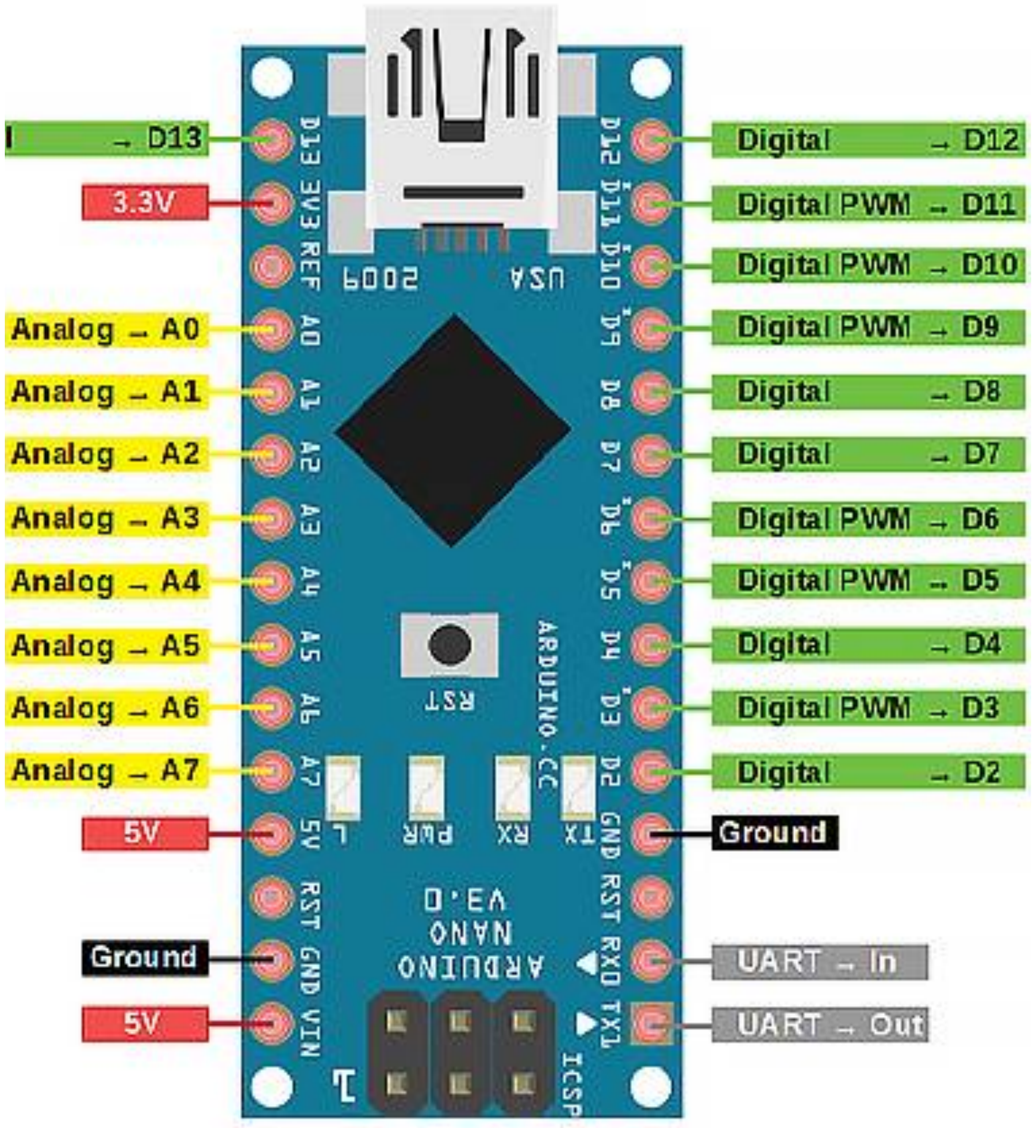
Demystifying the Hardware

Atmega328p

Yash Herekar


→ D13
3.3V
Analog → A0
Analog → A1
Analog → A2
Analog → A3
Analog → A4
Analog → A5
Analog → A6
Analog → A7
5V
Ground
5V
Digital → D12
Digital PWM → D11
Digital PWM → D10
Digital PWM → D9
Digital → D8
Digital → D7
Digital PWM → D6
Digital PWM → D5
Digital → D4
Digital PWM → D3
Digital → D2
Ground
UART → In
UART → Out
D13 3V3 REF A0 A1 A2 A3 A4 A5 A6 A7 5V RST GND VIN
D12 D11 D10 D9 D8 D7 D6 D5 D4 D3 D2 GND RST RXD TXD
2009
USA
RST
ARDUINO.CC
L
PWR
RX
TX
ARDUINO
NANO
V3.0
ICSP

Arduino Pins

- Power (Vin / Vcc / 5v / 3.3v / Gnd)
- Digital Pins (PWM) (D1 - D13)
- Analog Pins (A0 - A7)
- UART (Rx, Tx)

