

A Report on

**CONNECTING ESP 8266 WITH STM 32 :
CREATING A WEB SERVER**

for

Mini Project 2A (REV- 2019 ‘C’ Scheme) of Third Year, (TE Sem-V)

in

Electronics & Telecommunication Engineering

by

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Atharva college of engineering

CERTIFICATE

This is to certify that the project entitled **CONNECTING ESP 8266 WITH STM 32: CREATING A WEB SERVER** is a bonafide work of

- 1) VIDYUT KADAM
- 2) SHIVANG PATIL
- 3) CHINMAY DEORUKHKAR
- 4) HARIDAS DODE

submitted to the University of Mumbai in partial fulfillment of the requirement for the award of **Mini Project 2A (REV- 2019 'C' Scheme) of Third Year, (TE Sem-V)** in **Electronics & Telecommunication Engineering** as laid down by **University of Mumbai** during academic year **2021-22**

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Examiner/Reviewer-1

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Examiner/ Reviewer –



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Guide	Name of Guide -Jyoti Gurav Head of Department	Principal
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REFERENCES		

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References

For Books:-

Name of Author, "Title of Book", Name of Publisher, Vol. No., Year of Publication,
Page no.

Example:

Singiresu Rao, "The FEM in Engineering", BH Publication, 3rd Edition, 1998, PP-
22-30.

General Instructions

- 1** Text should be printed on front and correct side of the watermark on quality bond paper

Paper size- A4, 70 to 85 gsm paper

Margins: Top-1", Bottom-1", Left -1.5", Right- 1"

- 2** **Font:** Times New Roman

▪ Font Size For Chapter heading -14(Bold upper case)

▪ Font Size For main titles -12(Bold upper case)

▪ Font Size For Subtitles -12(Bold Title case)

▪ Font Size For Text Matter -12

▪ Line Spacing -1.5 Lines

▪ **Figure/Photo/Graph Caption:** Figure/Photo/Graph should be Central align to page. Figure/Photo/Graph caption should be below the Figure/Photo/Graph, left align to Figure/Photo/Graph in Title case, 10 TNR, Bold.



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- **Table Caption:** Table should be Central align to page. Table caption should be above the Table, center align to Table in Title case, 10 TNR, Bold.
- Figure/Table/Photo/Graph Should Be Numbered Chapter Wise As Fig 1.1, 1.2, 2.1
- **Text:** Main Title No's should be 1.1, 1.2 etc for chapter no 1, 2.1 2.2 for chapter 2 etc. Subtitle 1.1.1, 1.1.2 etc.
- Reference of Figure Should Be Given In Text Matter
- Total Number of Typed Pages Shall be minimum 40

3. **Students are supposed to encouraged for participation in inter and intra college level, University level and National level project competitions and demonstration.**

INTRODUCTION

If you think about future technologies then the two names, which immediately comes in your mind, are Artificial Intelligence (AI) and Internet of Things (IoT). AI is still in its initial stage and there is lot more to be developed. But IoT is in Growth stage and lot of IoT based products are already there in the market. Also there are many tools and hardware available in the market to make your product talking with ‘things’ in the internet. Among them **ESP8266** is the most popular, cheap and easy-to-use module, which can connect your hardware to the Internet.

We have developed lot of IoT Projects using ESP8266, which not only includes basic interfacing with other microcontrollers like Arduino, PIC, AVR but also includes many intelligent projects like IOT based Air Pollution Monitoring, Vehicle Tracking on Google Maps, IOT based Voice Controlled Home Automation etc. Today in this tutorial, we use ESP8266 to connect STM32F103C8 to the internet. Here we will interface **ESP8266 Wi-Fi module with our Blue Pill STM32F103C8 board** and send the data to a webpage hosted on ESP8266 webserver.

COMPARATIVE STUDY



We haven't done similar kind of projects in the past . this is our first project and we have completed it successfully .

