Development of Trainer Kits for Industrial Automation Based on Programmable Logic Controllers

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ABSTRACT

The objectives of this study include: (1) needs analysis; (2) get results; (3) know the performance; and (4) know the feasibility about development of trainer kits for industrial automation based on Programmable Logic Controllers (PLC) for learning in Applied Electrical Engineering Undergraduate Study Programs.

The type of research is research and development that refers to the ADDIE model according to Robert Maribe Branch. Research steps include: Analyze, Design, Develop, Implement, and Evaluate. Data obtained through observation, interviews, and questionnaires, using instruments in the form of observation sheets, interview guidelines, and questionnaires. Data were analyzed descriptively.

The results showed that: (1) The needs chosen by the most respondents in PLC practice are: (a) PLC-based industrial automation trainer kits in the form of miniature industrial processes; (b) PLC practice module; and (c) The required trainer kit criteria include: according to competence, size according to standards, made of good components; and refers to work safety; (2) A PLC-based industrial automation trainer kit has been produced in the form of simulation of drilling objects, spraying paint on objects, applying stamps, and moving objects manually and automatically; (3) PLC-based industrial automation trainer kit products have good performance, which is shown that 100% of the important components can work properly, and all job descriptions (100%) of the trainer kits can work as their function; and (4) PLC-based industrial automation trainer kit products are very suitable for PLC practice, which is shown by the validation of material experts giving a score of 92.11% (very feasible), the validation of media experts gives a score of 93.23% (very feasible), and students give assessment with a score of 83.55% (very feasible).

Kata Kunci: *trainer kit, industrial automation, PLC.*