  - *22 digital pins, 8 analog pins, 6 pwm pins*

Power

VCC | Vin | 5v | 3.3v | Gnd

- **Usb mini B** - 5v
- **Vin** - 6-20V unregulated external power supply **(input only)**
- **5v** - regulated external power supply ()
- **3.3v** - regulated output 50mA max
- **Gnd** - ground all connections

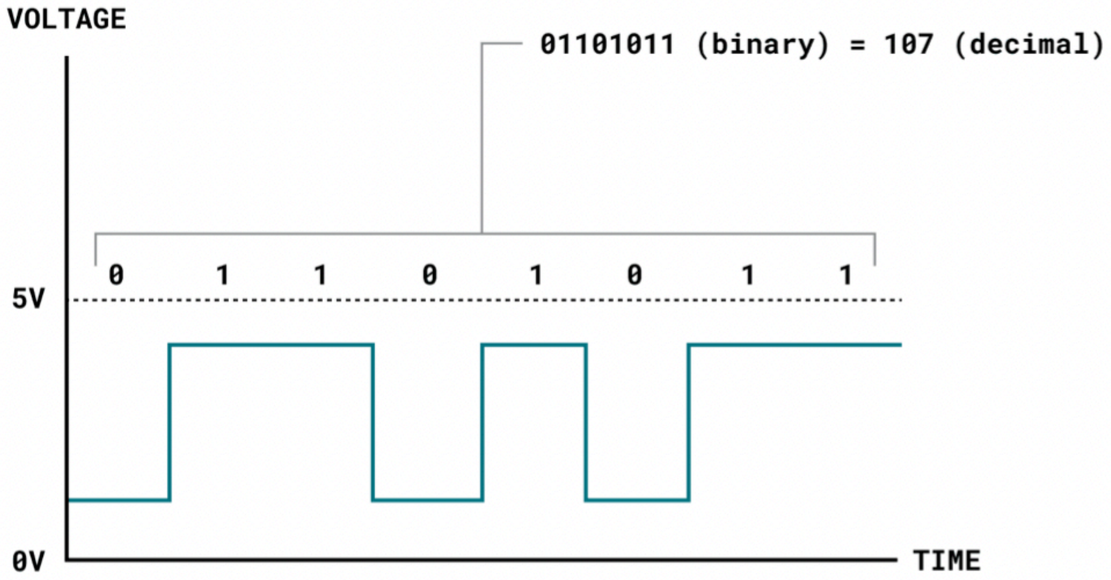
Digital Pins

D0 - D13

Digital Pins can be used as input or output pins

HIGH or 1

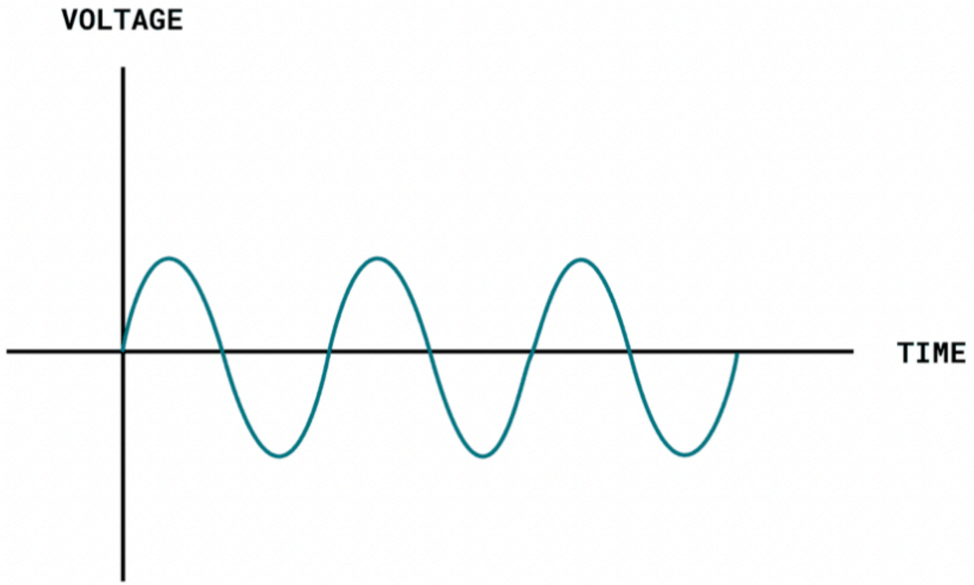
LOW or 0



Analog Pins

A0 - A7

Analog Signal



Function body

```
void setup()
{
   //Configure the pins as input or output once
}
void loop()
{
   //run the loop multiple times
}
```

General plain to write any program

```
void setup()
{
   Serial.begin(9600);
}
void loop()
{
   Serial.println(“This is a message”);
}
```

Serial.begin(9600); - Serial communication with Arduino at 9600 bits/sec.

pinMode(3, HIGH); - Sets the pin as INPUT or OUTPUT.

Serial.print(“Message”); - prints message without carriage return

Serial.println(“Message”); - prints message with carriage return

digitalWrite(3, HIGH); - writes HIGH or LOW to a pin;

analogWrite(3, 100); - control intensity between 0 - 255 range