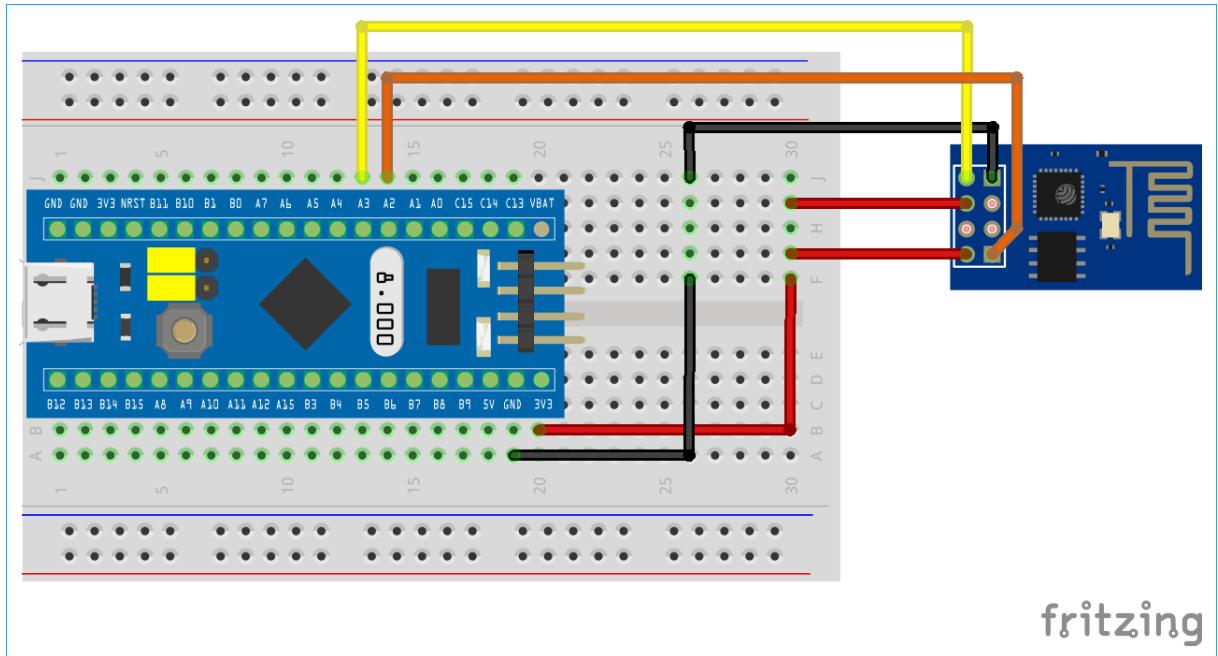
PROBLEM STATEMENT

To Create a Webserver using Stm32 as a microcontroller and host a website using ESP8266 wifi module.

CIRCUIT DIAGRAM




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Refer below table to connect ESP8266 pins with STM32 pins:

ESP8266	STM32
<i>VCC</i>	<i>3.3V</i>
<i>GND</i>	<i>G</i>
<i>CH_PD</i>	<i>3.3V</i>
<i>TX</i>	<i>PA3</i>
<i>RX</i>	<i>PA2</i>

SMT32F103C8 has three sets of UART serial communication. In the below image you can see the following pins for the same:

Serial	Port Pins	Tolerant
<i>Serial1 (TX1,RX1)</i>	<i>PA9,PA10 PB6,PB7</i>	<i>5V</i>
<i>Serial2 (TX2,RX2)</i>	<i>PA2,PA3</i>	<i>3.3V</i>
<i>Serial3 (TX3,RX3)</i>	<i>PB10,PB11</i>	<i>5V</i>



SOFTWARE SIMULATION ON PROTEUS.

