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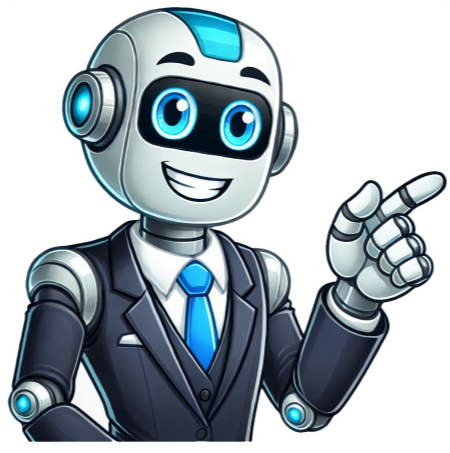
























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It includes user input buttons and status LEDs, with potential MIDI interface capabilities.Open Project in Cirkit DesignerWi-Fi Controlled RGB LED Strip with Battery Management SystemThis circuit features a Wemos D1 Mini microcontroller powered by a 18650 Li-ion battery through a TP4056 charging module, with power control managed by a rocker switch. The Wemos D1 Mini controls a WS2812 RGB LED strip, with the data line connected to the D4 pin and power lines controlled by the switch. Multiple pushbuttons are connected to the D0 pin through a resistor, likely for user input to control the LED strip or other functions in the microcontroller's code.Open Project in Cirkit DesignerWemos D1 Mini Based Environmental Monitoring System with Solar ChargingThis circuit features a Wemos D1 Mini microcontroller interfaced with a pushbutton, a voltage sensor, an AHT21 temperature and humidity sensor, and an L298N motor driver controlling a linear actuator. The Wemos D1 Mini is powered by a 5V supply from an XL4015 DC-DC buck converter, which steps down the voltage from a 12V AGM battery charged by a solar panel through an MPPT charge controller. The microcontroller reads the voltage sensor data and controls the actuator based on programmed logic, while the pushbutton provides user input and the AHT21 sensor monitors environmental conditions.Open Project in Cirkit DesignerWemos D1 Mini Based Soil Moisture and Temperature Monitoring SystemThis circuit features a Wemos D1 Mini microcontroller connected to an AHT10 temperature and humidity sensor and a capacitive soil moisture sensor. The AHT10 communicates with the Wemos D1 Mini via I2C (with SDA connected to D2 and SCL to D1), while the soil moisture sensor's analog output is connected to the A0 pin of the Wemos D1 Mini. Both sensors and the microcontroller share a common power supply, with the 3V3 pin of the Wemos D1 Mini providing power to the sensors.Open Project in Cirkit Designer Microcontroller: ESP8266 Operating Voltage: 3.3V Digital I/O Pins: 11 Analog Input Pins: 1 (Max input: 3.2V) Clock Speed: 80/160MHz Flash Memory: 4MB Integrated Wi-Fi: 802.11 b/g/n USB-to-Serial Converter: CH340G Pin Function Description D0 GPIO16 General-purpose I/O, can be used for deep sleep wake-up D1 GPIO5 General-purpose I/O, often used for I2C SCL D2 GPIO4 General-purpose I/O, often used for I2C SDA D3 GPIO0 General-purpose I/O, pulled up, connected to FLASH button D4 GPIO2 General-purpose I/O, pulled up, built-in LED D5 GPIO14 General-purpose I/O, SPI SCK D6 GPIO12 General-purpose I/O, SPI MISO D7 GPIO13 General-purpose I/O, SPI MOSI D8 GPIO15 General-purpose I/O, SPI SS, pulled to GND RX GPIO3 RX pin, used for serial communication TX GPIO1 TX pin, used for serial communication A0 ADC0 Analog input, max 3.2V input RST RESET Reset pin, pull low to reset the device 3V3 3.3V power supply 5V 5V power supply (USB or external) GND Ground Install the USB Driver: Download and install the CH340G driver to enable USB-to-serial communication. Arduino IDE Configuration: In the Arduino IDE, go to File > Preferences and add the following URL to the "Additional Boards Manager URLs": Install the ESP8266 Board Package: Go to Tools > Board > Boards Manager, search for "ESP8266", and install the package. Select the Board: Choose "LOLIN(WEMOS) D1 R2 & mini" from Tools > Board menu. Select the Port: Select the COM port that the Wemos D1 Mini is connected to from Tools > Port. void setup() { pinMode(LED\_BUILTIN, OUTPUT); } void loop() { digitalWrite(LED\_BUILTIN, LOW); delay(1000); digitalWrite(LED\_BUILTIN, HIGH); delay(1000); } Power