DEVELOPMENT OF AN INTERACTIVE VIRTUAL REALITY APPLICATION FOR SIMULATING A TESTING STATION IN FLEXIBLE MANUFACTURING SYSTEM COURSE

by Dr.Phil. Ir. Didik Hariyanto, S.Pd.T, M.T., Dr.Phil Nurhening Yuniarti, S.Pd., M.T., Amelia Fauziah Husna, S.Pd., M.Pd., Rohjai Badarudin, M.Pd.

ABSTRACT

This research focuses on the field of automation specifically for vocational education. The learning process in vocational education has its own challenges. Expensive teaching aids and their limited availability are obstacles in practical learning. Meanwhile, the application of automation technology in industry has recently been very massive and growing very rapidly, one of which is the application of the Modular Production System (MPS). MPS components must be studied and understood by undergraduate students to function and work principles. Such conditions become a challenge to provide a virtual system that can work as well as MPS. The development of Interactive Virtual Reality (I-VR) to simulate work processes is expected to overcome these problems in the Flexible Manufacturing System (FMS) Laboratory. The purpose of this research is to develop I-VR as a learning medium for the MPS Testing Station. The research procedure adopted from the ADDIE Lee Owens development procedure consists of the Analysis, Design, Development, Implementation, and Evaluation stages. The research will be conducted at the FMS Laboratory, Department of Electrical Engineering Education, Faculty of Engineering, Yogyakarta State University. The results of this research are (1) virtual reality applications for simulating a testing station in a flexible manufacturing system can work functionally well, (2) the system is able to display the page according to the help of Oculus Quest, (3) the system is able to respond to input provided by using the Oculus Quest, and (4) the system is able to display menus and simulate Testing Station movements.

Kata Kunci: *flexible manufacturing system, interactive virtual reality, plc, testing station*