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(57) Abstract :
The web-based flood probability prediction system combines machine learning and GIS to provide real-time flood risk predictions. The system utilizes the XGBoost algorithm with hyperparameter tuning and cross-validation to ensure accuracy. Users access the platform through a web browser to select specific locations on an interactive map and receive flood probability data alongside historical trends and risk levels. The system supports applications in urban planning, disaster management, and insurance risk assessments, enhancing decision-making and resource allocation. Its integration of real-time environmental data and a scalable, user-friendly interface make it a valuable tool for minimizing the impact of flooding on lives and property. Designed for governments, NGOs, urban planners, and individuals, the invention empowers proactive flood preparedness and mitigation efforts globally.

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