Supply: Ensure that the power supply is stable and within the recommended voltage range. I/O Pins: Do not exceed the maximum current rating for the I/O pins (12mA per pin). Analog Input: The maximum voltage for the A0 pin is 3.2V. Exceeding this voltage can damage the board. Firmware Flashing: When flashing new firmware, ensure that the correct settings are used to prevent bricking the device. Board Not Recognized: Ensure that the CH340G USB driver is installed and the USB cable is functioning. Cannot Upload Sketch: Check the board and port settings in the Arduino IDE. Make sure the correct board is selected and the COM port is the one assigned to the Wemos D1 Mini. Wi-Fi Connection Issues: Verify the Wi-Fi credentials and signal strength. Ensure the board is within range of the Wi-Fi router. Q: Can I power the Wemos D1 Mini with 5V? A: Yes, you can power the board through the 5V pin or the USB port. Q: How do I put the Wemos D1 Mini into deep sleep mode? A: You can use the ESP.deepSleep(microseconds) function in your code. Connect D0 to RST to wake up the board. Q: What is the maximum current the Wemos D1 Mini can supply to external components? A: The board can supply a maximum of 500mA through the 3.3V pin when powered via USB. For further assistance, consult the Wemos D1 Mini community forums or the extensive online resources available for troubleshooting and project ideas. The WEMOS D1 Mini ESP32 Development Board includes the ESP32 SoC, USB-to-Serial (CP2102) IC, and all the necessary passive components, comes ready for plugging into your computer's USB port and loading up custom firmware. The WEMOS D1 Mini ESP32 board offers an inexpensive solution for making internet-connected and bluetooth-controllable devices. Moreover, its small footprint and accompanying wide range of shields make it an ideal solution for quickly prototyping IoT projects in a compact amount of space. Even though the WeMos family of boards was originally developed for the ESP8266, the design of this WEMOS D1 Mini ESP32 allows for using the ESP32 with most of the original shields. This represents a great addition to an already superb ecosystem for developing internet-capable applications (Internet Of Things or IoT). Features PCB-mounted antenna Onboard Micro-USB connector (i.e., USB Micro-B) SoC: ESP32 FCC certified Wi-Fi and Bluetooth module (ESP-WROOM-32 Module) USB-to-Serial: Silicon Labs CP2102 USB to UART Bridge GPIO: 3xUART, 3xSPI, 2xI2S, 18xADC input channels, 2xDAC output channels, 2xI2C, PWM/timer input/output available on every GPIO pin, OpenOCD debug interface, SDIO master/slave (50 MHz), external SPI flash (up to 16MB), and SD-card interface support Size: 39mm x 31mm Voltage Reg. RT9013 500mA LDO Power Input: 3.0-5.5VDC Technical Specifications Analog-to-Digital Converter (ADC) - Up to 16 channels of 12-bit SAR ADC's. The ADC range can be set, in firmware, to either 0-1V, 0-1.4V, 0-2V, or 0-4V - no more weird 0-1V ADC! Digital-to-Analog Converter (DAC) - Two 8-bit DAC's to produce true analog voltages Pulse-Width Modulation (PWM) - Up to 16 channels of PWM-capable pins for dimming LEDs or controlling motors Touch Sensor - 10 GPIOs feature capacitive sensing; make a 10-key buttonpad! UART - Two UART interfaces, one is used to load code serially. They feature flow control, and support IrDA too! I2C, SPI, I2S - There are two I2C and four SPI interfaces to hook up all sorts of sensors and peripherals, plus two I2S interfaces if you want to add sound to your project. Documents and Downloads Package Includes 1x Wemos D1 Mini ESP32 - ESP-WROOM-32 Development Board (Tested and QC-OK) 4x 10-Pin Male to Female Standard headers 2x 8-Pin Male to Female Stackable Headers This