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SISTEM SMART HOME BERBASIS INTERNET OF THINGS, dibawah bimbingan Taryadi, S.Kom., M.Cs dan Widiyono, ST., S.Kom., M.Kom.

70 + xiii halaman / 38 gambar / 15 tabel / 6 lampiran

ABSTRAK

Sistem Smart Home berbasis Internet of Things (IoT) semakin berkembang untuk meningkatkan kenyamanan dan keamanan dalam sebuah rumah. Penelitian ini mengimplementasikan sensor flame dan sensor MQ2 untuk deteksi adanya api serta gas berbahaya, yang diintegrasikan dengan platform ThingSpeak dan NodeMCU ESP8266 sebagai mikrokontroler. Pengembangan sistem dilakukan dengan model prototipe, memastikan bahwa desain dan fungsi sistem dapat merespons kebutuhan pengguna. Hasil pengujian menunjukkan bahwa sensor flame mampu mendeteksi keberadaan api sesuai tingkat akurasi, sementara sensor MQ2 efektif dalam mengidentifikasi peningkatan konsentrasi gas. Platform IoT ThingSpeak membantu dalam visualisasi data sensor secara real-time, sedangkan mikrokontroler memastikan pengolahan data berlangsung secara cepat dan efisien. Implementasi Weebly dalam sistem ini memberikan kemudahan pemantauan pembacaan nilai sensor DHT11 dan MQ2. Berdasarkan dari hasil rekap pengujian kegunaan sistem dapat dilihat bahwa 68% responden menyatakan setuju, 24% menyatakan cukup dan 8% menyatakan tidak setuju. Hasil keseluruhan menunjukkan bahwa sistem smart home ini efektif dalam memberikan kenyamanan dan keamanan tambahan bagi penggunanya.

Kata kunci: Smart Home, Internet Of Things, NodeMCU ESP8266, ThingSpeak, Weebly.

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SMART HOME SYSTEM BASED ON THE INTERNET OF THINGS, under
the guidance of Taryadi, S.Kom., M.Cs and Widiyono, ST., S.Kom., M.Kom.

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ABSTRACT

Smart Home systems based on the Internet of Things (IoT) are increasingly developing to increase comfort and security in a home. This research implements a flame sensor and MQ2 sensor for detecting fire and dangerous gases, which are integrated with the ThingSpeak platform and NodeMCU ESP8266 as a microcontroller. System development is carried out using a prototype model, ensuring that the design and function of the system can respond to user needs. The test results show that the flame sensor is able to detect the presence of fire according to the level of accuracy, while the MQ2 sensor is effective in identifying increased gas concentrations. The ThingSpeak IoT platform helps in real-time visualization of sensor data, while the microcontroller ensures data processing occurs quickly and efficiently. The implementation of Weebly in this system makes it easy to monitor DHT11 and MQ2 sensor value readings. Based on the results of the system usability testing recap, it can be seen that 68% of respondents said they agreed, 24% said it was sufficient and 8% said they disagreed. The overall results show that this smart home system is effective in providing additional comfort and security for its users.

Keywords: Smart Home, Internet Of Things, NodeMCU ESP8266, ThingSpeak, Weebly.