

Welcome to

# WiFi Module

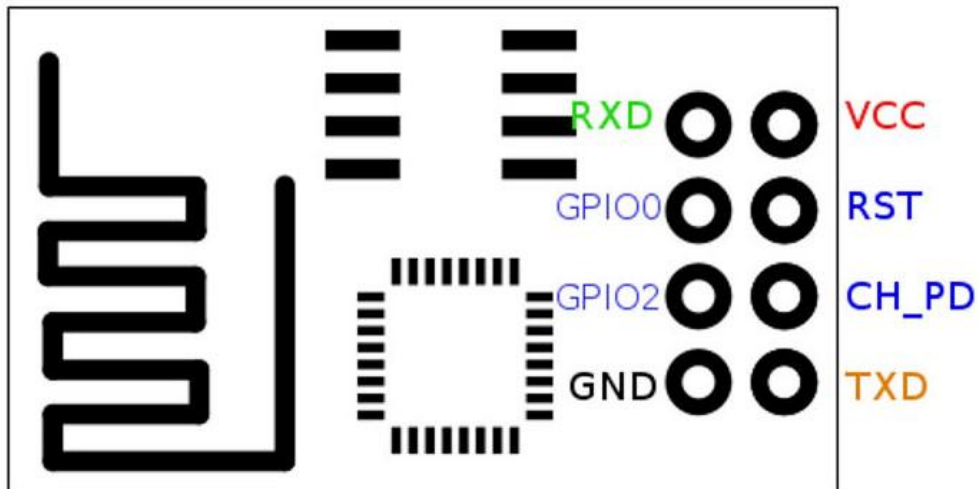
# Outline

- ESP8266
- ESP-01
- Connections
- AT Commands
- ThingSpeak

# ESP8266

- WiFi Module
- 32-bit CPU
- 64 KiB of instruction RAM, 96 KiB of data RAM
- External flash memory - 512 KiB to 4 MiB
- IEEE 802.11 b/g/n Wi-Fi
- WEP or WPA/WPA2 authentication, or open networks
- 16 GPIO pins
- SPI, I<sup>2</sup>C, I<sup>2</sup>S, UART, ADC

# ESP-01



ESP01	Arduino
Vcc	3.3v (supply)
CH_PD	3.3v (supply)
TXD	10
RXD	11
GND	GND
GPIO0	NC
GPIO2	NC
RST	NC

# AT Commands

- Serial Communication
- Text format
- Start with AT
- Example : AT – AT+RST – AT+CWLAP=
- Response : OK

# Modes of ESP

- AT+CWMODE=1,2,3
  1. Client
  2. Server
  3. Both

# Connect to WiFi

- SSID
- Password
- AT command :  
AT+CWJAP="AUB Robotics Club","AUBRoboticsClub"

# Thingspeak

- Online Service
- “The open data platform for the Internet of Things”
- Free for personal use
- Data in graphs



# TCP Connection

- Communication with server
- Port 80
- AT command:

AT + CIPSTART = "TCP","IP",80

# Sending

- AT+CIPSEND= Length

- Get Request:

```
String GET = "GET /update?key=[API KEY]";
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# LM35

- Analog temperature sensor

