FOREX RATE TRACKER

Instant Useful Results

INTRODUCTION

Forex is short for Foreign-Exchange, meaning the values of international currencies with respect to each other. These values keep changing by the second, based on economical, social and political factors. This is a great area to trade in, especially if you have a knack for numbers and statistics.

For the people out there that are interested in Foreign Exchange, knowing the real-time values of these currencies is of utmost importance, because it helps them decide when to buy, sell and hold.

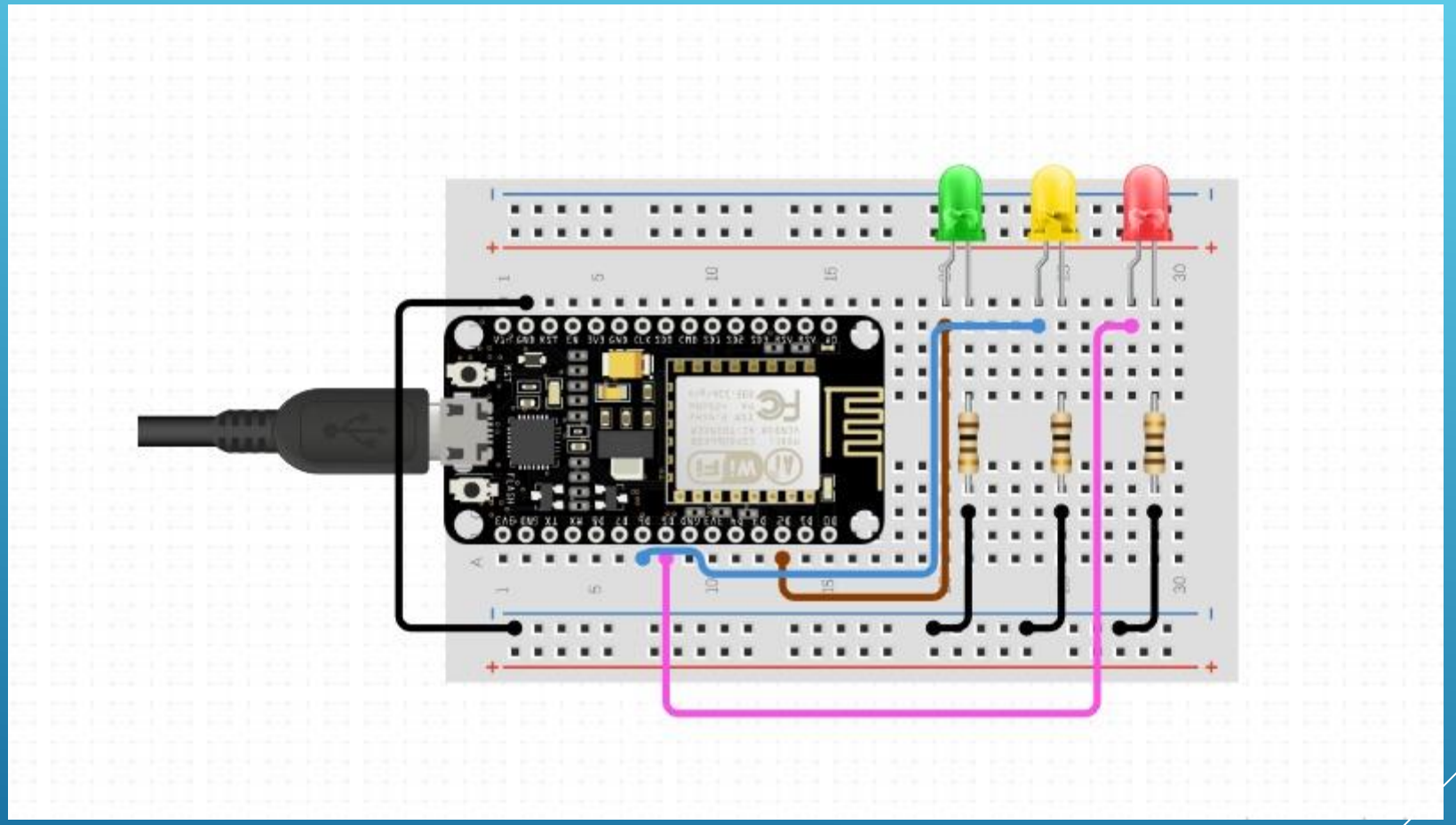
OBJECTIVE

This project demonstrates an advanced implementation using the ESP8266. The ESP8266 connects to the internet via Wi-Fi and grabs the Forex Rates every 10 seconds. Based on the movement of this value, it sends a UART message to the Arduino Uno (Rise / Fall / Unchanged) The NodeMCU receives this UART message and accordingly lights up an indication LED (Green / Red / Yellow).

STOCK MARKET IDEOLOGY

The stock market refers to the collection of markets and exchanges where regular activities of buying, selling, and issuance of shares of publicly-held companies take place. As a primary market, the stock market allows companies to issue and sell their shares to the common public for the first time through the process of initial public offerings.
If more people want to buy a stock (demand) than sell it (supply), then the price moves up. Conversely, if more people wanted to sell a stock than buy it, there would be greater supply than demand, and the price would fall.

