

# **Thesis / Project Title**

*A Thesis / Project Submitted in Partial Fulfillment of the Requirements for the  
Degree of  
Bachelor in Computer Science & Engineering*

*by*

**Student Name**

Student ID

&

**Student Name**

Student ID

Supervised by: Supervisor Name  
Supervisor Designation



Department of Computer Science and Engineering  
STAMFORD UNIVERSITY BANGLADESH

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# **Abstract**

Abstract text here....

# Approval

The Project Report “Thesis / Project Report Name” submitted by STUDENTNAME ID: STUDENTID, STUDENTNAME ID: STUDENTID, to the Department of Computer Science & Engineering, Stamford University Bangladesh, has been accepted as satisfactory for the partial fulfillment of the requirements for the degree of Bachelor of Science (Hons) in Computer Science & Engineering and approved as to its style and contents.

Board of Examiner’s Name, Signature, and Date:

.....

**(Board Member 1)**

Date:

**(Board Member 2)**

Date:

**(Board Member 3)**

Date:

Supervisor’s Signature and Date:

.....

**Supervisor Name**

Date:

# Declaration

We, hereby, declare that the work presented in this Thesis / Project is the outcome of the investigation performed by us under the supervision of Supervisor Name, Supervisor Designation, Department of Computer Science & Engineering, Stamford University Bangladesh. We also declare that no part of this Project and thereof has been or is being submitted elsewhere for the award of any degree or Diploma.

Signature and Date:

.....

**Student Name**

Date:

.....

**Student Name**

Date:

Dedicated to ...

# Acknowledgments

Acknowledgement text here...

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# 1 Introduction

Introduction text here...

## **1.1 Motivation**

Motivation text here...

## **1.2 Sensors**

1. ESP8266 12E wi-fi/Node MCU
2. 4/8/16 channel Relay Board
3. USB TTL Serial Adapter
4. PIR Motion sensors

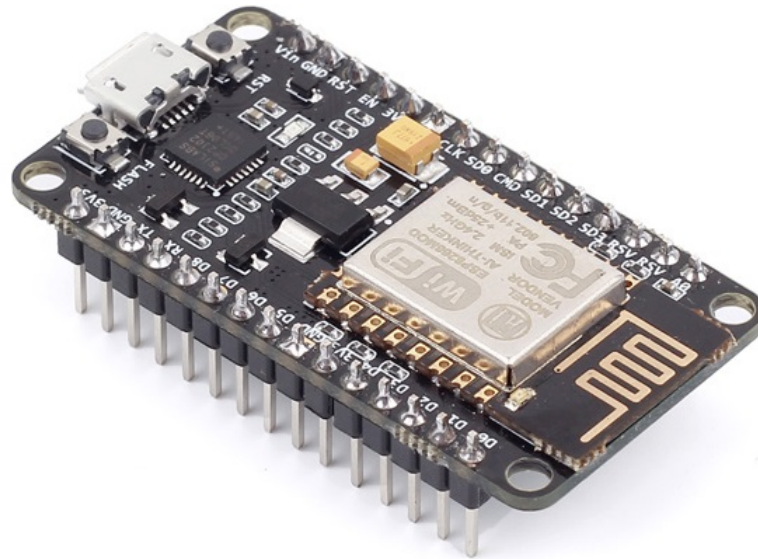
### *1.2.1 Thermostats and HVAC controls*

Common thermostats and HVAC controls are:

- Humidity sensing and control
- Temperature sensors and controllers
- Weather stations and sensors

### 1.2.2 Example Figure

An example figure insertion is presented in Figure 1.1.



**Figure 1.1: NodeMCU Microcontroller**

### 1.2.3 Example Referencing

An example of inserting references in latex [1] [2].

## 1.3 Chapter Summary

In this chapter, .....

## 2 Literature Review

Chapter introductory text here ...

### 2.1 Background Study

Refer all background study like here [3]. Few more references inserted here [4] [5]. Web sites can also be put as reference like here [6].

#### 2.1.1 Android-based Home Automation

An example of Android-based home automation system [7] is presented in Figure 2.1.



**Figure 2.1: Android-based home automation system**

### 2.2 Chapter Summary

In this chapter, ....

