

# Thesis/Project Title

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

*by*

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March 2017

# Abstract

Abstract text here...

# Approval

The project report “Thesis/Project Report name” submitted by STUDENTNAME ID: STUDENT\_ID, STUDENTNAME ID: STUDENT\_ID, to the Department of Computer Science & Engineering, has been accepted as satisfactory for the partial fulfillment of the requirements for the degree of Bachelor of Science (B.Sc.) in Computer Science & Engineering and as to its style and contents.

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# 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.

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Dedicated to...

# Acknowledgements

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

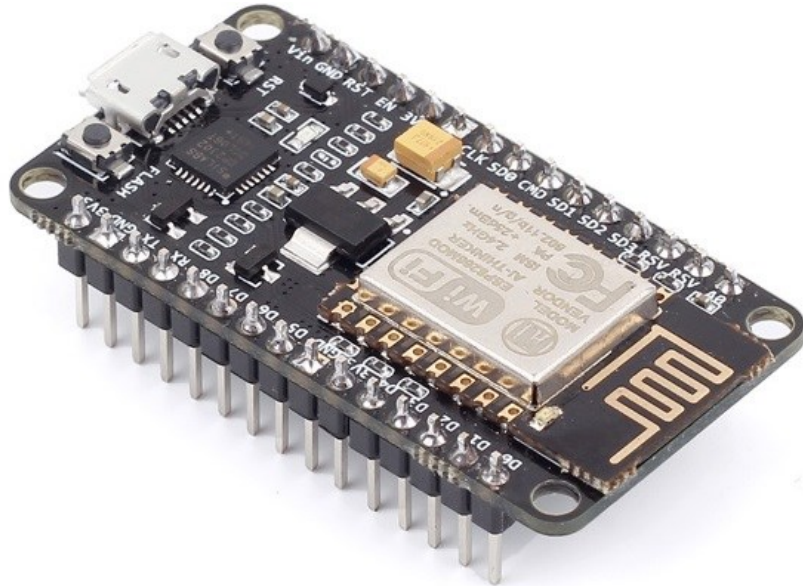
### *1.2.1 Thermostats and HVAC controls*

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 word [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 ...

### 3.1.1 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.

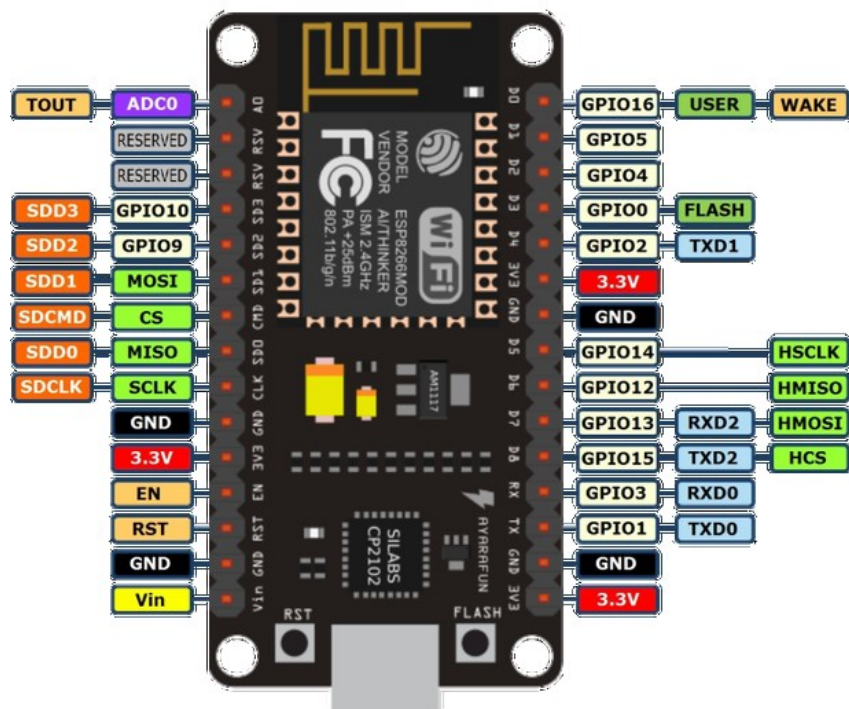


Figure 3.1: Pin Definition of NodeMCU

### 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	RF Antenna Interface. Chip Output Impedance=50Ω No matching required but we recommend that the $\pi$ -type matching network is retained.
2	LNA	I/O	Analog Power 3.02 ~ 3.6 V
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
		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

```
#define BLYNK_PRINT Serial
#include <ESP8266WiFi.h>
#include <BlynkSimpleEsp8266.h>

char auth[] = "YourAuthToken";

char ssid[] = "YourNetworkName";
char pass[] = "YourPassword";
void setup()
{
  Serial.begin(115200);
  Blynk.begin(auth, ssid, pass);
}
void loop()
{ Blynk.run(); }
```



## ***4.2 Chapter Summary***

In this chapter, ...

# 5 Conclusion

Conclusion text here ...

## 5.1 *Limitations*

...

## 5.2 *Future Work*

...

# References

- [1] D. Pishva, "Internet of Things: Security and privacy issues and possible solution" in *2017 19th International Conference on Advanced Communication Technology (ICACT)*, Feb 2017 pp. 797-808.
- [2] S. Tale, A. Kakad, N. Bhawarkar, D. Patil, and P. Nimat, "Control System for Home Automation based on IoT", *Proceedings of the National Conference on Innovative Trends in Science and Engineering*, ser. NC-ITSE'16, vol. 4, num. 7, 2016, pp. 324-326.
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