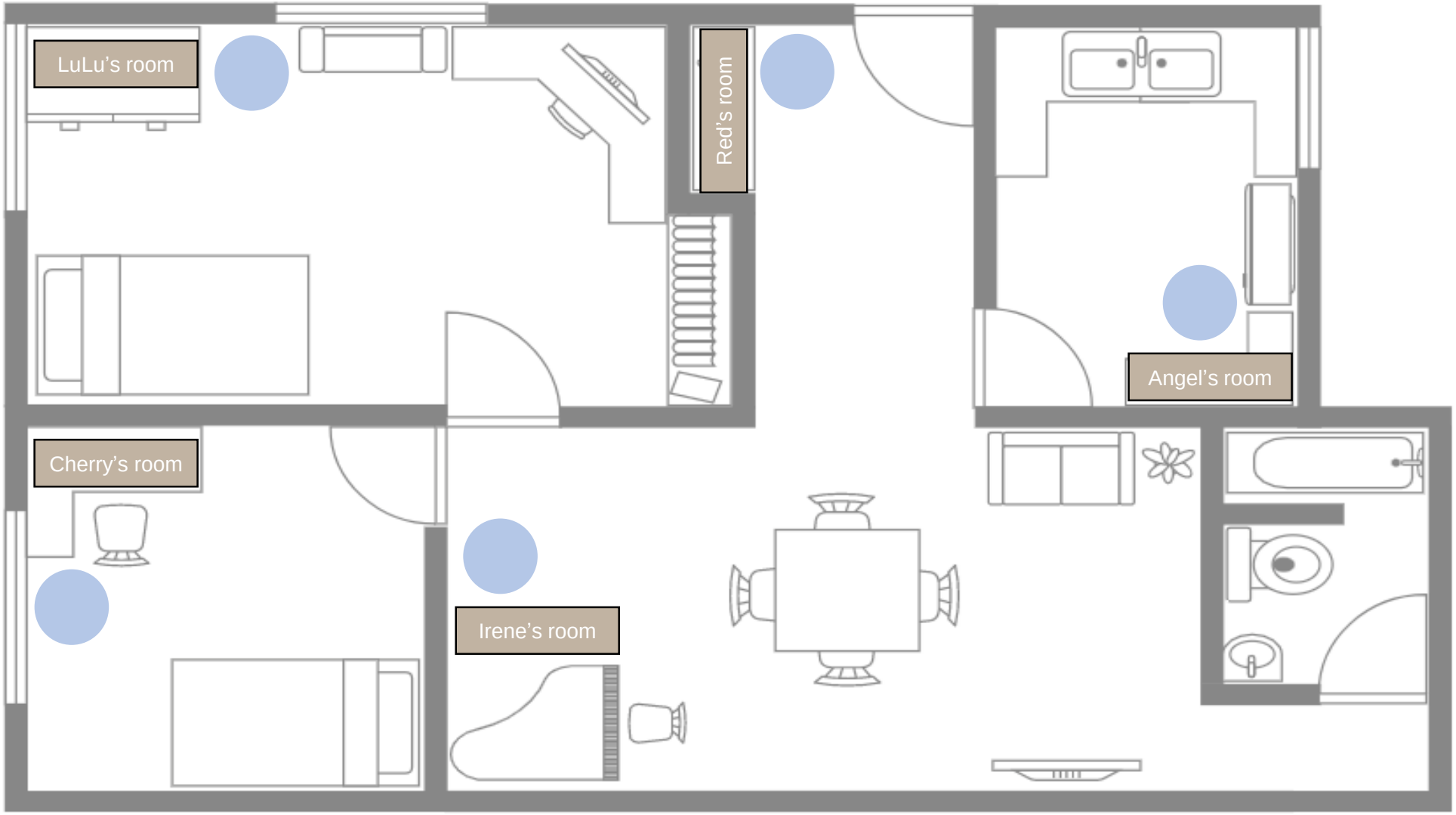
- **Uploading measured values of temperature, humidity and air-quality to back-end database.**
- Displaying real-time, history, average values in front-end WEB.
- Making Data Visualization(e.g. SVG) to show data in WEB page.

