

## Documents

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### **Intelligent robot-assisted evacuation: A review**

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### **Abstract**

Mass gathering in places such as shopping mall, concerts, sport events etc. is a necessity but may pose threat to the occupants during emergency. This paper presents a review of the different approaches of the crowd evacuation problems which can be classified into classical and modern methods. The classical methods have been widely used which basically depends on prior evacuation warnings or human in assisting an emergent evacuation scenario. Nonetheless, with the lack of important information such as the location of the safest exit, the consequence can be catastrophic. As a result, classical evacuation method becomes tough even though many people might able to assist the evacuees during such situation. Overcoming this, researchers have developed intelligent robots-assisted evacuation systems as a modern approach to manage crowds more systematically and simultaneously during emergency, which will be reviewed in this paper. Finally, this review paper aims to give a broad scope of the reliable evacuation system management to ensure the safety of the evacuees during emergency evacuation. © Published under licence by IOP Publishing Ltd.

### **Index Keywords**

Physics; Classical methods, Crowd evacuation, Emergency evacuation, Evacuation systems, Review papers, Sport events; Intelligent robots

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