

TARUNA SURYAWANSHI, WEIDONG LIAO, & OSMAN GUZIDE, Dept of Computer Sciences, Mathematics, and Engineering, Shepherd University, Shepherdstown, WV, 25414. Revamping existing websites through AI-assisted workflow and Vibe Coding.

This study looks at how Generative Artificial Intelligence (GenAI) and Large Language Models (LLMs) can be used in web development through Vibe Coding. The goal was to determine whether AI-assisted tools could streamline maintenance and improve efficiency for Shepherd University's S-STEM website, which runs on WordPress. To do this, the study explored the use of Google's GPT model and Gemini AI and tested the results within the Antigravity environment. AI tools were integrated into WordPress to help generate templates from prompts and draft content such as announcements and event updates. This study compared task completion times with and without AI, the frequency with which the code worked correctly on the first try, and the number of revisions needed. The results showed that manually completing routine updates could take between 30 and 40 minutes, whereas using Vibe Coding reduced this time to around 10 minutes. On average, structured content and code worked correctly on the first attempt roughly 70% of the time. These findings suggest that AI-assisted workflows enable faster, more efficient website maintenance without sacrificing usability or structure. The results also show that Vibe Coding can scale effectively for smaller institutional websites. This research was supported by the NASA Undergraduate Research Scholarship program.