**Set current upper and lower limit circuit code**

#include <Wire.h> #include <Adafruit\_GFX.h>

#include <Adafruit\_SSD1306.h> #include <Adafruit\_INA219.h>

// Define OLED display parameters #define SCREEN\_WIDTH 128

#define SCREEN\_HEIGHT 64

#define OLED\_RESET -1

// Set threshold current (100mA in this case)

const float LOWER\_LIMIT\_CURRENT = 100; // in Amperes const float UPPER\_LIMIT\_CURRENT = 200; // in Amperes

// Initialize objects

Adafruit\_SSD1306 display(SCREEN\_WIDTH, SCREEN\_HEIGHT, &Wire, OLED\_RESET); Adafruit\_INA219 ina219;

void setup() {

// Initialize communication Wire.begin();

display.begin(SSD1306\_SWITCHCAPVCC, 0x3C); display.clearDisplay();

// Initialize INA219 ina219.begin();

// Set up digital output pin for switching pinMode(A2, OUTPUT);

}

void loop() {

// Read current from INA219

float current\_mA = ina219.getCurrent\_mA();

// Display current on OLED display.clearDisplay(); display.setTextSize(2);

display.setTextColor(SSD1306\_WHITE); display.setCursor(0, 0);

display.print("Current: "); display.print(current\_mA); display.println(" mA"); display.display();

// Check if current exceeds threshold

if (current\_mA > UPPER\_LIMIT\_CURRENT || current\_mA < LOWER\_LIMIT\_CURRENT) {

digitalWrite(A2, HIGH); // Switch on the circuit

} else {

digitalWrite(A2, LOW); // Switch off the circuit

}

delay(1000); // Delay for readability

}