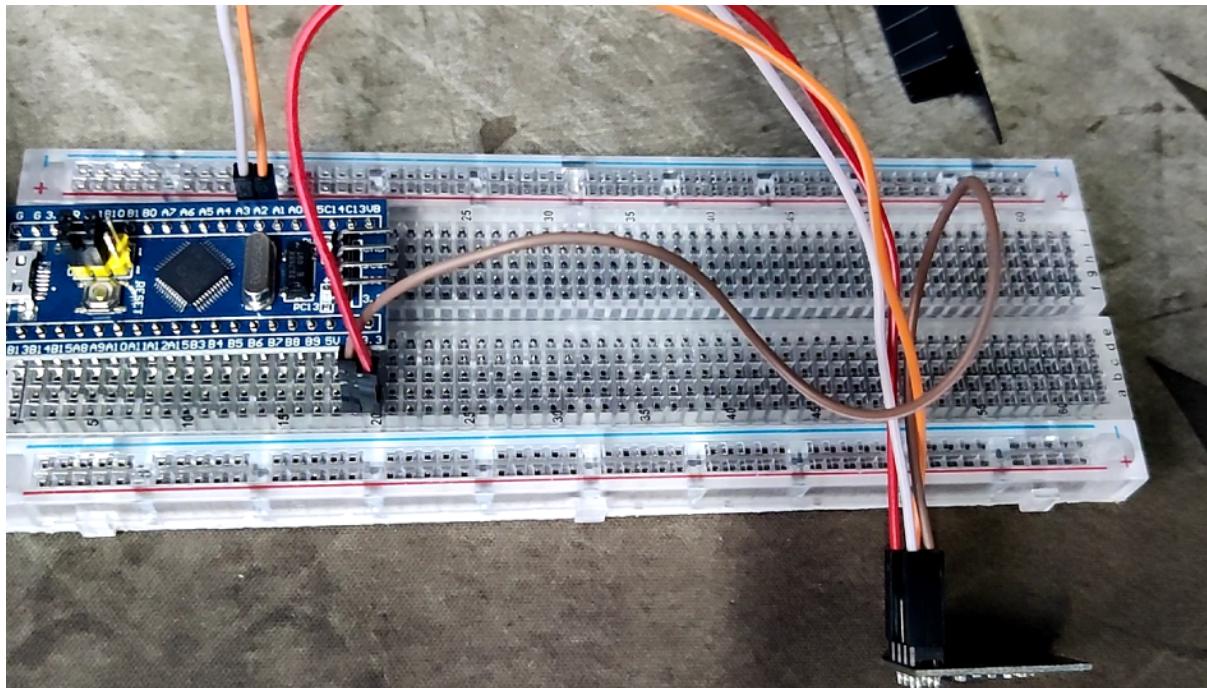
Software Simulation isn't possible as there is no library of ESP8266 wifi module.

Research was done with simulation of 8266 running on proteus with nodemcu but failed to obtain proper result.Hence no software simulation is possible.

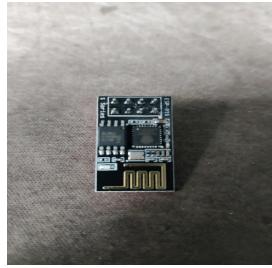


Rajeev
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HARDWARE



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COMPONENTS

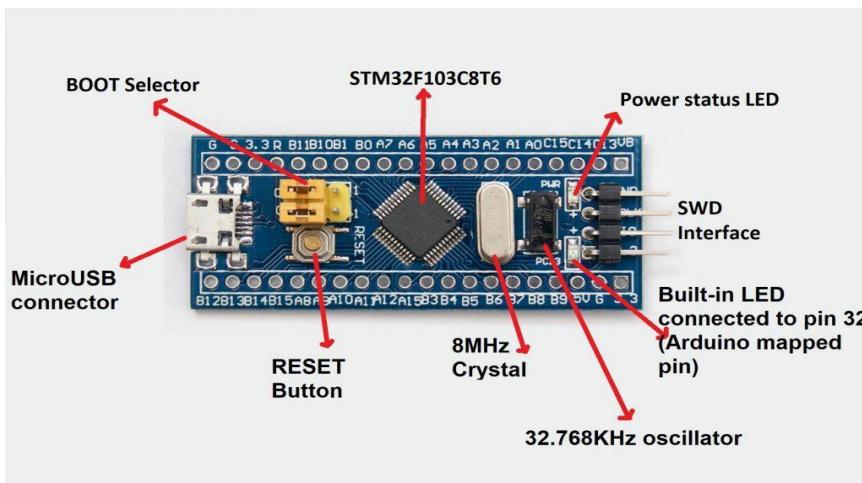
1. Blue Pill STM32F103C8 board
2. ESP8266 Wi-Fi module
3. Laptop & Wi-Fi hotspot
4. Solderless Breadboard 830 Tie Points
MB102 -AA071
5. Jumper Cables.