Indoor AirBox

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

Style of AirBox

Schematic Diagr



AirBox-Hardware

Range

Temp. : 0°C - 50°C

Humidity : 20% - 95%

Range

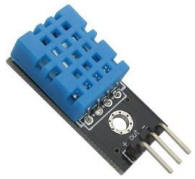
Air-Quality : 0ppm – 1023ppm

Normal : 100ppm – 150ppm

Alcohol : 700ppm

Natural Gas : 750ppm

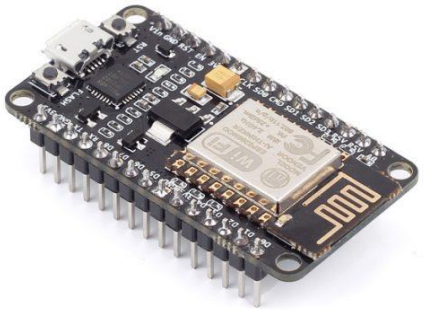
DHT11 Module



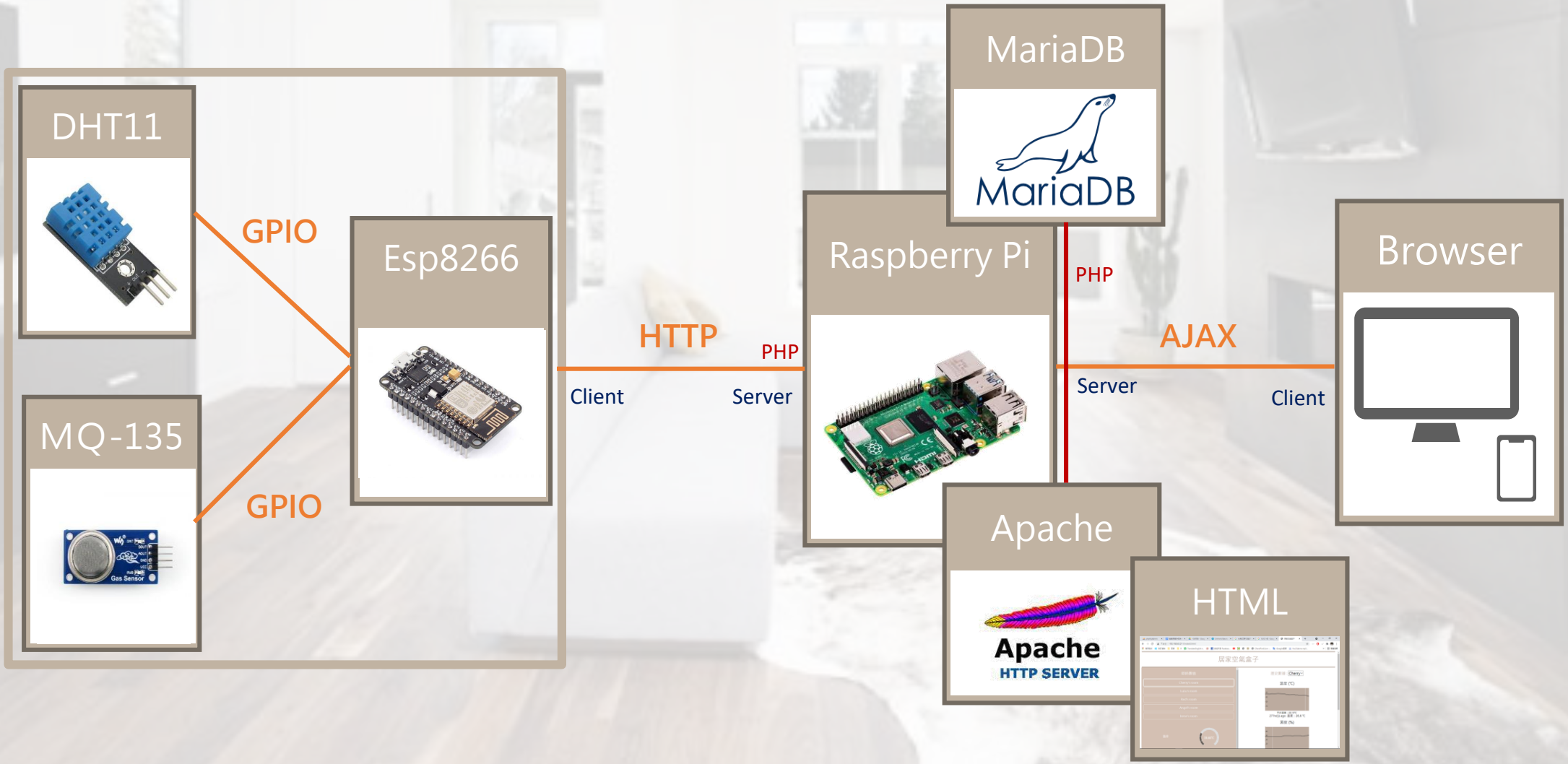
MQ-135 Module

NodeMCU

