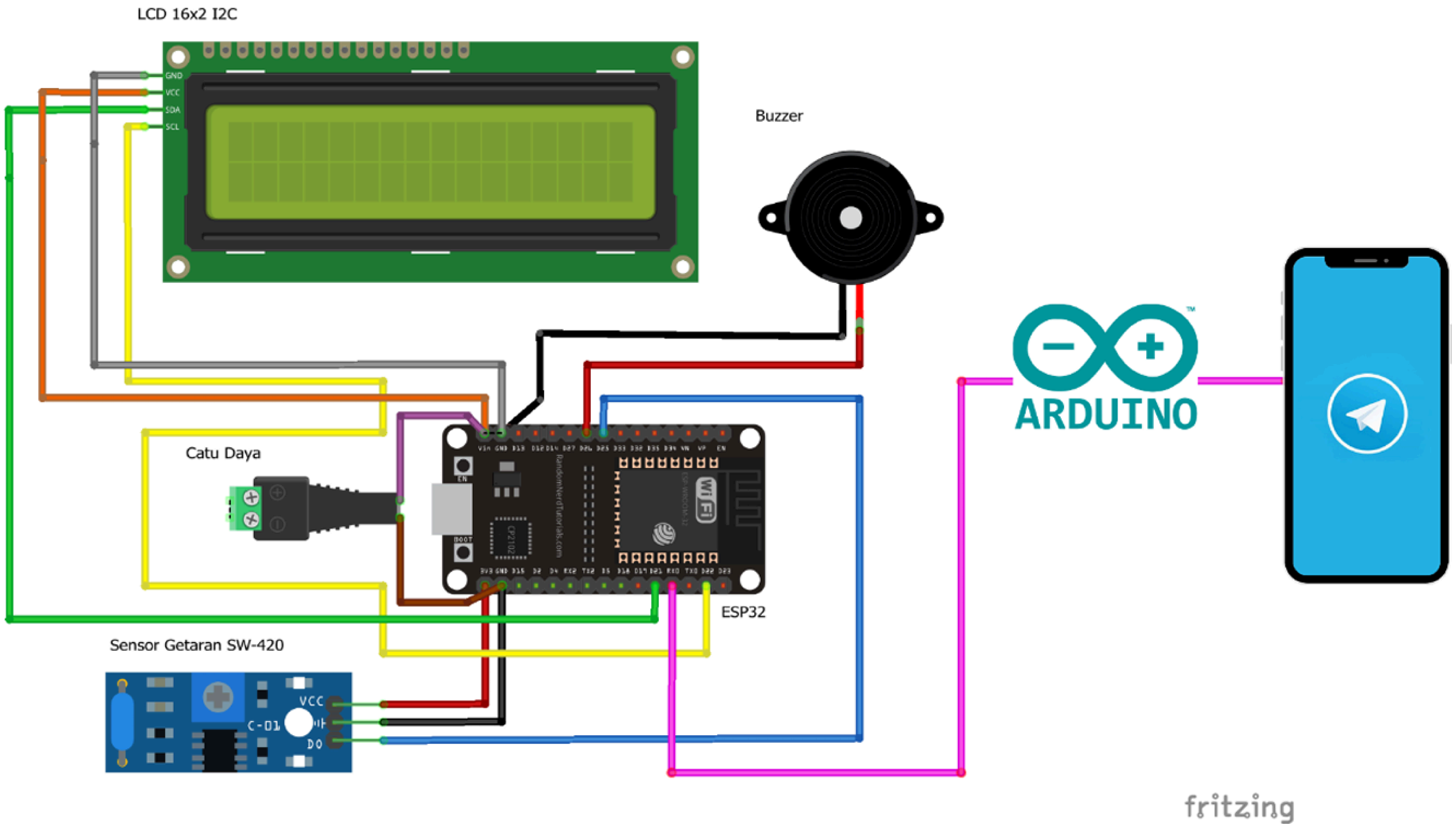
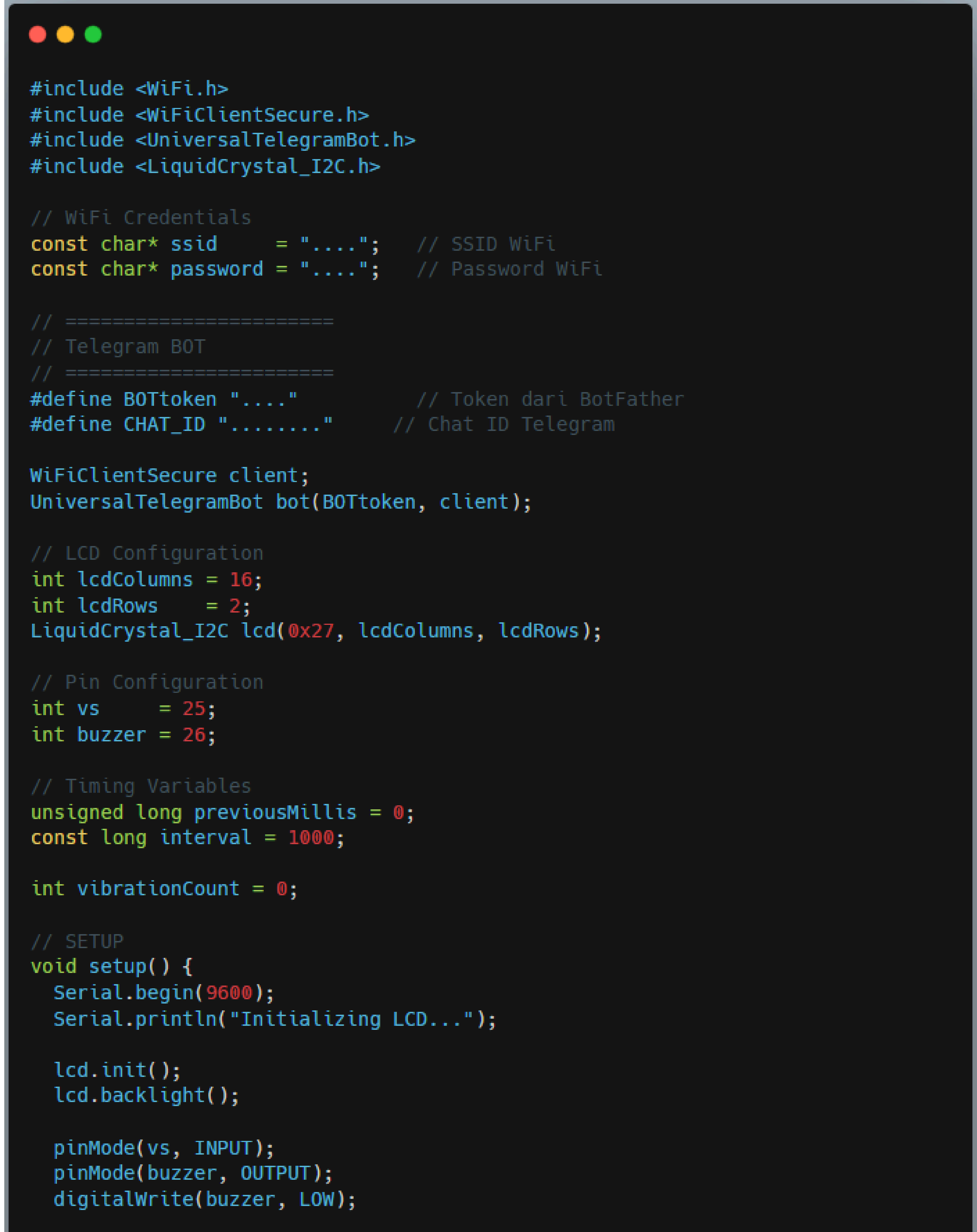
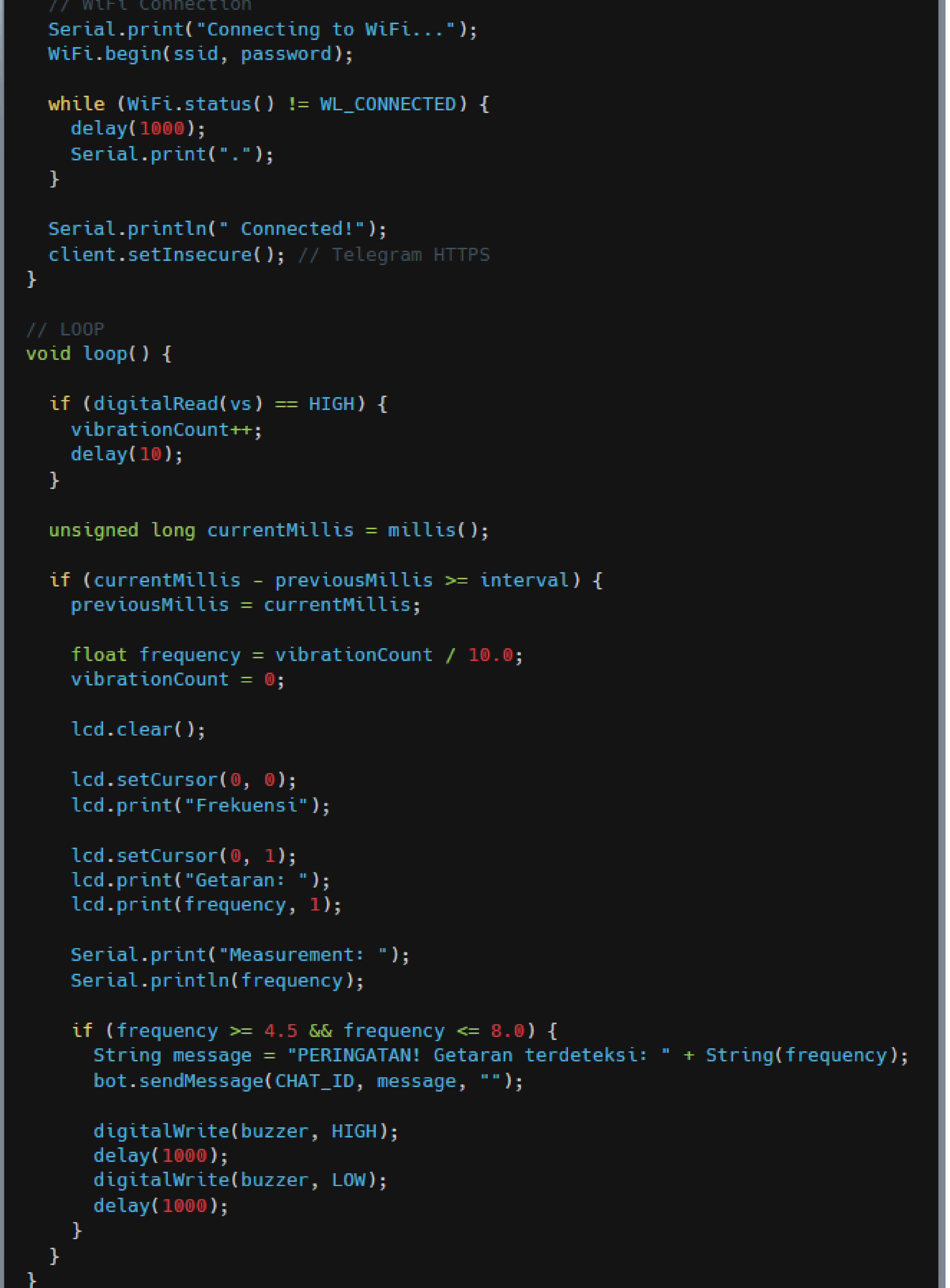
IoT - Pump Water


LCD 16x2 I2C
GND
VCC
SDA
SCL
Buzzer
Catu Daya
ESP32
Sensor Getaran SW-420
VCC
C-D1
DO
ARDUINO
fritzing



```
#include <WiFi.h>
#include <WiFiClientSecure.h>
#include <UniversalTelegramBot.h>
#include <LiquidCrystal_I2C.h>

// WiFi Credentials
const char* ssid     = "....";   // SSID WiFi
const char* password = "....";   // Password WiFi

// ======================
// Telegram BOT
// ======================
#define BOTtoken "...."          // Token dari BotFather
#define CHAT_ID "........"     // Chat ID Telegram

WiFiClientSecure client;
UniversalTelegramBot bot(BOTtoken, client);

// LCD Configuration
int lcdColumns = 16;
