**Keep both Raspberry Pi 4B and generic ESP8266 on same network. It is better to use Mobile Hotspot as Wi-FI mediator for both**

1. The fastapisever.py must be run firstly
2. Run the esp8266ollama.ino code next

Server <--------------🡪 Mobile Hotspot 🡨---------🡪Esp8266 client

Run ipconfig (windows), ifconfig(linux) to know about the IP address of Server. Check the **IPv4 Address**.

Client sends a prompt to Server (ollama API) on fastapi

Server (ollama API) on fastapi responds json object back to Client

Server 🡨--------------Client (esp8266)

Server -------------🡪Client (esp8266)

Server 🡨--------------Client (esp32)

Server -------------🡪Client (esp32)

Server 🡨--------------Client (mkr1000)

Server -------------🡪Client (mkr1000)

Run same version codes together as we updated the version of both the systems

esp\_fastapiserver.py <----------->esp8266ollama

<----------->esp32ollama

<----------->mkr1000ollama

curl -X POST http://127.0.0.1:5000/generate -H "Content-Type: application/json" -d '{"prompt": "Why is the sky blue?"}'

**Experiment Procedure**

Test Prompts

|  |  |  |
| --- | --- | --- |
| **Prompt Category** | **Test Prompts** | **Prompt ID** |
| Factual Question | What is the capital of Italy? | 1 |
| Who discovered gravity? | 2 |
| In which year did World War II end? | 3 |
| Binary Response | Is the Earth round? | 4 |
| Can penguins fly? | 5 |
| Is water liquid? | 6 |
| Simple Arithmetic | What is 9 plus 1? | 7 |
| What is half of 16? | 8 |
| What is 7 minus 4? | 9 |
| Definition | Define a cell. | 10 |
| Define a poem. | 11 |
| Define a computer. | 12 |
| Sentence Completion | The Sun rises in the... | 13 |
| Necessity is the mother of… | 14 |
| Practice makes... | 15 |
| Instruction | How to cook rice? | 16 |
| How to write a story? | 17 |
| How to draw a picture? | 18 |

Conduct tests using all 18 prompts in sequential manner by changing the **BAUD RATE** (9600, 57600, 115200) of the Module. Record the results into one excel sheet.

**Below are Test Codes for this study**

* esp8266ollama\_test.ino
* esp32ollama\_test.ino
* mkr1000ollama\_test.ino

Change the LLM (qwen2:0.5b) for each baud rate for above.