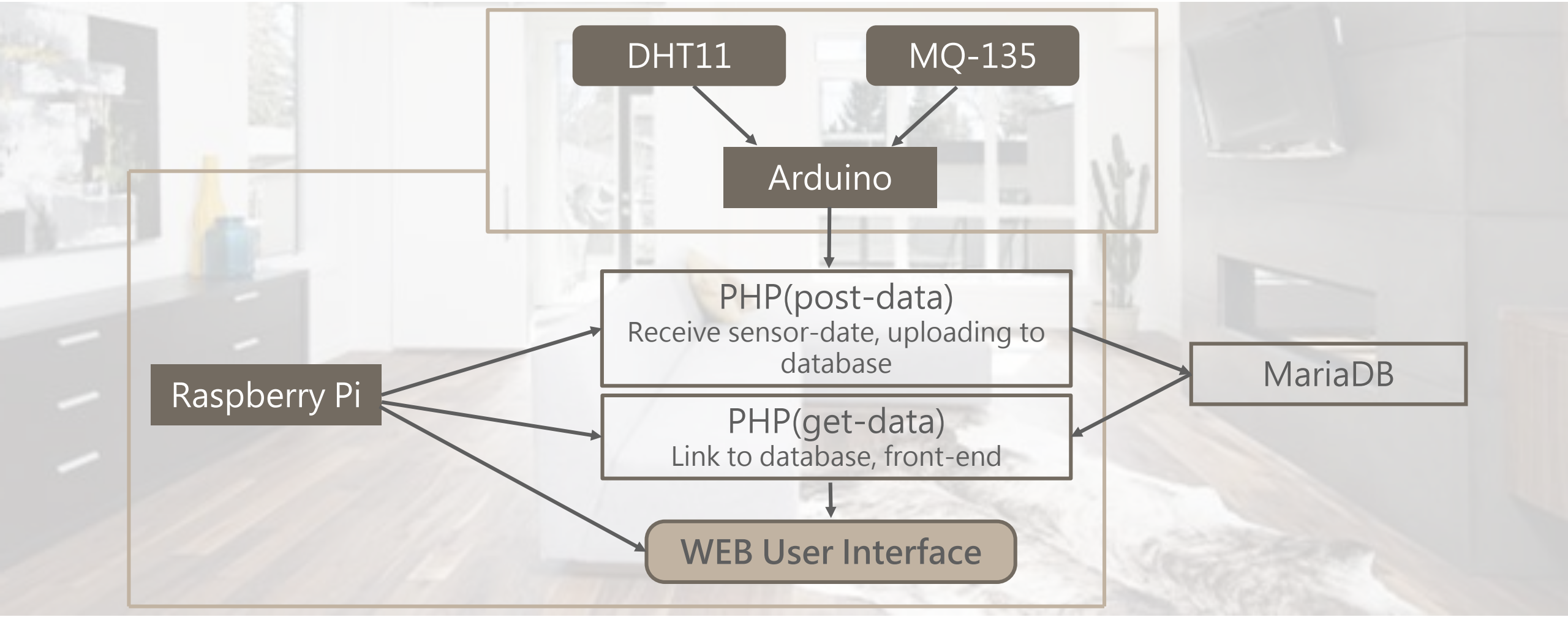
ESP8266



系統架構圖

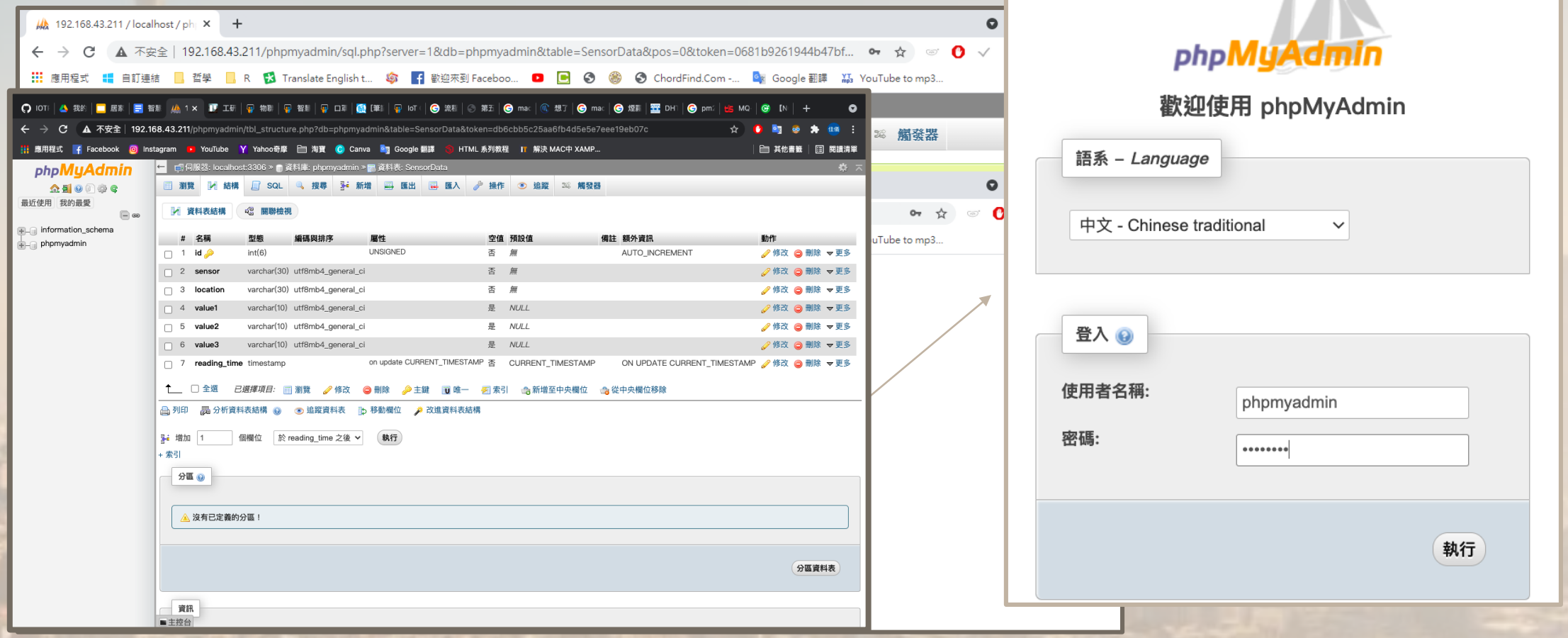

DHT11
GPIO
MQ-135
GPIO
Esp8266
HTTP
Client
PHP
Server
MariaDB
MariaDB
Raspberry Pi
PHP
AJAX
Server
Client
Browser
Apache
Apache
HTTP SERVER
HTML

