Contents

***Abstract*—This manual shows how to program an ESP8266 board using Arduinos and Raspberry Pi. The procedure is the same for any Linux machine.**

1 Components

The necessary components for this manual are listed in Table I.

Component	Quantity
ESP8266	1
Raspberry Pi 4	1
Arduino Uno	1
Female-Female Jumper Wires	9
Resistor(1000Ω)	1
LED	1
Breadboard	1
Solid State Relay	1

TABLE I

2 Software Setup

Download the 32-bit arm version from the below link

```
https://www.arduino.cc/en/main/software
```

2.1 Installing Arduino

Open a terminal and execute the following commands

```
cp ~/Downloads/arduino-x.x.x-tar.xz ~/
tar xf arduino-x.x.x-tar.xz
cd arduino-x.x.x
sudo ./install.sh
```

2.2 Installation ESP8266 instructions using Arduino IDE Boards Manager

Start Arduino and open Preferences window. Enter the below link into Additional Board Manager URLs field

```
http://arduino.esp8266.com/stable/
    package_esp8266com_index.json
```

```
#Open Boards Manager from Tools
#Install ESP8266 platform
#Select Generic ESP8266 Module board from
    tools
```

3 Hardware Setup

3.1 Fan Controlling through ESP8266

Connect the Arduino to a USB port of the Raspberry Pi. The hardware connections between the Arduino and ESP8266 are available in Table II. See Fig.1 as well as Fig.2 and Fig.3 for Pin configurations

1) Make the connections according to TABLE II
2) Connect arduino RESET pin to GND
3) Connect One of the AC terminal to fan and another terminal to Power socket
4) Connect another fan terminal to power socket
5) Enter your wifi SSID and password in below code
6) Execute the below code for FAN Control

ESP8266	Arduino
GND	GND
Tx	Tx
GPIO 0	Relay DC +ve
Relay DC -ve	GND
CH EN	VCC
RESET	GND
Rx	Rx
VCC	3.3V

TABLE II: ESP8266-Arduino connections

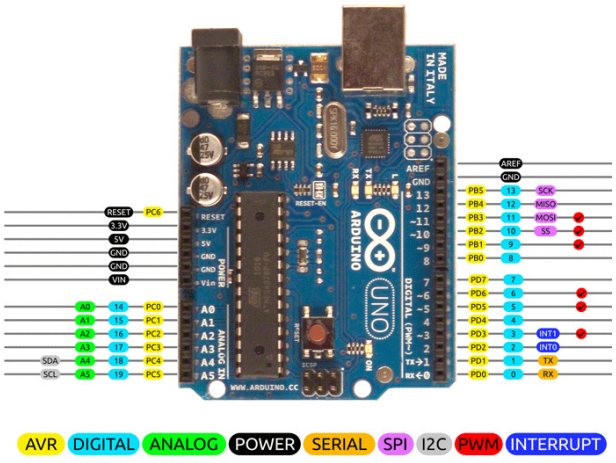

Fig. 1: Arduino Pin Configuration

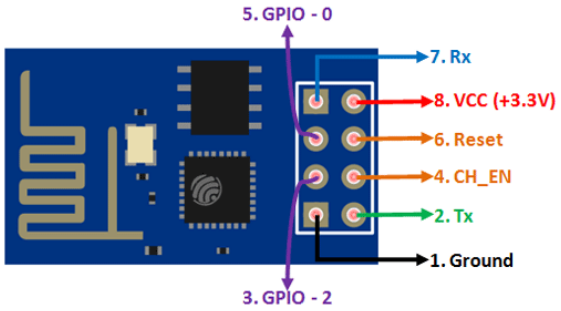

Fig. 2: ESP8266 Pin Configuration

https://github.com/d-DP/ESP8266/blob/master/codes/WiFi_Blink/blink1/

blink1.ino

7) Open the serial monitor to get IP address and enter that IP address in browser

Fig. 3: ESP8266 Pin Configuration