

ABSTRAK

Sintya Verina Br Tarigan: Rancang Bangun Sistem Monitoring PLTS Berbasis IoT Sebagai Media Pembelajaran Antarmuka Dan Komunikasi Data Di SMK Negeri 1 Percut Sei Tuan. 2023.

Tujuan penelitian ini dirancang untuk: (1) menghasilkan sistem monitoring PLTS berbasis IoT sebagai media pembelajaran di mata pelajaran antarmuka dan komunikasi data di SMK Negeri 1 Percut Sei Tuan (2) menguji kelayakan media pembelajaran sistem monitoring PLTS berbasis IoT pada mata pelajaran antarmuka dan komunikasi data di SMK Negeri 1 Percut Sei Tuan (3) mengetahui respon pengguna setelah menggunakan sistem monitoring PLTS berbasis IoT sebagai media pembelajaran di mata pelajaran antarmuka dan komunikasi data di SMK Negeri 1 Percut Sei Tuan.

Penelitian ini merupakan penelitian Research and Development (R&D) dalam bidang pendidikan. Model penelitian pengembangan yang digunakan berupa ADDIE: *Analysis, Design, Development, Implementation, Evaluation*. Langkah awal pengembangan meliputi analisis kebutuhan dan pendesainan media pembelajaran. Setelah media pembelajaran selesai dikembangkan maka dilakukan pengujian oleh ahli materi, ahli media, dan pengguna. Pengujian terhadap siswa sebagai pengguna dilakukan oleh 33 siswa jurusan Teknik Elektronika Industri kelas XII. Instrumen pengumpulan data yang digunakan adalah angket dan teknik analisis data yang digunakan adalah analisis deskriptif kualitatif.

Penelitian dan pengembangan ini menghasilkan media pembelajaran berupa sistem monitoring PLTS berbasis IoT, buku pedoman, materi ajar dan jobsheet. Persentase kelayakan media pembelajaran oleh ahli materi mendapatkan 80,83%, oleh ahli media mendapatkan 81,28%, dan oleh siswa mendapatkan 78,55%. Berdasarkan ketiga persentase tersebut, maka media pembelajaran sistem monitoring PLTS berbasis IoT termasuk dalam kategori layak untuk digunakan pada mata pelajaran antarmuka dan komunikasi data di SMK Negeri 1 Percut Sei Tuan

Kata kunci: Sistem Monitoring, PLTS, IoT, ADDIE, Antarmuka dan Komunikasi Data.

ABSTRACT

Sintya Verina Br Tarigan: *Design and Implementation of an IoT-Based Photovoltaic System Monitoring System as a Learning Medium for Interface and Data Communication Subjects at State Vocational High School 1 Percut Sei Tuan. 2023.*

The purpose of this research is designed to: (1) produce an IoT-based photovoltaic system monitoring system as a learning medium for the interface and data communication subjects at State Vocational High School 1 Percut Sei Tuan, (2) test the feasibility of the learning media, the IoT-based photovoltaic system monitoring system, in the interface and data communication subjects at State Vocational High School 1 Percut Sei Tuan, and (3) determine user responses after using the IoT-based photovoltaic system monitoring system as a learning medium for the interface and data communication subjects at State Vocational High School 1 Percut Sei Tuan.

This research is a Research and Development (R&D) study in the field of education. The development research model used is ADDIE: Analysis, Design, Development, Implementation, Evaluation. The initial development steps include needs analysis and instructional media design. After the instructional media is developed, it is tested by subject matter experts, media experts, and users. Testing of students as users is conducted by 33 students majoring in Industrial Electronic Engineering in grade XII. The data collection instruments used are questionnaires, and the data analysis technique used is qualitative descriptive analysis.

This research and development result in instructional media in the form of an IoT-based photovoltaic system monitoring system, a guidebook, teaching materials, and worksheets. The percentage of instructional media feasibility by subject matter experts is 80.83%, by media experts is 81.28%, and by students is 78.55%. Based on these three percentages, the IoT-based photovoltaic system monitoring system learning media is considered feasible for use in the interface and data communication subjects at State Vocational High School 1 Percut Sei Tuan.

Keywords: Monitoring System, Photovoltaic System, IoT, ADDIE, Interface and Data Communication