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ANALYSIS OF THE CROWD MANAGEMENT AND PEDESTRIAN MOVEMENT DURING HAJJ PILGRIMAGE ON MAKKAH

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Abstract

The Hajj pilgrimage, the world's largest annual mass gathering, poses significant challenges in crowd management and pedestrian movement due to the sheer number of participants and logistical complexities. This study emphasizes the need for effective strategies to ensure the safety of millions of pilgrims in Mecca, Saudi Arabia. By reviewing literature and analysing pedestrian movement systems, it identifies key bottlenecks and safety risks, especially during high-density periods like Nafra day. Field observations from 2019 to 2024, including the post-COVID-19 era, offer insights into crowd behaviour and the effectiveness of management strategies. The study highlights the importance of integrating advanced simulation tools with urban design to optimize pedestrian pathways and prevent overcrowding, contributing to Saudi Vision 2030's goals of enhancing the pilgrimage experience and ensuring participant safety. © 2024 by MIP.

Author Keywords

crowd management; Hajj pilgrimage; Saudi Arabia

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