

ABSTRACT

Security issues in digital public service systems remain a serious problem, especially in rural areas that have not yet been digitized. Limapoccoe Village is one example where service management is still carried out manually, resulting in delays, lack of record keeping, and the risk of data leaks. This study aims to adopt a Secure Software Development Life Cycle (Secure SDLC) approach based on Generative AI in the development of the backend system for a web-based public service system in a village. ChatGPT is used as a tool in the security development phase, including the preparation of technical documentation, module design, and code writing based on OWASP ASVS, Top 10, and Secure Coding Practices. The four main modules developed are authentication, letter submission, public complaints, and population data. The experimental results show that ChatGPT is capable of generating appropriate technical structures, and security controls can be traced from the planning stage to testing. However, the implementation of secure code has not yet been able to apply safe coding practices. Nevertheless, validation indicates that all security controls have been mapped to system risks and related modules. This research demonstrates the potential of integrating Generative AI to support Secure SDLC in the development of village-level public service system.

Keywords: *secure SDLC, generative AI, backend, public service system, OWASP ASVS*