A WEATHER ARDUINO UNO PROJECT

ARDUINO UNO R32 /LCD / 3 SENSORS (TEMP & HUM / RAIN / LIGHT)

Alba-Elektronica

Summary

A small project for Arduino Uno with integrated Wifi and Ble. The pinout of both boards, Arduino Uno and Arduino Uno R32, are included for comparison. With few exceptions, the two boards have the same pinout. I could not get any analog bit on R32 board (maybe only A0). The usage of R32 is difficult / noisy with some sensors with analog input.

Arduino Uno R32 is a improved version of Arduino Uno with Esp32 Esp8266 component. To install it you need software from Espressif. The connection / command of Arduino Uno R32 with a phone is principally possible.

The three sensors may be considered as weather indicators.

https://github.com/Alba-Elektronica

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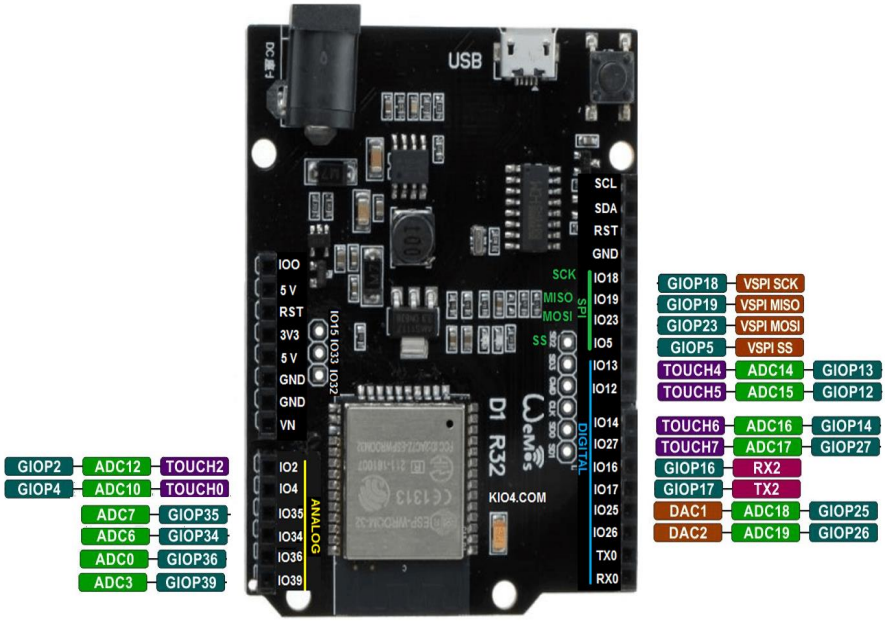
Inside the box

Pinout Arduino Uno R32 Esp32 Esp8266



Compare with the pinout of the standard Arduino Uno.

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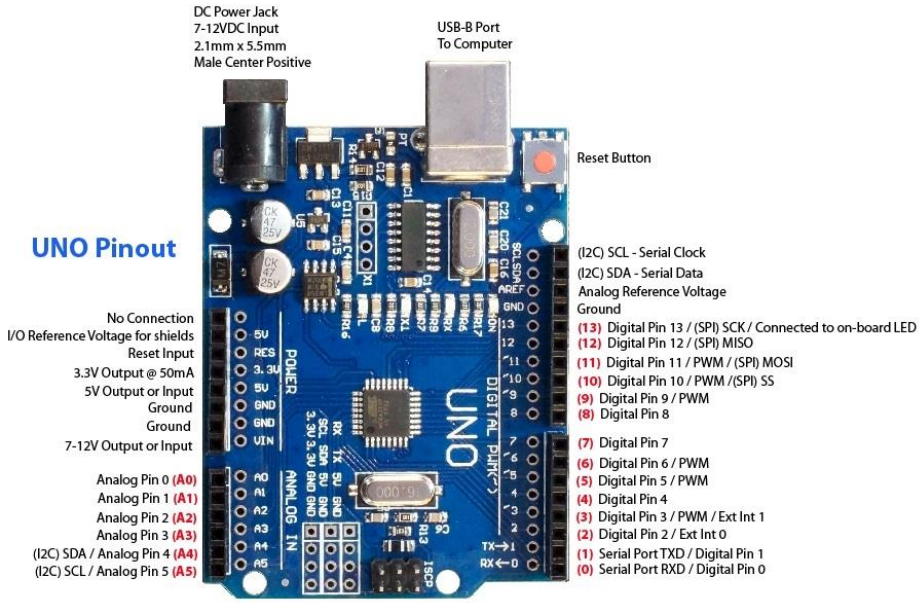

Red numbers in paranthesis are the name to use when referencing that pin.
Analog pins are references as A0 thru A5 even when using as digital I/O

Required hardware & software

Connect D1R32 with computer / Raspberry Pi either by wired cable / Wifi / Ble

The Arduino app / software / IoT

Components	Description	No
Arduino Uno R3	D1R32 board with WiFi / Ble	1
Charger Arduino	micro USB / USB	1
Liquid Crystical Display	LCD 1602 / IIC I2C module	1
Connectors	male-female / male-male	8
Weather sensors	Temperatur & Humidity sensor (DHT11)	3
	MH Rain sensor	
	Photosensible KY 018	
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List of sensors

 MH-RD	 KY 018	 KY 015

Additional components



Arduino Uno R32 / Wifi / BLE

➔ ***Uses the pinout of Arduino Uno!***

➔ Download software from Arduino.cc; Install
➔ Install D1R32 board using Preferences / Board Manager URL's

Use the following package

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

➔ Select board *Esp32 Dev module*
➔ Select the port of the connection
➔ Wifi / Ble usable with similar Esp32 boards

A basic Liquid Crystal Display (LCD)

Connect the LDC 1602 IIC I2C display

➔ Turn around the LCD
➔ Connect the pins Arduino ←→ IIC I2C module with male / female connectors
➔ Run Examples / Wire / i2c_scanner to find the address of the display
➔ Install LiquidCrystal_I2C that is an Arduino libraries
➔ Run the HelloWorld application

Tips

➔ Pinout: SDA, ←→ SDA, SCL ← → SCL
➔ If the screen is too bright or too dark, then tune with screw the blue potentiometer of the MH module on the backside of LCD

Experiments with sensors

Temperature and humidity in one sensor

➔ Connect the Arduino with the sensor type DHT11 with three male / female connectors

OUT ← → IO26 / + ← → +5V / - ←→ GND

➔ Install DHT library of the Arduino environment, including the additional libraries

Extra: Connect the LCD and combine codes for LCD and DHT11

Rain sensor

➔ Connection MH- RD sensor to Arduino
Pinout: IO2 is (kind of) A0 / IO18 ←→ D0

➔ Connect the module to the MH sensor series with 2 x male, male connector

Extra: Connect the LCD and combine code for LCD and the sensors

Photo sensible module

➔ Connection: Arduino with KY - 018
Pinout: IO2 is (kind of) A0 / IO18 ←→ D0

Extra: Connect the LCD and combine code for LCD and the sensors

Tips

➔ Amplify the analog number with a large number; Open Serial Plotter

➔ *If you need an extra 5V and GND, select two digital pins and set them on High and Low*