development board features, the powerful ESP-WROOM-32 module, with integrated WiFi and Bluetooth functionality (BR/EDR/BLE). The ESP32 is a chip designed with TSMC ultra-low power management technology. This allows you to achieve the best power and performance despite high efficiency. The D1 Mini ESP32 excels in robustness, versatility, and reliability, making it capable of handling all conceivable applications for your next project.Since the quiescent current of the ESP32 chip is less than 5 µA, it is particularly well suited for use with batteries or rechargeable batteries. The ESP32 D1 Mini has a similar pin layout to the conventional D1 Mini ESP8266-12F and is therefore pin compatible with most accessories for it. Battery shields from AZ-Delivery are particularly suitable for this purpose. The proven ESP32-D0WQ06 chip is located in the core of the developed module.This mini board combines the popular form factor of the D1 Mini with the high performance ESP32. This means that you do not have to do without functionality even in the smallest of spaces.Supply Voltage: 3.0 V - 3.6 V (VCC), 3.0V - 5.0V (USB and 5V)Operating Voltage: 3.3V (GPIO pins)Power Consumption:100mA - 240mA (WiFi/Bluetooth RX/TX)10µA - 150µA (Deep Sleep)Peripheral Interfaces: UART, SPI, I2C, LED PWM, Motor PWM, I2S, IR, pulse counter, GPIO, capacitive touch sensor, ADC, DACWiFi - 802.11 b/g/n (802.11n up to 150 Mbps) @2.4 GHz ~ 2.5 GHzBluetooth - Bluetooth v4.2 BR/EDR and BLE specificationOperating Temperature: -40 °C ~ +85 °C © Copyright 2021-2024, wemos.cc. Revision SeaFac4. Built with Sphinx using a theme provided by Read the Docs. The WEMOS D1 mini ESP32 pinout exposes 26 ESP32 GPIOs on the familiar D label headers-making it shield-compatible while retaining the ESP32's rich peripherals.Power rails include 5 V/VIN (USB or external), a regulated 3V3 output, and multiple GND pins. Current draw is typically 80 mA active but can drop to Go to preferences -> then go to Additional boards Manager URLs -> paste the link given and click ok Detail article on How to Program ESP8266 Nodemcu using Arduino IDEOnce we download the board now go to Sketch -> Include library -> Manage libraries -> then inside the search box type ESP8266 Platform -> We have to download ESP Microgear Library.Connect the WEMOS D1 Mini board to the USB port on the PC using a data cable. Now we have to tell the Arduino IDE about the board we are using and for this purpose go to Tools -> Boards -> WeMos D1 R2 & Mini and make sure that the WEMOS com port is selected.Now that we have connected the board and completed all the prerequisites it's time to upload the sketch and check if everything is working perfectly.We are going to upload the blinky sketch. // the setup function runs once when you press reset or power the board void setup() { // initialize digital pin LED\_BUILTIN as an output. pinMode(LED\_BUILTIN, OUTPUT); } // the loop function runs over and over again forever void loop() { digitalWrite(LED\_BUILTIN, HIGH); // Arduino: turn the LED on (HIGH) // D1 Mini: turns the LED "off" delay(1000); // wait for a second digitalWrite(LED\_BUILTIN, LOW); // Arduino: turn the LED off (LOW) // D1 Mini: turns the LED "on" delay(1000); // wait for a second } Q1 - What is the difference between Arduino Uno and WeMos D1?Ans - WEMOS D1 has a strong processor that runs at a higher frequency than Arduino UNO Also WEMOS D1 mini has 160KB of RAM memory while Arduino UNO only has 2KB of RAM memory.Q2 - What are the advantages of using WeMos D1 mini?Ans - The advantage of using WEMOS D1 Mini is that it can be used as a stand-alone for processing each code without using Arduino as its microcontroller.

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