

PWM Signal Generation using Nodemcu

Dinesh Kumar

ISRO Satellite Center

Bangalore

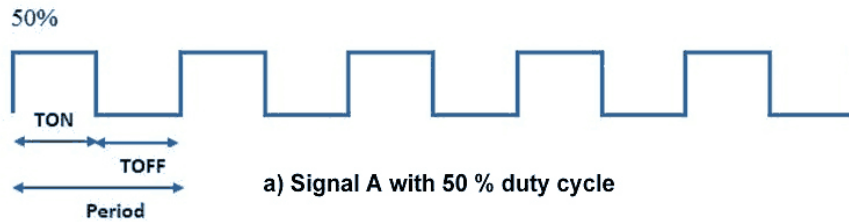
```
const int ledPin = D1;
void setup() {
  pinMode(ledPin, OUTPUT);
  Serial.begin(9600);
}

void loop() {
  int dutyCycle;

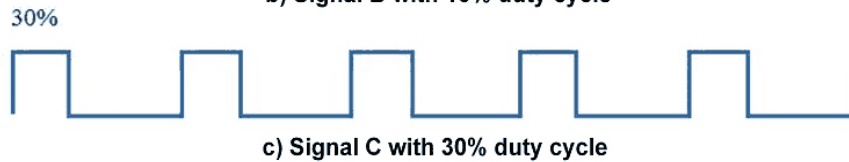
  Serial.println("Enter duty cycle (0-255): ");
  while (!Serial.available()) {
    // Wait for user input
  }

  dutyCycle = Serial.parseInt();

  if (dutyCycle >= 0 && dutyCycle <= 255) {
    // Generate PWM with the specified duty cycle
    analogWrite(ledPin, dutyCycle);
    delay(3000);
  } else {
    Serial.println("Invalid duty cycle. Please enter a value between 0 and 255.");
    delay(2000);
  }
  // Clear the Serial Monitor input buffer
  while (Serial.available()) {
    Serial.read();
  }
}
```



$$DutyCycle = \frac{T_{on}}{T_{on} + T_{off}} * 100$$



pin – pin on which we want to generate pwm or analog signal.

duty cycle – it lies in between 0 (0%, always off) – 255 (100%, always on).

e.g. `analogWrite(3, 127)` //generates pwm of 50% duty cycle