# LAMPIRAN


fix_permenit | Arduino 1.8.19
File Edit Sketch Tools Help
fix_permenit
#include <Wire.h>
#include <LiquidCrystal_I2C.h>
#define BUTTON_ON 13 // Tombol ON ke GPIO 13
#define BUTTON_PAUSE 14 // Tombol PAUSE ke GPIO 14
#define BUTTON_OFF 15 // Tombol OFF ke GPIO 15
#define BUZZER_PIN 12 // Buzzer ke GPIO 12
#define LED_GREEN 16 // LED Hijau ke GPIO 16 (Indikator Mengemudi)
#define LED_YELLOW 17 // LED Kuning ke GPIO 17 (Indikator Istirahat)
#define RELAY_PIN 18 // Relay ke GPIO 18 (Matikan mesin saat istirahat)
#define I2C_ADDR 0x27
LiquidCrystal_I2C lcd(I2C_ADDR, 16, 2);
bool isDriving = false, isPaused = false, isResting = false;
unsigned long startTime = 0, pauseTime = 0;
unsigned long elapsedTime = 0;
const unsigned long drivingDuration = 240000; // 4 menit dalam milidetik
const unsigned long warningTime = 225000; // 3 menit 45 detik dalam milidetik
const unsigned long restDuration = 30000; // 30 detik dalam milidetik
void setup() {
pinMode(BUTTON_ON, INPUT_PULLUP);
pinMode(BUTTON_PAUSE, INPUT_PULLUP);
pinMode(BUTTON_OFF, INPUT_PULLUP);
pinMode(BUZZER_PIN, OUTPUT);
Done uploading.
Leaving...
Hard resetting via RTS pin...


fix_permenit | Arduino 1.8.19
File Edit Sketch Tools Help
fix_permenit
pinMode(LED_GREEN, OUTPUT);
pinMode(LED_YELLOW, OUTPUT);
pinMode(RELAY_PIN, OUTPUT);
digitalWrite(LED_GREEN, LOW);
digitalWrite(LED_YELLOW, LOW);
digitalWrite(BUZZER_PIN, LOW);
digitalWrite(RELAY_PIN, HIGH); // Mesin menyala saat standby
Wire.begin();
lcd.begin(16, 2);
lcd.backlight();
lcd.clear();
lcd.setCursor(0, 0);
lcd.print("ALAT PENGINGAT");
lcd.setCursor(1, 1);
lcd.print("WAKTU MENGEMUDI");
}
void loop() {
if (digitalRead(BUTTON_ON) == LOW && !isDriving) {
isDriving = true;
isPaused = false;
isResting = false;
startTime = millis();
lcd.clear();
Done uploading.
Leaving...
Hard resetting via RTS pin...


fix_permenit | Arduino 1.8.19
File Edit Sketch Tools Help
fix_permenit
lcd.setCursor(1, 0);
lcd.print("Waktu Mengemudi");
digitalWrite(LED_GREEN, HIGH);
digitalWrite(LED_YELLOW, LOW);
digitalWrite(RELAY_PIN, HIGH); // Mesin hidup
}
if (digitalRead(BUTTON_PAUSE) == LOW && isDriving && !isResting) {
isPaused = !isPaused;
lcd.clear();
if (isPaused) {
pauseTime = millis() - startTime;
lcd.setCursor(5, 0);
lcd.print("PAUSE");
} else {
startTime = millis() - pauseTime;
lcd.setCursor(1, 0);
lcd.print("Waktu Mengemudi");
}
delay(300); // Debounce tombol
}
if (isDriving && !isPaused && !isResting) {
elapsedTime = millis() - startTime;
if (elapsedTime >= warningTime && elapsedTime < warningTime + 10000) {
Done uploading.
Leaving...
Hard resetting via RTS pin...


fix_permenit | Arduino 1.8.19
File Edit Sketch Tools Help
fix_permenit
lcd.clear();
lcd.setCursor(3, 0);
lcd.print("Perhatian!!");
lcd.setCursor(2, 1);
lcd.print("Siap Istirahat");
digitalWrite(LED_GREEN, LOW);
for (int i = 0; i < 10; i++) {
digitalWrite(LED_YELLOW, HIGH);
digitalWrite(BUZZER_PIN, HIGH);
delay(500);
digitalWrite(LED_YELLOW, LOW);
digitalWrite(BUZZER_PIN, LOW);
delay(500);
}
lcd.clear();
lcd.setCursor(1, 0);
lcd.print("Waktu Mengemudi");
digitalWrite(LED_GREEN, HIGH);
digitalWrite(LED_YELLOW, LOW);
} else {
updateTimerDisplay(elapsedTime);
}
if (elapsedTime >= drivingDuration) {
isDriving = false;
isResting = true;
Done uploading.
Leaving...
Hard resetting via RTS pin...


fix_permanit | Arduino 1.8.19
File Edit Sketch Tools Help
fix_permanit
startTime = millis();
lcd.clear();
lcd.setCursor(0, 0); // Rata tengah "Waktu Istirahat"
lcd.print("Waktu Istirahat");
digitalWrite(LED_GREEN, LOW);
digitalWrite(LED_YELLOW, HIGH);
digitalWrite(RELAY_PIN, LOW); // Mesin mati saat istirahat
}
}
if (isResting) {
elapsedTime = millis() - startTime;
updateTimerDisplay(elapsedTime);
if (elapsedTime >= restDuration) {
isResting = false;
isDriving = true;
startTime = millis();
lcd.clear();
lcd.setCursor(1, 0);
lcd.print("Waktu Mengemudi");
digitalWrite(LED_GREEN, HIGH);
digitalWrite(LED_YELLOW, LOW);
digitalWrite(RELAY_PIN, HIGH); // Mesin hidup kembali setelah istirahat
}
}
Done uploading.
Leaving...
Hard resetting via RTS pin...


fix_permanit | Arduino 1.8.19
File Edit Sketch Tools Help
fix_permanit
if (digitalRead(BUTTON_OFF) == LOW) {
isDriving = false;
isPaused = false;
isResting = false;
lcd.clear();
lcd.setCursor(4, 0);
lcd.print("ALAT");
lcd.setCursor(2, 1);
lcd.print("TIDAK AKTIF");
digitalWrite(LED_GREEN, LOW);
digitalWrite(LED_YELLOW, HIGH);
digitalWrite(BUZZER_PIN, LOW);
digitalWrite(RELAY_PIN, HIGH); // Mesin menyala kembali saat alat dimatikan
}
}
void updateTimerDisplay(unsigned long timeMs) {
unsigned long seconds = (timeMs / 1000) % 60;
unsigned long minutes = (timeMs / 60000) % 60;
unsigned long hours = timeMs / 3600000;
lcd.setCursor(4, 1);
lcd.print((hours < 10 ? "0" : "") + String(hours) + ":");
lcd.print((minutes < 10 ? "0" : "") + String(minutes) + ":");
lcd.print((seconds < 10 ? "0" : "") + String(seconds) + " ");
}
Done uploading.
Leaving...
Hard resetting via RTS pin...