# 3 System Design

Chapter introductory text here ...

## 3.0.1 Pin Definition

In the Figure 3.1, the pin definition of NodeMCU [8] is shown and in the Table 3.1 a detailed pin description is given.

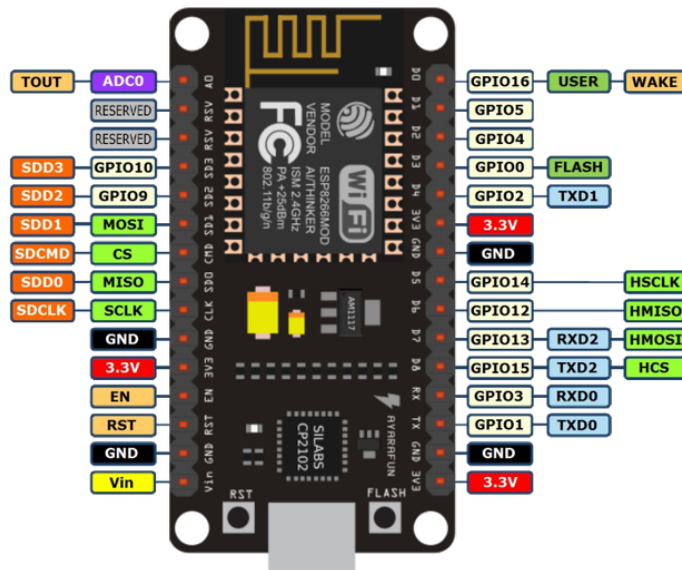


Figure 3.1: Pin Definition of NodeMCU

## 3.1 Parameter

The NodeMCU parameters are listed in Table 3.2.

**Table 3.1: Pin Description of NodeMCU**

Pin	Name	Type	Function
1	VDDA	P	Analog Power 3.02 ~ 3.6 V
2	LNA	I/O	RF Antenna Interface. Chip Output Impedance=50Ω No matching required but we recommend that the $\pi$ -type matching network is retained.
3	VDD3P3	P	Analog Power 3.02 ~ 3.6 V
4	VDD3P3	P	Analog Power 3.02 ~ 3.6 V
5	VDD3P3	P	Analog Power 3.02 ~ 3.6 V
6	...	...	...

**Table 3.2: Parameters of NodeMCU**

Categories	Items	Values
Wi-Fi Parameters	certificates	FCC/CE/TELEC/SRRC
	WiFi Protocols	802.11 b/g/n
	Frequency Range	2.4G-2.5G (2400M-2483.5M)
	TX Power	802.11 b: +20 dBm
		802.11 g: +17 dBm
		802.11 n: +14 dBm
	RX Sensitivity	802.11 b: -91 dbm (11 Mbps)
802.11 g: -75 dbm (54 Mbps)		
802.11 n: -72 dbm (MCS7)		
Types of Antenna	PCB Trace, External, IPEX Connector, Ceramic Chip	
Hardware Parameters	TX Power	UART/SDIO/SPI/I2C/ I2S/IR Remote Control
		GPIO/PWM
	Operating Voltage	3.0 3.6V
	Operating Current	Average value: 80mA
	Operating Temperature Range	-40 125
	Ambient Temperature Range	Normal temperature
	Package Size	5x5mm
	External Interface	N/A

### **3.2 Chapter Summary**

In this chapter, ...



# 4 Implementation

Chapter introductory text here ...

## 4.1 Implementation

...

### 4.1.1 Configuration Code

Sample configuration code is presented in

**Listing 4.1: NodeMCU Configuration Code**

```
1 #define BLYNK_PRINT Serial
2 #include <ESP8266WiFi.h>
3 #include <BlynkSimpleEsp8266.h>
4
5 char auth [] = "YourAuthToken";
6
7 char ssid [] = "YourNetworkName";
8 char pass [] = "YourPassword";
9 void setup ()
10 {
11   Serial.begin(115200);
12   Blynk.begin(auth, ssid, pass);
13 }
14 void loop ()
15 { Blynk.run(); }
```

## **4.2 Chapter Summary**

In this chapter, ...

# 5 Conclusion

Conclusion text here ...

## *5.1 Limitations*

...

## *5.2 Future Works*

...

# References

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