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(57) Abstract :
This work introduces an innovative approach to landslide prediction in hairpin bend regions using the you Only Look Once(YOLO) object detection framework. Hairpin bends, with their unique topography, pose specific challenges for landslide prediction, necessitating a tailored solution that integrates advanced computer vision techniques. The proposed invention combines high-resolution satellite imagery data to create detailed terrain models of hairpin bend areas. Real-time monitoring systems, including ground-based sensors and weather stations, are strategically placed to continuously capture environmental conditions. Integration with the YOLO-based predictive model enables the early identification of potential land slide threats, facilitating the implementation of targeted early warning systems. Community engagement remains a crucial aspect of this approach, involving local resident in the development of evacuation plans and preparedness strategies. The synergy between YOLO-based technology and community involvement creates a comprehensive solution for proactively managing landslide risks in hairpin bends.

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