

# **Building a flood warning system for bridges applicable to the northern mountainous provinces.**

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**Abstract:** This topic focuses on building and deploying an early warning system for bridge flooding in the northern mountainous provinces of Vietnam. The research context stems from the reality of numerous flooding incidents that significantly impact traffic and public safety. The objective is to develop a system capable of forecasting and warning about bridge flooding conditions, enabling authorities to take timely response measures. The research methodology combines analysis of existing data, design of mathematical models, and experimental deployment at specific locations. The significance of this topic lies not only in solving a specific problem but also in contributing to enhancing the community's capacity to respond to natural disasters.

**Keywords:** Flooded bridges, early warning, Northern mountainous region, traffic information system, risk management