

# **Fostering Vocational Students Computational Thinking Through Interactive and Immersive Virtual Reality: Specific Course in Flexible Manufacturing System Testing Station**

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## **ABSTRACT**

This research aims to develop an Immersive Virtual Reality Testing Station product application integrated with Computational Thinking content. The development procedure applies the ADDIE model adopted by Lee and Owen, which includes analysis, design, development, implementation, and evaluation. Data analysis employs both quantitative and qualitative approaches. The quantitative approach is used to analyze respondents' scores, while the qualitative approach is employed to analyze expert comments and initial user responses. The research is conducted over two years, with the first year (2023) focused on developing the Immersive Virtual Reality Testing Station product with Computational Thinking content. Product validation is carried out through a Focus Group Discussion (FGD) attended by computational thinking experts and education practitioners in the field of automation. The outcomes of the first year's research (2023) include a prototype of the Immersive Virtual Reality Testing Station with Computational Thinking content, registered Intellectual Property Rights (HKI) from the Ministry of Law and Human Rights, a scientific article in an international journal indexed in Scopus Q2 with Accepted Submission status, and a scientific article in a national journal indexed in Sinta 2 with Accepted Submission status. The subsequent second year of research (2024) aims to conduct effectiveness testing of the Immersive Virtual Reality Testing Station product with Computational Thinking content in learning. Planned outputs for the second year include a user guidebook for the product registered with HKI from the Ministry of Law and Human Rights, a scientific article in an international journal indexed in Scopus Q3, and a scientific article in a national journal indexed in Sinta 2.

Kata Kunci: *immersive, interactive, virtual reality, computational thinking*