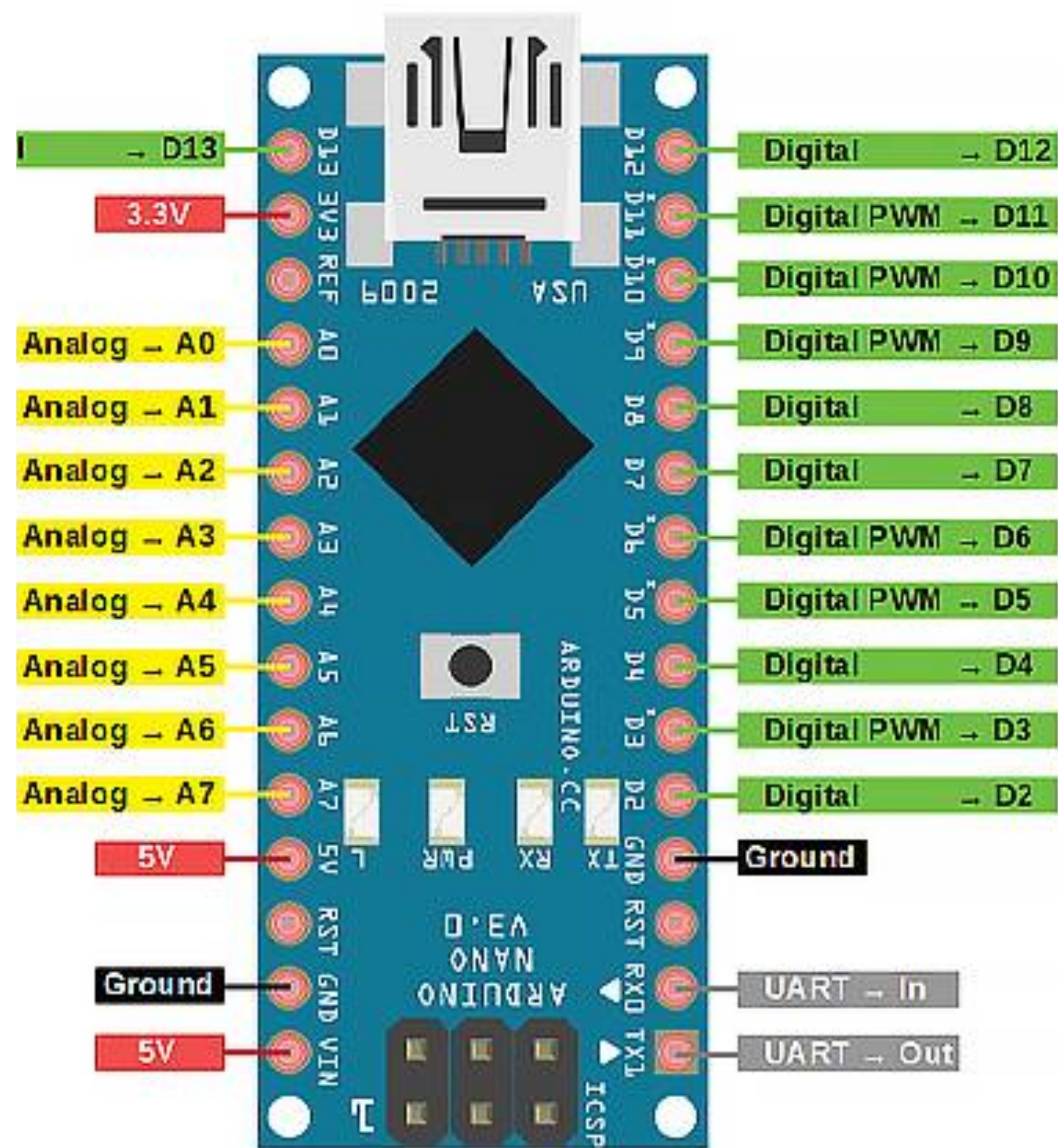


Demystifying the Hardware

Atmega328p

Yash Herekar



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

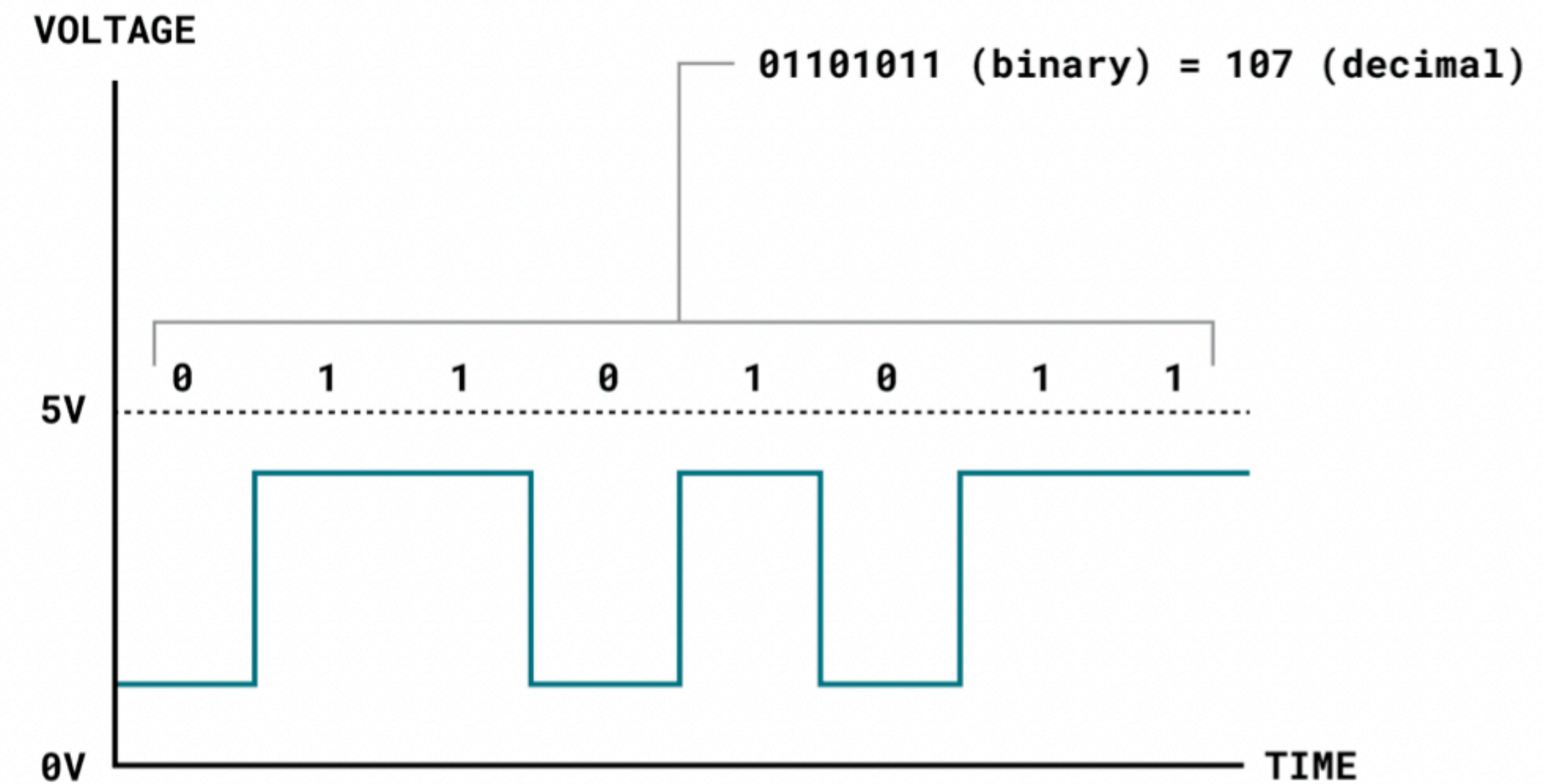