int lcdRows    = 2;
LiquidCrystal_I2C lcd(0x27, lcdColumns, lcdRows);

// Pin Configuration
int vs     = 25;
int buzzer = 26;

// Timing Variables
unsigned long previousMillis = 0;
const long interval = 1000;

int vibrationCount = 0;

// SETUP
void setup() {
  Serial.begin(9600);
  Serial.println("Initializing LCD...");

  lcd.init();
  lcd.backlight();

  pinMode(vs, INPUT);
  pinMode(buzzer, OUTPUT);
  digitalWrite(buzzer, LOW);
```



```
  // WiFi Connection
  Serial.print("Connecting to WiFi...");
  WiFi.begin(ssid, password);

  while (WiFi.status() != WL_CONNECTED) {
    delay(1000);
    Serial.print(".");
  }

  Serial.println(" Connected!");
  client.setInsecure(); // Telegram HTTPS
}

// LOOP
void loop() {

  if (digitalRead(vs) == HIGH) {
    vibrationCount++;
    delay(10);
  }

  unsigned long currentMillis = millis();

  if (currentMillis - previousMillis >= interval) {
    previousMillis = currentMillis;

    float frequency = vibrationCount / 10.0;
    vibrationCount = 0;

    lcd.clear();

    lcd.setCursor(0, 0);
    lcd.print("Frekuensi");

    lcd.setCursor(0, 1);
    lcd.print("Getaran: ");
    lcd.print(frequency, 1);

    Serial.print("Measurement: ");
    Serial.println(frequency);

    if (frequency >= 4.5 && frequency <= 8.0) {
      String message = "PERINGATAN! Getaran terdeteksi: " + String(frequency);
      bot.sendMessage(CHAT_ID, message, "");

      digitalWrite(buzzer, HIGH);
      delay(1000);
      digitalWrite(buzzer, LOW);
      delay(1000);
    }
  }
}
```