System Archit



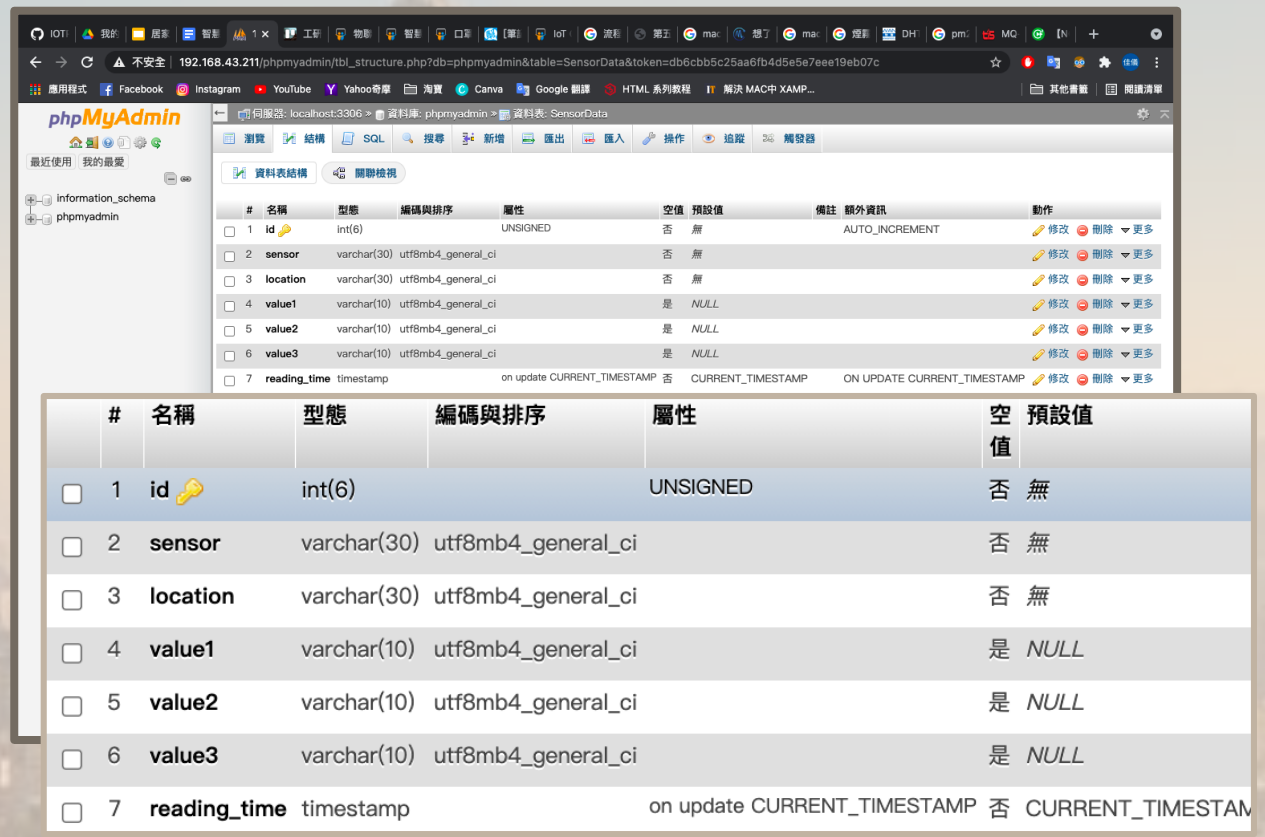
MariaDB

phpMyadmin



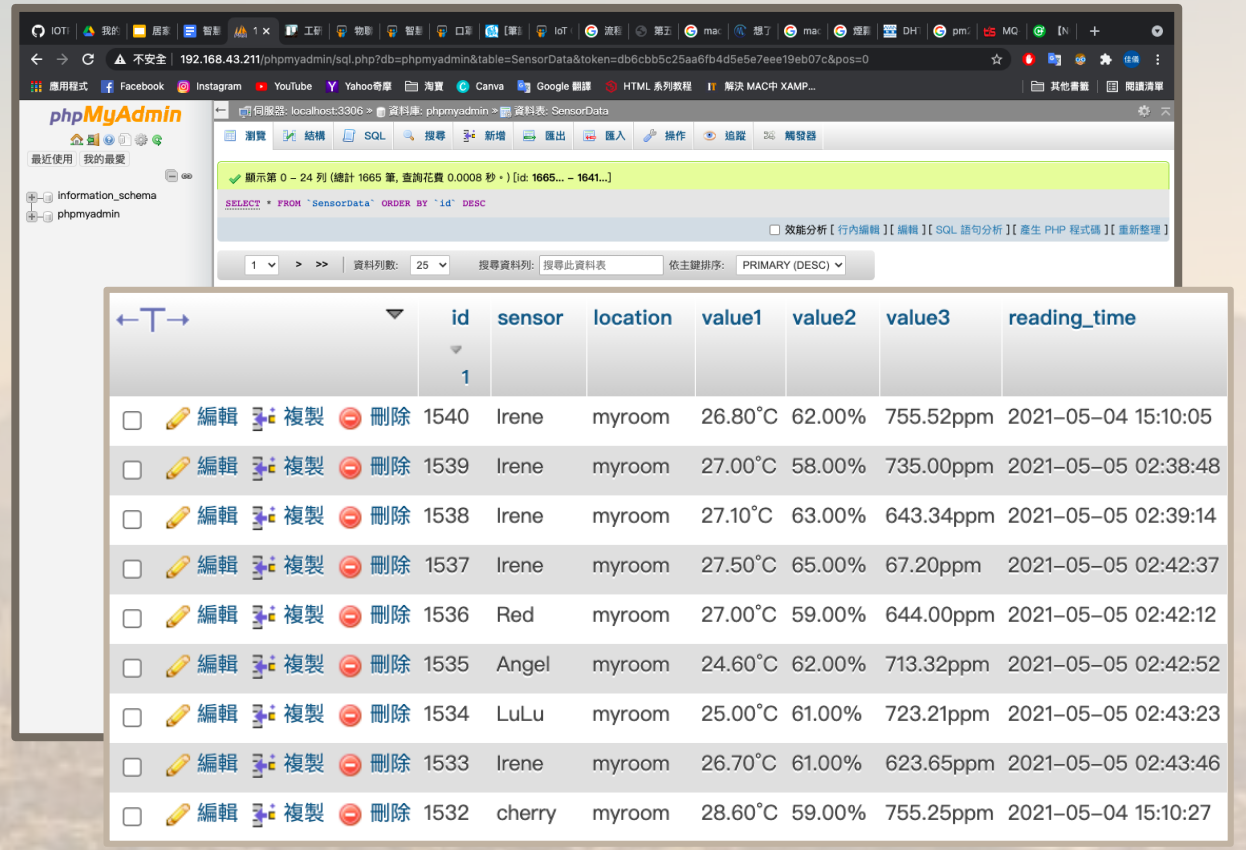
MariaDB

Rows of data-table



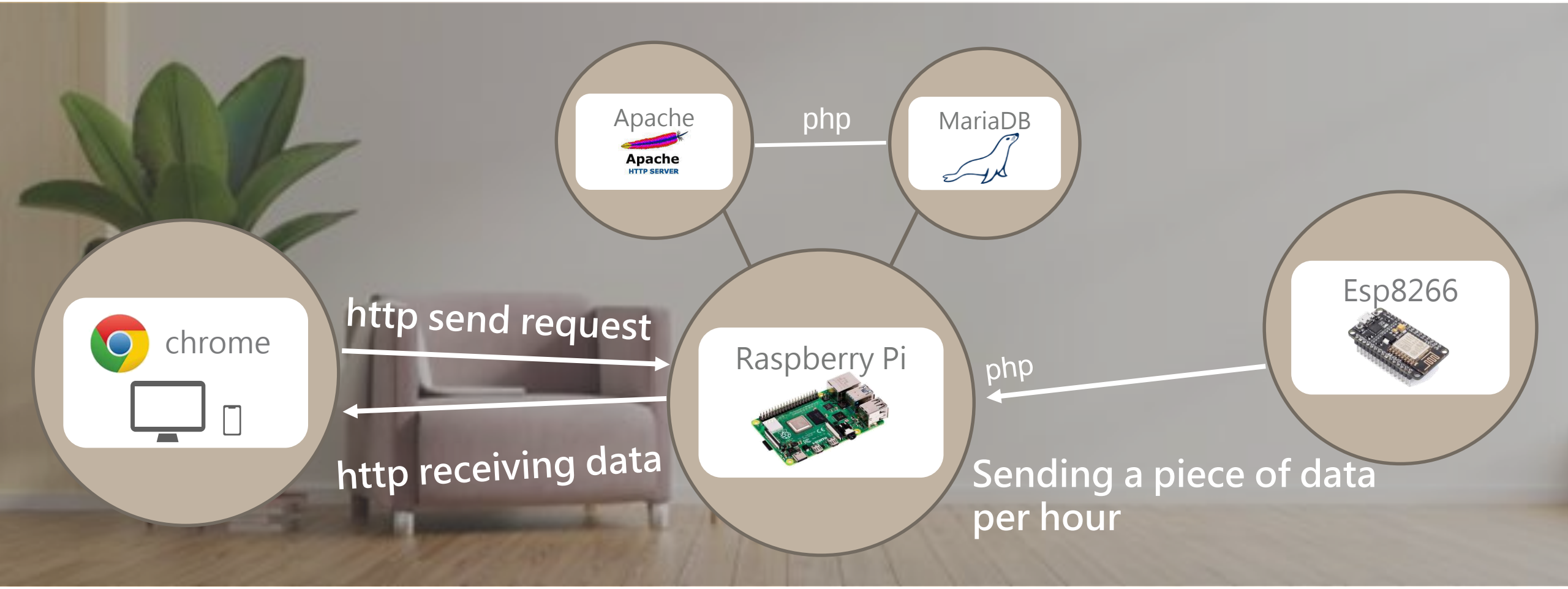
#	名稱	型態	編碼與排序	屬性	空值	預設值
1	id	int(6)		UNSIGNED	否	無
2	sensor	varchar(30)	utf8mb4_general_ci		否	無
3	location	varchar(30)	utf8mb4_general_ci		否	無
4	value1	varchar(10)	utf8mb4_general_ci		是	NULL
5	value2	varchar(10)	utf8mb4_general_ci		是	NULL
6	value3	varchar(10)	utf8mb4_general_ci		是	NULL
7	reading_time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

