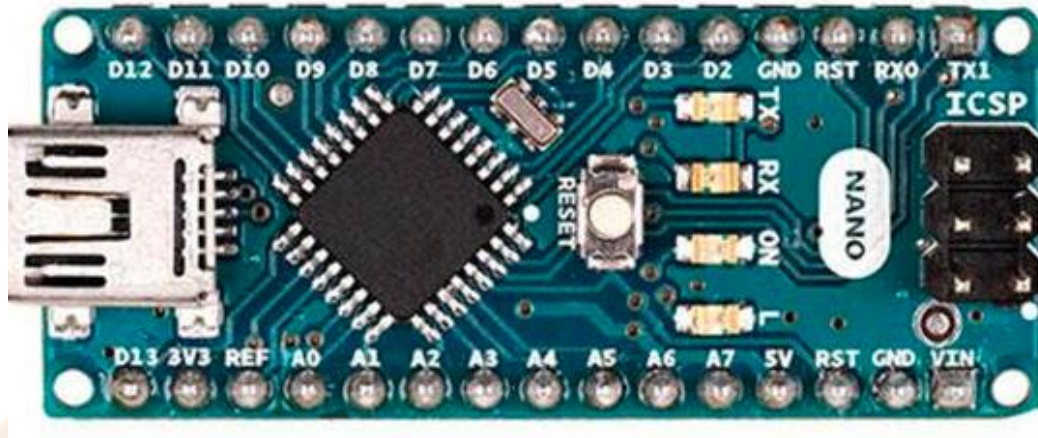# The Arduino Nano original

This Arduino Nano is Original Arduino Nano Board. It is a breadboard-friendly board based on the ATmega328P from Arduino officials made in Italy. It has more or less the same functionality of the Arduino Duemilanove, but in a different package. It lacks only a DC power jack and works with a Mini-B USB cable instead of a standard one.

Original Arduino Nano is a surface mount breadboard embedded version with integrated USB. It is the smallest, complete, and breadboard-friendly. It has everything that Diecimila/Duemilanove has (electrically) with more analog input pins and onboard +5V AREF jumper. Physically, it is missing power jack. The Nano is automatically sensing and switch to the higher potential source of power, there is no need for the power select jumper.

Nano's got the breadboard-ability of the Board Arduino and the Mini+USB with a smaller footprint than either, so users have more breadboard space. It's got a pin layout that works well with the Mini or the Basic Stamp (TX, RX, ATN, GND on one top, power and ground on the other). This new version 3.0 comes with ATMEGA328 which offer more programming and data memory space. It is two layers. That makes it easier to hack and more affordable.

SPECIFICATIONS:

- Microcontroller: ATmega 328
- Architecture: AVR
- Operating voltage: 5V
- Flash memory: 32 KB of which 2 KB used by bootloader
- SRAM: 2 Kb
- Clock speed: 16 MHz
- Analog input pins: 8
- EEPROM: 1 Kb
- DC current per I/O pins: 40 ma (I/0 Pins)
- Input voltage: 7-12 V

- Digital I/O pins: 22(6 of which are PWM)
- PWM Output: 6
- Power consumption:n19 ma
- PCB size: 18 x 45 mm
- Weight: 7g