Circuit Diagram

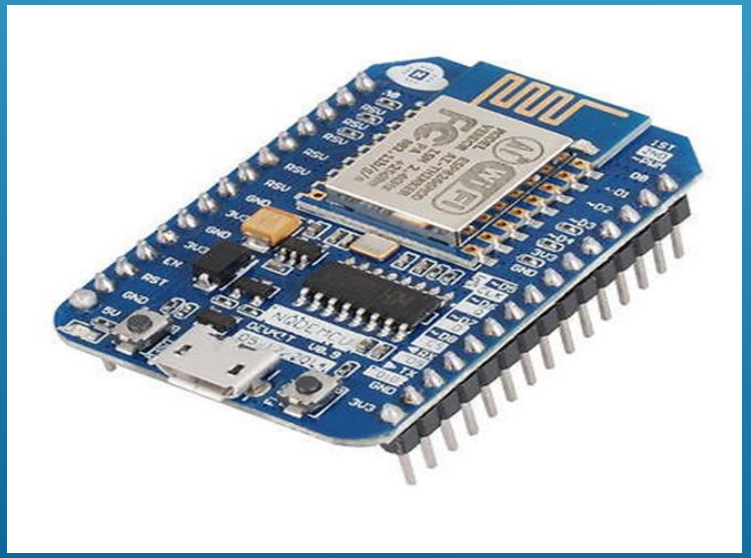


COMPONENTS REQUIRED

- ESP8266-NODEMCU

NodeMCU is an open source LUA based firmware developed for ESP8266 WIFI chip. By exploring functionality with ESP8266 chip, NodeMCU firmware comes with ESP8266 Development board which is the NodeMCU Development board.

1. It connects to a defined Wi-Fi network
2. It makes an HTTP GET request to an online Forex Rates Server
3. It receives the response from the Server



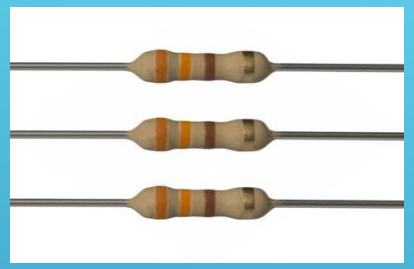
CHIP SPECIFICATIONS

- CPU: 80Mhz
- RAM:64KB INSTRUCTION + 96 KB DATA
- ROM:412KB TO 4MB

ESP8266-04 Wirings

Esp8266	CH340CG - USB	Power Supply
RX	TX	
TX	RX	
VCC		+3.3v
GND	**GND**	**GND**
GPIO15		**GND**
CH_PD		+3.3v
GPIO0 (only for flashing)		**GND**

- Resistors (330 Ohm each)



- 3 LEDs

- Jumper Wires

Software Requirements

- Arduino IDE:

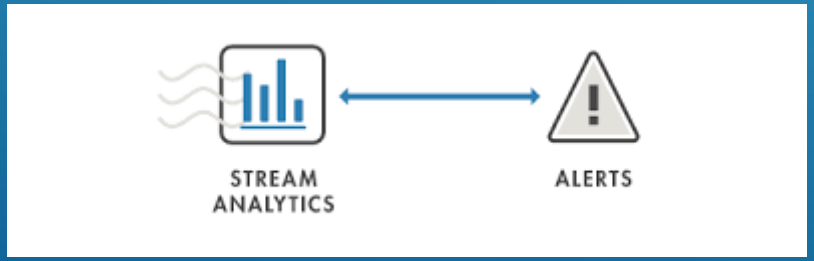
The Arduino Integrated Development Environment (IDE) is the main text editing program used for Arduino programming written in functions from C and C++. It is where you'll be typing up your code before uploading it to the board you want to program. Essentially, the IDE translates and compiles your sketches into code that Arduino can understand .It is used to write and upload programs to Arduino compatible boards. It contains two main parts: setup () and loop ().

- Blynk:

Blynk was designed for the Internet of Things. It can control hardware remotely, it can display sensor data, it can store data, visualize it.

- Thingspeak:

an open-source Internet of Things (IoT) application and API to store and retrieve data from things using the HTTP and MQTT protocol over the Internet or via a Local Area Network used to filter the website and send only the required data over the network as output.



WORKING

Make the Connections as shown in circuit diagram

Both the modules are programmed. Now we make the connections between the NodeMCU pins to the LEDs. Insert the NodeMCU, LEDs and Resistors on the Breadboard using the circuit diagram. Use the jumper wires to make the connections on the breadboard and the Modules.

Make sure you have a working internet connection on your Wi-Fi before starting. Once it is hooked up, remove the USB connected to the NodeMCU to the PC over USB. This will power up the system, and it will start working. We are going to track data from https://www.fxempire.com/. Using this setup we will be tracking only the changes in the stock with the use of visual aid from the LEDs.

Green LED - Rise in Forex Rate
Yellow LED - No change in Forex Rate
Red LED - Fall in Forex Rate