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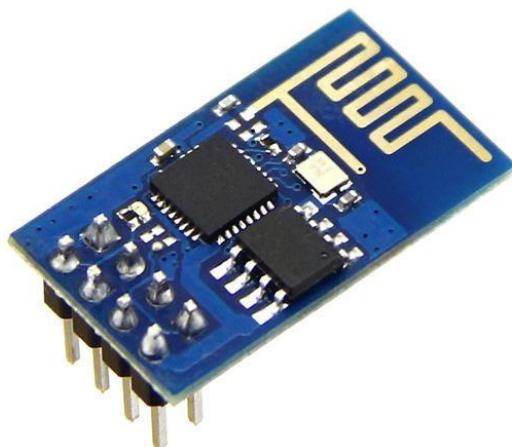
1) Blue Pill STM32F103C8 board :

Unlike, the famous Arduino UNO board, the Blue Pill is a high-performance ARM Cortex-M3 32-bit microcontroller development board that works at a maximum operating frequency of **72MHz**. ... It has more input/output pins, 12-bit ADCs, more external interrupt pins, higher PWM speed, and many more features



2) ESP8266 Wi-Fi module :

The ESP8266 WiFi Module is a **self contained SOC with integrated TCP/IP protocol stack** that can give any microcontroller access to your WiFi network. The ESP8266 is capable of either hosting an application or offloading all WiFi networking functions from another application processor.

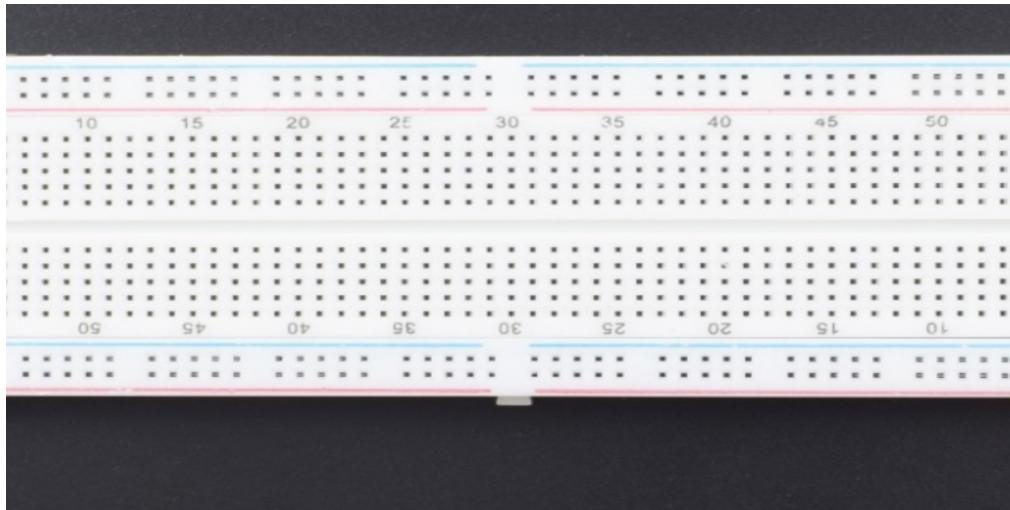


3) Laptop & Wi-Fi hotspot :





4) Solderless Breadboard 830 Tie Points MB102 -AA071 :



Software Used: Proteus, Fritzing, Powerpoint,
Arduino IDE.

APPLICATIONS

1. Webserver(Host can forward to other webpages).
2. Portable can be used with power bank and on the go.
3. Building and publishing webpages.
4. Static web applications.



FUTURE SCOPE

- 1.Can create own webserver and host it by yourself.**
- 2.Gain better knowledge for building better webserver.**

REFERENCES

1.Fritzing

Basics-https://www.google.com/url?sa=t&rct=j&q=&esrc=s&source=web&cd=&cad=rja&uact=8&ved=2ahUKEwjS5p-9x9TzAhX67nMBHb7sAsMOwqsBegOIAhAB&url=https%3A%2F%2Fwww.youtube.com%2Fwatch%3Fv%3D-saXw1EipX0&usg=AOvVaw3mbHVgmBxiwgof_puhe4aw

2.Webserver

information-<https://www.google.com/url?sa=t&rct=j&q=&esrc=s&source=web&cd=&cad=rja&uact=8&ved=2ahUKEwjs6qrXx9TzAhWzmOYKHYw3BGYQFnECAUQAw&url=https%3A%2F%2Feconomicstimes.indiatimes.com%2Fdefinition%2Fweb-server&usg=AOvVaw1iAPsOfd3b4-6nbS8exgww>

3.Circuit Information-

<https://docs.idew.org/code-internet-of-things/tutorials/meet-your-iot-kit/1.3-electronic-circuits>




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