TRAINER KOMUNIKASI DATA SERIAL RS-485 SEBAGAI MEDIA PEMBELAJARAN MATA KULIAH KOMUNIKASI DATA DAN INTERFACE

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ABSTRAK

Penelitian ini bertujuan untuk: (1) merancang trainer komunikasi data serial RS-485 sebagai media pembelajaran pada mata kuliah komunikasi data dan interface, (2) mengimplementasikan rancangan trainer komunikasi data serial RS-485, (3) mengetahui tingkat kelayakan trainer komunikasi data serial RS-485.

Metode yang digunakan dalam penelitian menggunakan RND (*Research and Development*) dengan prosedur pengembangan model ADDIE. Model pengembangan ADDIE yang dilaksanakan yaitu *Analyze, Design, Develop, Implement,* dan *Evaluate*. Objek dalam penelitian ini adalah trainer, *manual book, jobsheet* komunikasi data serial RS-485 sebagai media pembelajaran mata kuliah Komunikasi Data dan Interface. Subjek penelitian adalah mahasiswa program studi Pendidikan Teknik Elektronika Fakultas Teknik UNY. Teknik pengumpulan data yang digunakan dengan kuisioner dan wawancara. Instrumen yang digunakan dalam bentuk angket dengan teknik analisis deskriptif kualitatif.

Hasil penelitian ini adalah (1) trainer komunikasi data serial RS-485 yang terdiri dari Blok *input*: sensor *line tracking*, sensor IR *obstacle*, potensiometer, dan sensor *flame*. Blok proses terdiri dari Arduino Uno dan Arduino Nano. Blok komunikasi terdiri dari modul RS-485. Blok *output* terdiri dari motor driver, modul relay, motor DC,LED RGB dan LCD, (2) media pembelajaran trainer komunikasi data serial RS-485 memiliki unjuk kerja sesuai yang diharapkan dengan dilengkapi *manual book* dan *jobsheet*, (3) tingkat kelayakan media pembelajaran trainer komunikasi data serial RS-485 dikategorikan sangat layak dengan persentase ahli materi 88,13% , ahli media 81,77%, dan responden 84,55%.

Kata kunci: RS-485, ADDIE, Komunikasi Data dan Interface

RS-485 SERIAL DATA COMMUNICATION TRAINER AS A LEARNING MEDIUM IN THE DATA AND INTERFACE COMMUNICATION COURSE

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ABSTRACT

This study aims to: (1) design the RS-485 serial data communication trainer as a learning medium in the data and interface communication course, (2) implement the RS-485 serial data communication trainer design, (3) determine the feasibility of the serial data communication trainer RS-485.

The method used in research uses RND (Research and Development) with ADDIE model development procedures. The ADDIE development model implemented is Analyze, Design, Develop, Implement, and Evaluate. The objects in this study are trainers, manual books, serial data communication worksheets RS-485 as learning media for Data Communication and Interface courses. The research subjects were students of the Electronic Engineering Education Study Program at the Faculty of Engineering of YSU. Data collection techniques used by questionnaire and interview. The instrument used in the form of a questionnaire with descriptive qualitative analysis techniques.

The results of this study are (1) RS-485 serial data communication trainer consisting of input blocks: line tracking sensor, IR obstacle sensor, potentiometer, and flame sensor. The process block consists of Arduino Uno and Arduino Nano. The communication block consists of the RS-485 module. The output block consists of motor driver, relay module, DC motor, RGB LED, and LCD (2) RS-485 serial data communication trainer learning media equipped with manual books and jobsheets, (3) the feasibility level of RS-485 serial data communication trainer learning media categorized as very feasible with the percentage of material experts 88.13%, 81.77% of media experts, and 84.55% of respondents.

Keywords: *RS-485, ADDIE, Data Communication and Interface*