Pedestrian Tracking and Movement Pattern Analysis using Multiple Laser Range Scanners

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Abstract: The main purpose of this research is to develop a method, which can analyze movement patterns from pedestrian's trajectories. In order to realize this purpose, it is indispensable to trace each pedestrian's movements with a high accuracy. Therefore, as for the processing methodology, the pedestrian tracking system which developed by H.Zhao(2003) was used. However, if there are some occlusions, obtained data tend to fragment into small pieces because those areas are invisible from laser scanners due to structures and other people, while this system can measure any objects in a large area with high precision. As a mean to resolve this problem, we proposed a fundamental model of human behavior and interpolate pedestrian's trajectories precisely. Consequently, we can develop an algorithm for searching patterns of collision avoidance behavior from interpolated trajectory, which allow searching for the candidates who made a collision avoidance behavior.

Keywords: Movement patterns, Fragmentation of trajectories, Multiple laser range scanners, Pedestrian tracking