**Arduino UNO:**

Arduino UNO is a microcontroller board based on the ATmega328P. It has 14 digital input/output pins (of which 6 can be used as PWM outputs), 6 analog inputs, a 16 MHz ceramic resonator, a USB connection, a power jack, an ICSP header and a reset button. It contains everything needed to support the microcontroller; simply connect it to a computer with a USB cable or power it with a AC-to-DC adapter or battery to get started. You can tinker with your UNO without worrying too much about doing something wrong, worst-case scenario you can replace the chip for a few dollars and start over again.

**Arduino Uno Specification**

* A blue electronic board with many different components

  Description automatically generatedMicrocontroller: ATmega328P
* Operating Voltage: 5V
* Input Voltage (recommended): 7-12V.
* In out Voltage (limit): 6-20V
* Digital I/O Pins: 14 (of which 6 provide PWM output)
* PWM Digital I/O Pins: 6
* Analog Input Pins: 6
* DC Current per I/O Pin: 20 mA
* DC current for 3.3V Pin: 50 mA
* Flash Memory: 32 KB (ATmega328P) of which 0.5 KB used by bootloader.
* SRAM: 2 KB (ATmega328P)
* EEPROM: 1 KB (ATmega328P)
* Clock Speed: 16 MHz
* LED\_BUILTIN: 13
* Length: 68.6 mm
* Width: 58.4 mm
* Weight: 25 g

**Arduino NANO:**

The classic Nano is the oldest member of the Arduino Nano family boards. It is like the Arduino Duemilanove but made for the use of a breadboard and has no dedicated power jack. Successors of the classic Nano are for example the Nano 33 IoT featuring a WiFi module or the Nano 33 BLE Sense featuring Bluetooth Low Energy and several environment sensors.

**Arduino Nano Technical Specifications**

Microcontroller ATmega328P – 8-bit AVR family microcontroller

Operating Voltage 5V

Recommended Input Voltage for Vin pin 7-12V

Analog Input Pins 6 (A0 – A5)

Digital I/O Pins 14 (Out of which 6 provide PWM output)

DC Current on I/O Pins 40 mA

DC Current on 3.3V Pin 50 mA

Flash Memory 32 KB (2 KB is used for Bootloader)

**A blue circuit board with pins and a white background

Description automatically generated with medium confidence**SRAM 2 KB

EEPROM 1 KB

Frequency (Clock Speed) 16 MHz

Communication IIC, SPI, USART

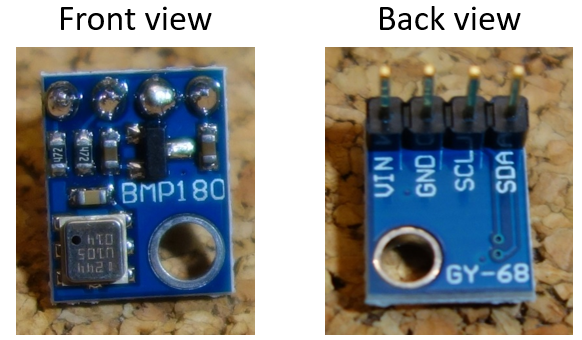
**Difference between Arduino UNO and Arduino Nano**

The Arduino Nano is very similar to the Arduino UNO. They use the same Processor (Atmega328p) and hence they both can share the same program. One big difference between both is the size. UNO is twice as big as Nano and hence occupies more space on your project. Also, Nano is breadboard friendly while Uno is not. To program an Uno, you need a Regular USB cable, whereas for Nano, you will need a mini-USB cable.

**BMP180:**

The BMP180 barometric sensor (model GY-68) is the one in the following figure (front and back view). It is a very small module with 1mm x 1.1mm (0.039in x 0.043in). It measures the absolute pressure of the air around it. It has a measuring range from 300 to 1100hPa with an accuracy down to 0.02 hPa. It can also measure altitude and temperature. The BMP180 barometric sensor communicates via I2C interface. This means that it communicates with the Arduino using just 2 pins.

**BMP180 MODULE Specifications**

* Operating voltage of BMP180: 1.3V – 3.6V
* Input voltage of BMP180MODULE: 3.3V to 5.5V
* Peak current: 1000uA
* Consumes 0.1uA standby.
* Maximum voltage at SDA, SCL : VCC + 0.3V
* Operating temperature: -40ºC to +80ºC

**DHT 11:**

The DHT11 is a commonly used Temperature and humidity sensor that comes with a dedicated NTC to measure temperature and an 8-bit microcontroller to output the values of temperature and humidity as serial data.

**DHT11 Specifications**

* A diagram of a circuit board

  Description automatically generatedOperating Voltage: 3.5V to 5.5V
* Operating current: 0.3mA (measuring) 60uA (standby)
* Output: Serial data
* Temperature Range: 0°C to 50°C
* Humidity Range: 20% to 90%
* Resolution: Temperature and Humidity both are 16-bit
* Accuracy: ±1°C and ±1%

**MPU 6050:**

The SEN-MPU6050 has got 3 gyroscope and accelerometer axes and thus 6 Degrees of Freedom and is able to measure 16'384 LSB/g and 131 LSB/dps. It has 8 Pins with a spacing of 2.54 mm and an I²C interface. Also, a 16-Bit AD Converter and a Low-Dropout regulation is built in.

**MPU6050**

* A blue circuit board with several small black pins

  Description automatically generatedMEMS 3-aixs accelerometer and 3-axis gyroscope values combined.
* Power Supply: 3-5V
* Communication: I2C protocol
* Built-in 16-bit ADC provides high accuracy.
* Built-in DMP provides high computational power.
* Can be used to interface with other IIC devices like magnetometer.
* Configurable IIC Address
* In-built Temperature sensor

**NRF24L01:**

The nRF24L01 is a wireless transceiver module, meaning each module can both send as well as receive data. They operate in the frequency of 2.4GHz, which falls under the ISM band and hence it is legal to use in almost all countries for engineering applications. The modules, when operated efficiently, can cover 100 meters (200 feet) which makes it a great choice for all wireless remote-controlled projects.

**nRF24L01 Features**

* A black antenna and a black antenna

  Description automatically generated with medium confidence2.4GHz RF transceiver Module
* Operating Voltage: 3.3V
* Nominal current: 50mA
* Range: 50 – 200 feet
* Operating current: 250mA (maximum)
* Communication Protocol: SPI
* Baud Rate: 250 kbps - 2 Mbps.
* Channel Range: 125
* Maximum Pipelines/node: 6
* Low-cost wireless solution

NRF24L01 Wireless adapter module:

The nRF24L01 is a wireless transceiver module that can send and receive data using an operating radio frequency. It uses the 2.4 GHz band and can operate with baud rates from 250 kbps up to 2 Mbps.

**Specification:**

* A black and silver electronic device

  Description automatically generatedInput Voltage: 5V DC
* Output Voltage: 1.9~3.6 DC
* Current: 12.3 mA
* It’s for the 8 Pin NRF24L01+ Module.
* A simple socket board which is for NRF24L01 wireless module
* On-board AMS1117-3.3 chip
* It can be used with NRF24L01 wireless module.
* Dimension: 26 x 19 x 12mm