

ABSTRAK

Buildyun Hia, Nim 5173331008 (2024). *Prototype System* Kendali Sensor dan Aktuator pada *Smart Home System* Menggunakan Arduino Uno R3 sebagai Media Pembelajaran Teknik Elektronika Industri Kelas XI di SMK N 1 Percut Sei Tuan. Skripsi. Jurusan Pendidikan Teknik Elektro, Program Studi Pendidikan Teknik Elektro, Fakultas Teknik Universitas Negeri Medan.

Penelitian ini bertujuan untuk mengembangkan dan mengevaluasi *prototype system* kendali sensor dan aktuator pada *smart home system* menggunakan Arduino Uno R3 sebagai media pembelajaran untuk siswa kelas XI Teknik Elektronika Industri di SMK N 1 Percut Sei Tuan. Metode penelitian yang digunakan adalah *Research and Development* (R&D) dengan model ADDIE, yang mencakup lima tahap: Analisis, Desain, Pengembangan, Implementasi, dan Evaluasi. *Prototype* ini melibatkan sensor suhu (DHT 11), sensor api, sensor suara (FC-04), dan aktuator (Relay 5 Volt). Hasil evaluasi oleh validator ahli media menunjukkan skor 85% dan oleh kedua validator ahli materi mendapatkan skor total 76%, yang mengindikasikan bahwa *prototype* ini sangat layak digunakan. Selain itu, penilaian respon penggunaan siswa dari 27 orang, 16 siswa memberikan respons sangat positif terhadap produk, sedangkan 11 siswa memberikan respons positif. Temuan ini menunjukkan bahwa *prototype system* kendali ini dapat meningkatkan pengalaman belajar siswa dan sangat diterima sebagai media pembelajaran di kelas XI Teknik Elektronika Industri.

Kata kunci: *Prototype, Media Pembelajaran, Sistem Kendali, Smart Home, Arduino Uno R3, Sensor, Aktuator.*

ABSTRACT

Buildyun Hia, Student ID 5173331008 (2024). *Prototype System for Sensor and Actuator Control in a Smart Home System Using Arduino Uno R3 as a Learning Media for Industrial Electronics in Class XI at SMK N 1 Percut Sei Tuan. Thesis. Department of Electrical Engineering Education, Study Program of Electrical Engineering Education, Faculty of Engineering, Medan State University.*

This study aims to develop and evaluate a sensor and actuator control system prototype for a smart home system using Arduino Uno R3 as a teaching medium for 11th grade Industrial Electronics students at SMK N 1 Percut Sei Tuan. The research method used is Research and Development (R&D) with the ADDIE model, which includes five stages: Analysis, Design, Development, Implementation, and Evaluation. This prototype involves temperature sensors (DHT 11), fire sensors, sound sensors (FC-04), and actuators (5 Volt Relay). Evaluation results by media experts showed a score of 85%, while the two material experts provided a total score of 76%, indicating that the prototype is highly feasible for use. Additionally, student usage response assessment from 27 students revealed that 16 students gave very positive responses to the product, while 11 students provided positive responses. These findings suggest that this control system prototype can enhance students' learning experiences and is well accepted as a teaching medium in the 11th grade Industrial Electronics class.

Keywords: *Prototype, Learning Media, Control System, Smart Home, Arduino Uno R3, Sensor, Actuator.*