Digital Pins

D0 - D13

Digital Pins can be used as input or output pins

HIGH or 1

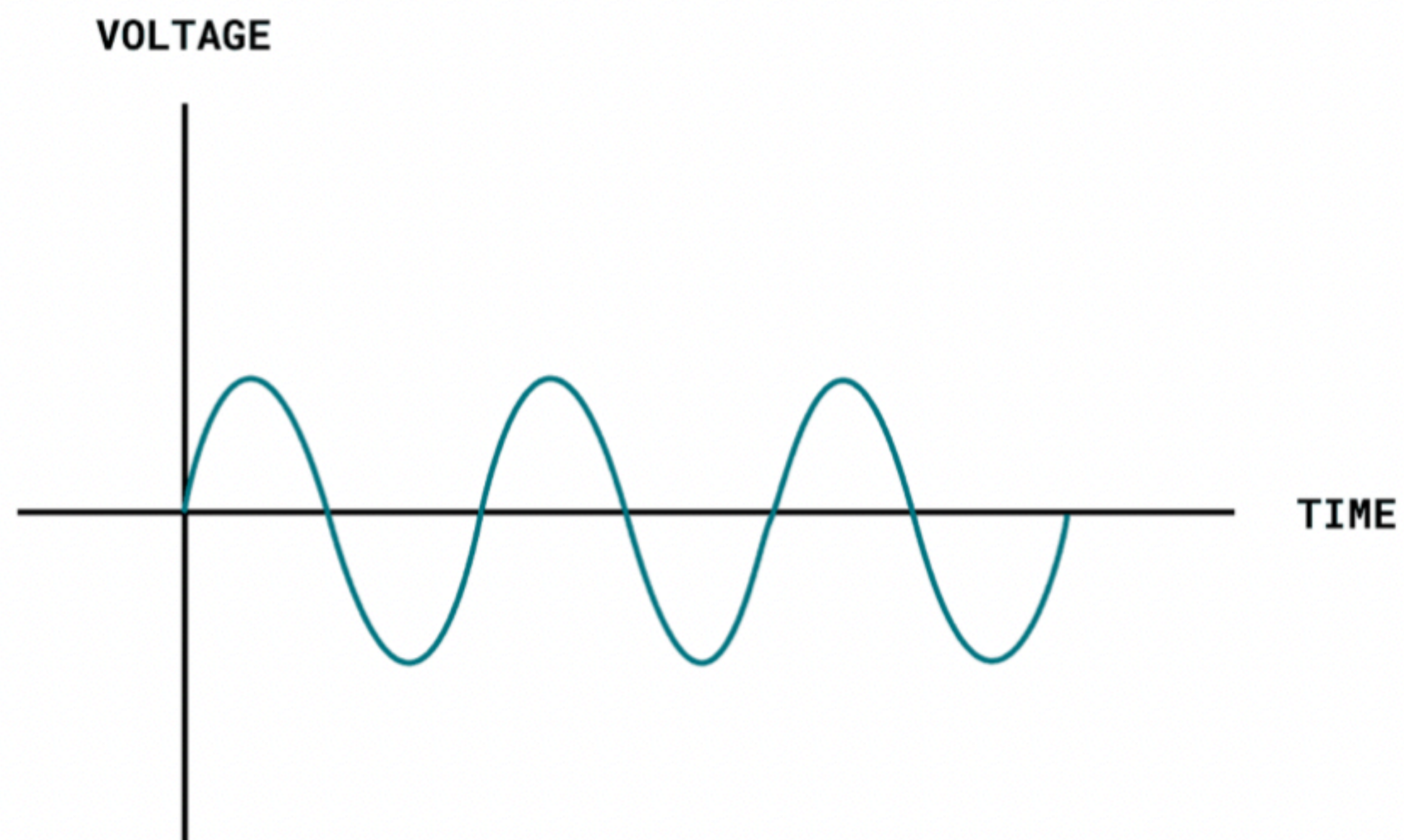
LOW or 0



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

Macros

- # is an indication for preprocessing
- **#define** is a preprocess macro
- Its basically a text replacement mechanism
- Ex: #define ledpin 5 will replace all instances of ledpan with 5