

LAMPIRAN

1. Baris Kode Dalam Alat Arduino Uno Dan Rfid Pada Pagar Geser Dan Sistem Lampu Area Parkir Otomatis

```
7. #include <Wire.h>
8. #include <LiquidCrystal_I2C.h>
9. #include <MFRC522.h>
10.#include <Servo.h>
11.
12.// Pengaturan RFID
13.#define SS_PIN 53
14.#define RST_PIN 49
15. MFRC522 mfrc522(SS_PIN, RST_PIN);
16.
17.// Pengaturan LCD
18. LiquidCrystal_I2C lcd(0x27, 16, 2); // Sesuaikan alamat jika
    diperlukan
19.
20.// Pengaturan Servo
21.Servo myServo;
22.#define SERVO_PIN 3
23.
24.// Pengaturan Sensor Ultrasonik
25.#define TRIG_PIN 7
26.#define ECHO_PIN 6
27.
28.// Pengaturan LED
29.#define LED_GREEN_PIN 4 // Pin untuk LED hijau
30.#define LED_RED_PIN 5 // Pin untuk LED merah
31.
32.void setup() {
33. // Komunikasi Serial
34. Serial.begin(9600);
35.
36. // Inisialisasi LCD
37. lcd.begin(16, 2);
38. lcd.backlight();
39.
40. // Inisialisasi RFID
41. SPI.begin();
42. mfrc522.PCD_Init();
43.
44. // Inisialisasi Servo
45. myServo.attach(SERVO_PIN);
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46. myServo.write(0); // Posisi awal (tertutup)
47.
48. // Inisialisasi Sensor Ultrasonik
49. pinMode(TRIG_PIN, OUTPUT);
50. pinMode(ECHO_PIN, INPUT);
51.
52. // Inisialisasi LED
53. pinMode(LED_GREEN_PIN, OUTPUT);
54. pinMode(LED_RED_PIN, OUTPUT);
55.
56. lcd.setCursor(0, 0);
57. lcd.print("Scan RFID Card");
58.}
59.
60.void loop() {
61. // Pengukuran Jarak Sensor Ultrasonik
62. long duration, distance;
63. digitalWrite(TRIG_PIN, LOW);
64. delayMicroseconds(2);
65. digitalWrite(TRIG_PIN, HIGH);
66. delayMicroseconds(10);
67. digitalWrite(TRIG_PIN, LOW);
68. duration = pulseIn(ECHO_PIN, HIGH);
69. distance = (duration / 2) / 29.1; // Konversi ke sentimeter
70.
71. // Cek Kartu RFID
72.if (mfrc522.PICC_IsNewCardPresent() &&
mfrc522.PICC_ReadCardSerial()) {
73. String uid = "";
74. for (byte i = 0; i < mfrc522.uid.size; i++) {
75. uid += String(mfrc522.uid.uidByte[i] < 0x10 ? "0" : "");
76. uid += String(mfrc522.uid.uidByte[i], HEX);
77. }
78. uid.toUpperCase();
79. Serial.println("Card UID: " + uid);
80. lcd.clear();
81. lcd.setCursor(0, 0);
82. lcd.print("Card UID:");
83. lcd.setCursor(0, 1);
84. lcd.print(uid);
85.
86. // Ganti dengan UID kartu Anda
87. if (uid == "70F9C713") { // Ganti "YOUR_CARD_UID" dengan
UID kartu Anda
88. lcd.clear();

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89.     lcd.setCursor(0, 0);
90.     lcd.print("Access Granted");
91.
92.     // Buka Gerbang
93.     myServo.write(180); // Sesuaikan sudut sesuai kebutuhan
94.     digitalWrite(LED_GREEN_PIN, HIGH); // LED hijau menyala
95.     digitalWrite(LED_RED_PIN, LOW);    // LED merah mati
96.     delay(10000); // Biarkan gerbang terbuka selama 10 detik
97.
98.     // Tutup Gerbang
99.     myServo.write(0);
100.         digitalWrite(LED_GREEN_PIN, LOW); // LED hijau
    mati
101.         digitalWrite(LED_RED_PIN, HIGH); // LED merah
    menyala
102.         lcd.clear();
103.         lcd.setCursor(0, 0);
104.         lcd.print("Scan RFID Card");
105.     } else {
106.         lcd.clear();
107.         lcd.setCursor(0, 0);
108.         lcd.print("Access Denied");
109.         digitalWrite(LED_GREEN_PIN, LOW); // LED hijau
    mati
110.         digitalWrite(LED_RED_PIN, HIGH); // LED merah
    menyala
111.         delay(2000);
112.         lcd.clear();
113.         lcd.setCursor(0, 0);
114.         lcd.print("Scan RFID Card");
115.     }
116. }
117.
118.     // Cek Jarak untuk Buka Otomatis (keluar)
119.     if (distance < 10) { // Sesuaikan ambang jarak sesuai
    kebutuhan
120.         myServo.write(180); // Buka gerbang
121.         digitalWrite(LED_GREEN_PIN, HIGH); // LED hijau
    menyala
122.         digitalWrite(LED_RED_PIN, LOW);    // LED merah
    mati
123.         lcd.clear();
124.         lcd.setCursor(0, 0);
125.         lcd.print("Exit Granted");

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```
126.         delay(10000); // Biarkan gerbang terbuka selama 10
            detik
127.
128.         // Tutup Gerbang
129.         myServo.write(0);
130.         digitalWrite(LED_GREEN_PIN, LOW); // LED hijau
            mati
131.         digitalWrite(LED_RED_PIN, HIGH); // LED merah
            menyala
132.         lcd.clear();
133.         lcd.setCursor(0, 0);
134.         lcd.print("Scan RFID Card");
135.     }
136.
137.         delay(500); // Penundaan loop
138.     }
139. \
```