Data-table



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

Flow Chart

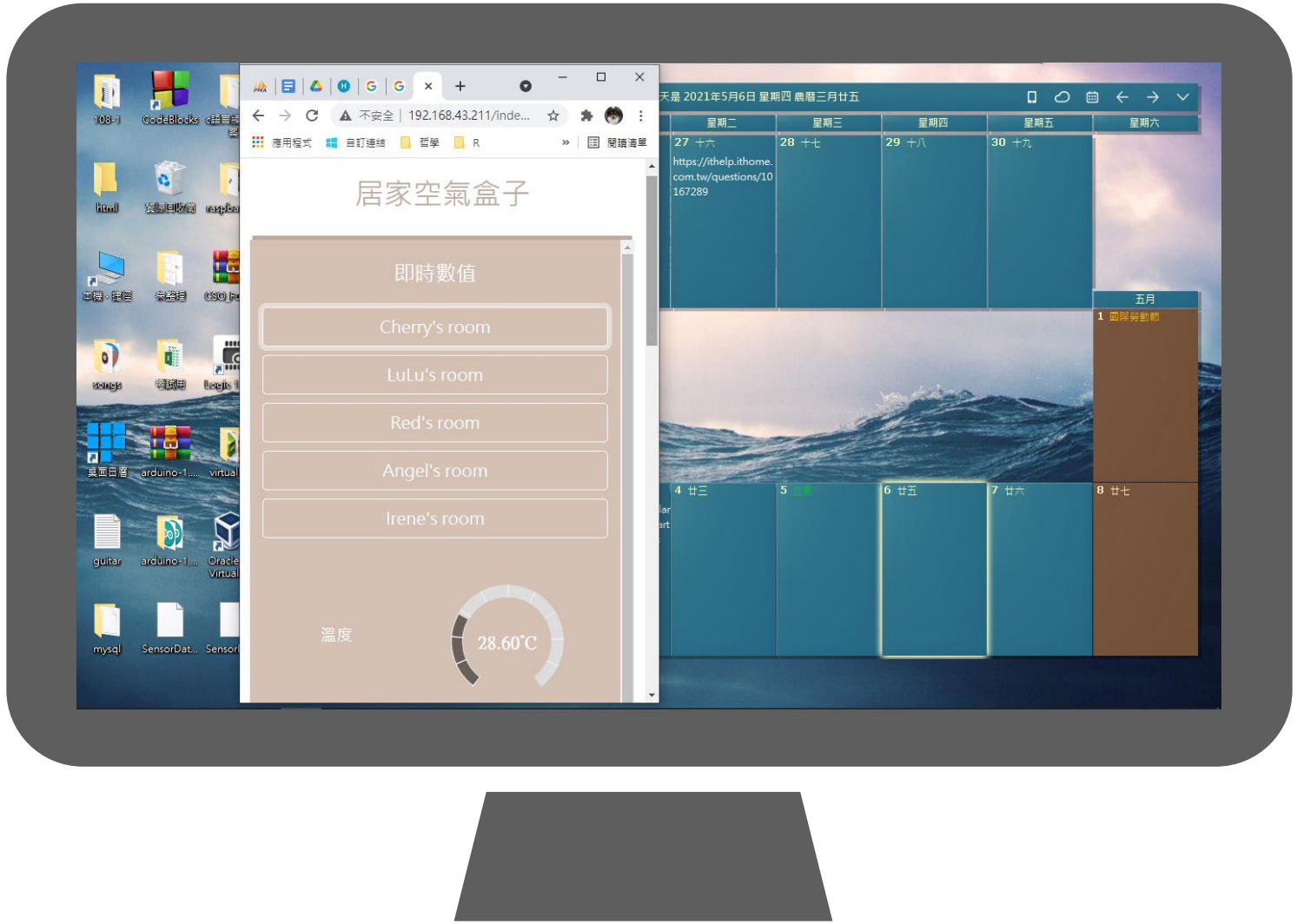

Apache
Apache
HTTP SERVER
php
MariaDB
chrome
http send request
http receiving data
Raspberry Pi
php
Esp8266
Sending a piece of data
per hour

