

DESIGN OF SECURITY FENCE AND HOUSE SIDE WALL BASED ON ARDUINO AND ANDROID

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ABSTRAK

A port on the Arduino Mega2560 connects to the fence security system and the house's exterior wall. In this design, the home page is surrounded by four InfraRed sensors and four cameras that capture images. A codular application controls the DC motor driving the opening and closing of the fence, and notifications are sent to WhatsApp. If an infrared sensor is detected, the buzzer emits a beep sound. The gate is opened or closed using a smartphone application system designed specifically for home security smart home systems. There were sensors on the house's front, back, right, and left sides. A potentiometer was used to adjust the detection distance of an infrared sensor from 2 cm to 30 cm. Home fence automation settings that operate remotely via Android will send all notifications to WhatsApp.

Keywords : *Arduino mega2560; Infra red sensor; Motor DC; Kodular Application..*

1. Pendahuluan

In the system for designing fences and side walls of houses based on Arduino and Android smartphones, a general picture will be taken starting from the camera as an image catcher if someone enters through the front gate of the house and the areas to the right, left, and back of the house. Suppose someone enters through the fence on the left and right sides of the front and back of the house. In that case, the infrared sensor will be detected if someone enters the house by passing through the wall of the house fence. This security system must be constructed and designed to reduce crime outside the home area, which occurs frequently.

2. Metode

This research begins with observing the problem and studying the literature, followed by simulation and after getting the results of data calculations, then conducting discussion and analysis, making resumes, conclusions, suggestions and completion.

3. Hasil dan Analisa

The test was for a DC motor, which acted as a driving force for opening and closing the gate on this prototype system, which was controlled by an Android smartphone application specifically designed for this home security system. Table 5 is a display of the codular applications used.

Table 5 Testing DC motors using Android and Arduino smartphones

No	Aplikasi Smartphone	Data Yang Terkirim	Arduino Membaca Data Melalui ESP8266 Yang Dikirim Oleh Aplikasi Android	Motor Induksi
1	Tombol Buka	Buka	Buka	Berputar Berlawanan Arah Jarum jam
2	Tombol Tutup	Tutup	Tutup	Berputar Searah Jarum Jam

Testing WhatsApp notifications was useful as a data source in the form of notifications, when the home

security system is detected and working. Tables 1 are tests of WhatsApp notifications.

Table 1. Testing WhatsApp Application Notifications for Infrared Sensors

No	Sensor Infra Red	Terdeteksi	Notifikasi Whatsapp
1	Depan	Ya	Terkirim
2	Belakang	Ya	Terkirim
3	Samping Kanan	Ya	Terkirim
4	Samping Kiri	Ya	Terkirim

All data was stored on the Web hosting, such as camera captures, so we can still monitor the results, not only through the WhatsApp application. The results of data transmission testing between Arduino and ESP8266 to the hosting server can be seen in Figure 2.

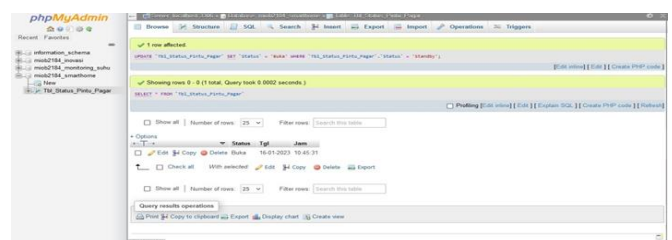


Figure 2. Database Display on Testing Data Transmission Between Arduino and ESP8266 To Server Hosting

4. Kesimpulan

In this design, the home page is surrounded by four InfraRed Sensors and four cameras that capture images of any suspicious movement or activity. If there is activity, an alarm will sound, and WhatsApp will be notified immediately.

5. Daftar Pustaka

- [1] Anjas Kumala, Slamet Winardi (2020). Aplikasi Pencatatan Perbaikan Kendaraan Bermotor Berbasis Android. Jurnal Intra Tech ISSN 2549-0222, Sistem Komputer Universitas Narotama, Vol. 4, No. 2.