SCHEMATIC DIAGRAM OF ARDUINO NANO 33 IoT :
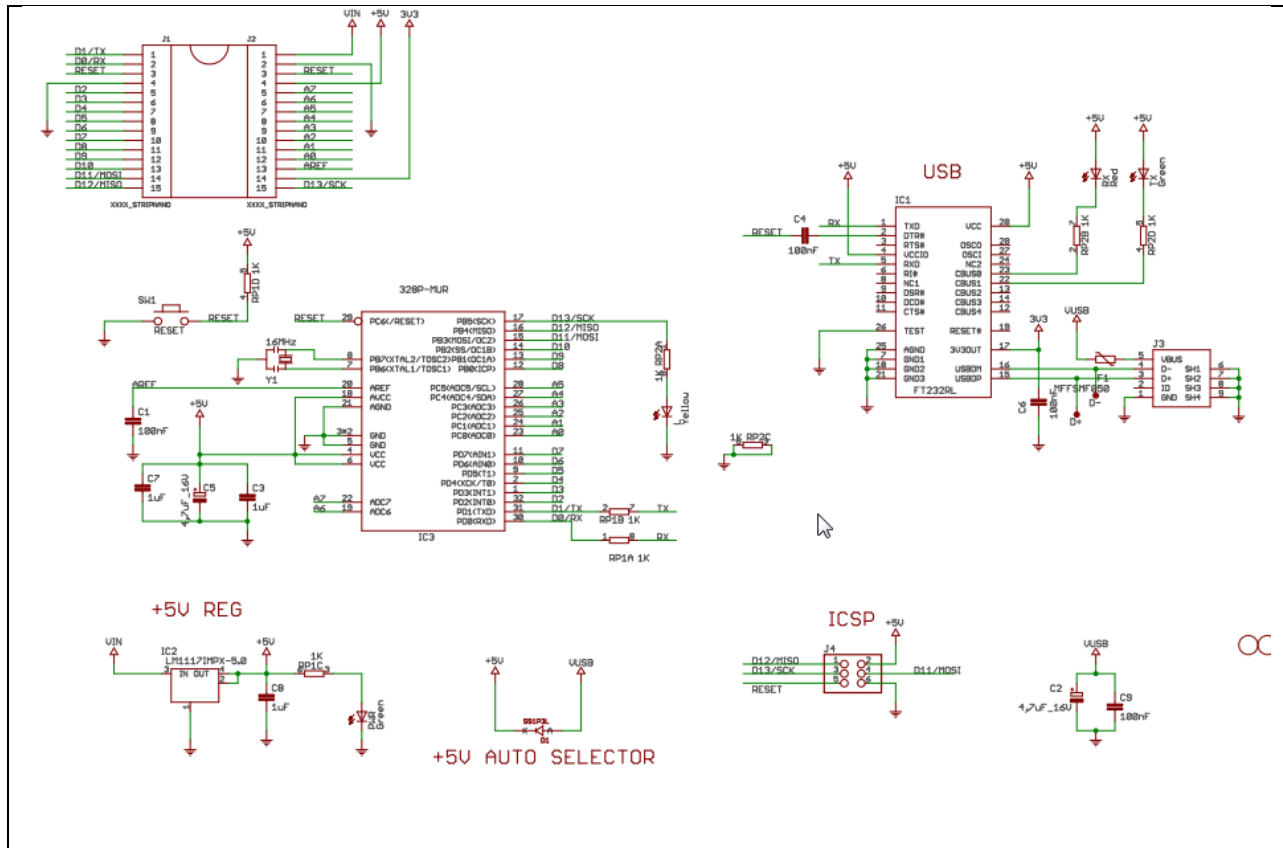
The Arduino board is designed in such a way that it is very easy for beginners to get started with microcontrollers. This board especially is breadboard friendly is very easy to handle the connections. Let's start with powering the Board.

- Power: There are totally three ways by which you can power your Nano.

USB Jack: Connect the mini USB jack to a phone charger or computer through a cable and it will draw power required for the board to function

Vin Pin: The Vin pin can be supplied with a unregulated 6-12V to power the board. The on-board voltage regulator regulates it to +5V

+5V Pin: If you have a regulated +5V supply then you can directly provide this o the +5V pin of the Arduino.

- Input/output: There are totally 14 digital Pins and 8 Analog pins on your Nano board. The digital pins can be used to interface sensors by using them as input pins or drive loads by using them as output pins. A simple function like pinMode() and digitalWrite() can be used to control their operation. The operating voltage is 0V and 5V for digital pins. The analog pins can measure analog voltage from 0V to 5V using any of the 8 Analog pins using a simple function like analogRead()

These pins apart from serving their purpose can also be used for special purposes which are discussed below:

Serial Pins 0 (Rx) and 1 (Tx): Rx and Tx pins are used to receive and transmit TTL serial data. They are connected with the corresponding ATmega328P USB to TTL serial chip.

External Interrupt Pins 2 and 3: These pins can be configured to trigger an interrupt on a low value, a rising or falling edge, or a change in value.

PWM Pins 3, 5, 6, 9 and 11: These pins provide an 8-bit PWM output by using analogWrite() function.

SPI Pins 10 (SS), 11 (MOSI), 12 (MISO) and 13 (SCK): These pins are used for SPI communication.

In-built LED Pin 13: This pin is connected with an built-in LED, when pin 13 is HIGH – LED is on and when pin 13 is LOW, its off.

I2C A4 (SDA) and A5 (SCA): Used for IIC communication using Wire library.

AREF: Used to provide reference voltage for analog inputs with analogReference() function.

- Reset Pin: Making this pin LOW, resets the microcontroller.