WEB User Interfa

Responsive Web Design

Bootstrap

PC



WEB User Interfa

Phone

- Data Visualization
- SVG Chart

WEB User Interfa

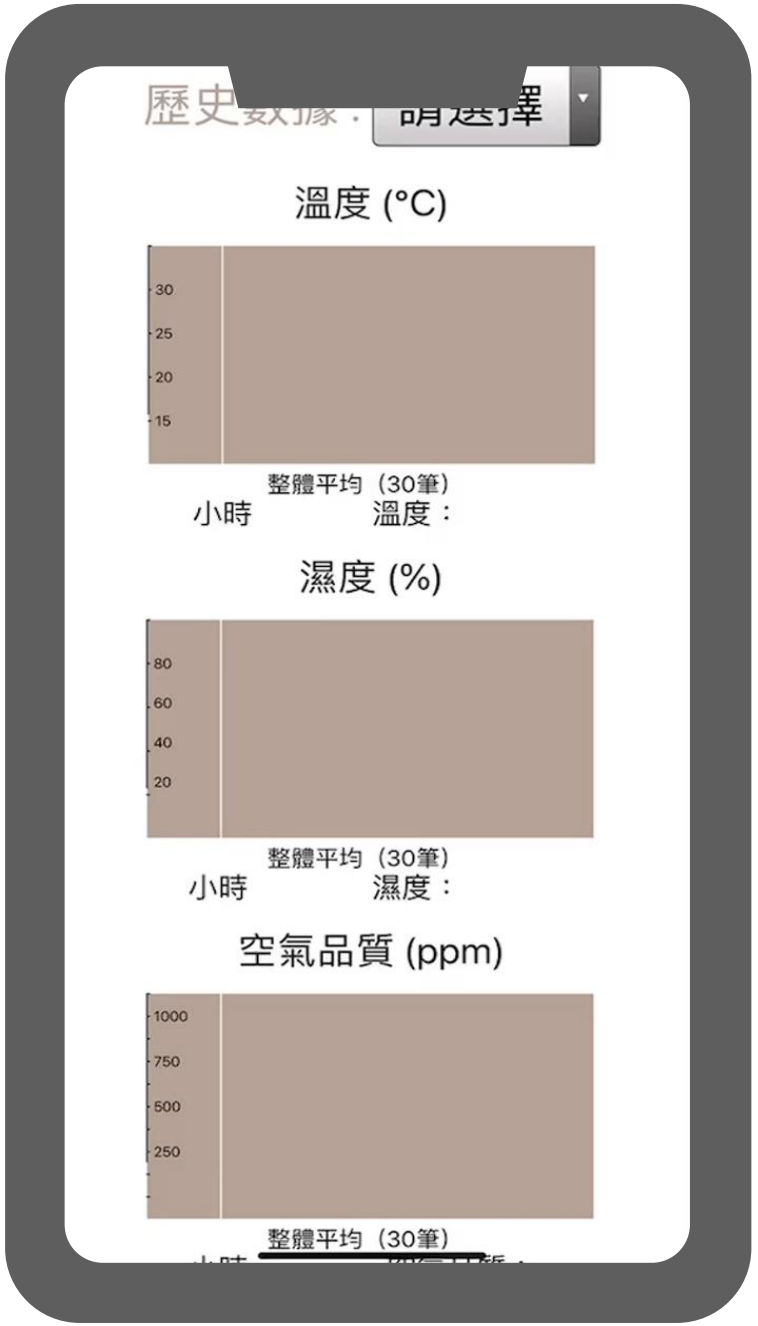
Phone

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

WEB User Interfa

Phone

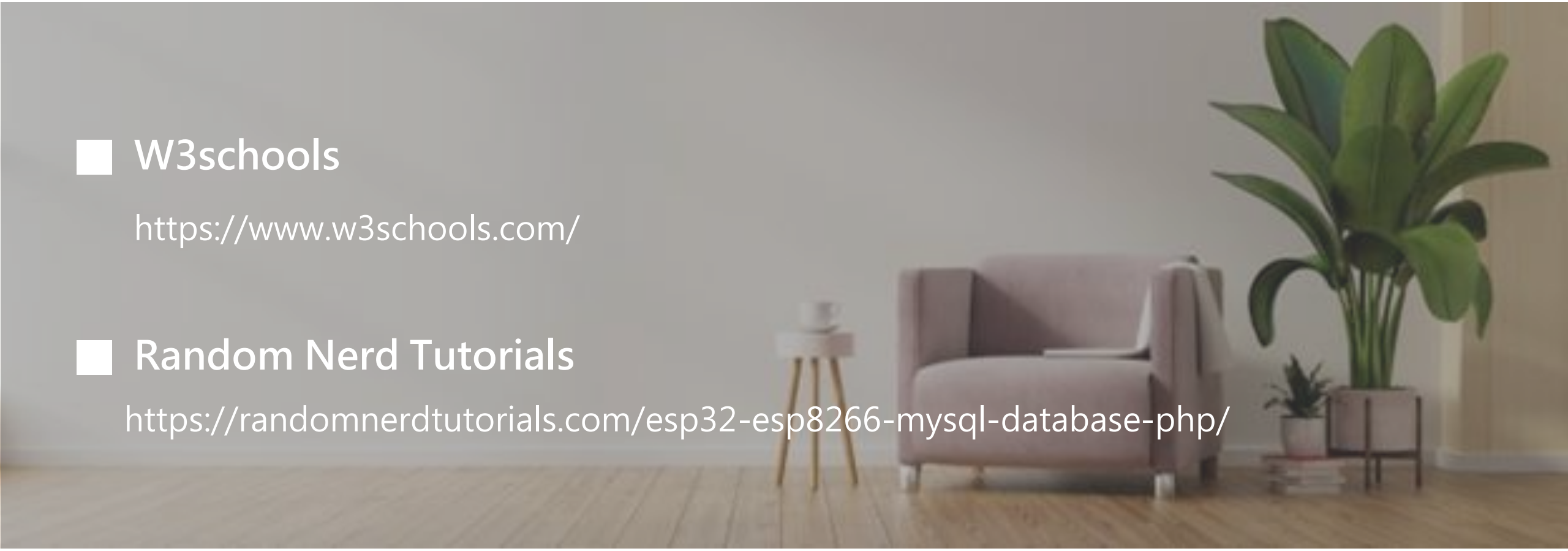
- History Values
- Drop-down Menu



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.