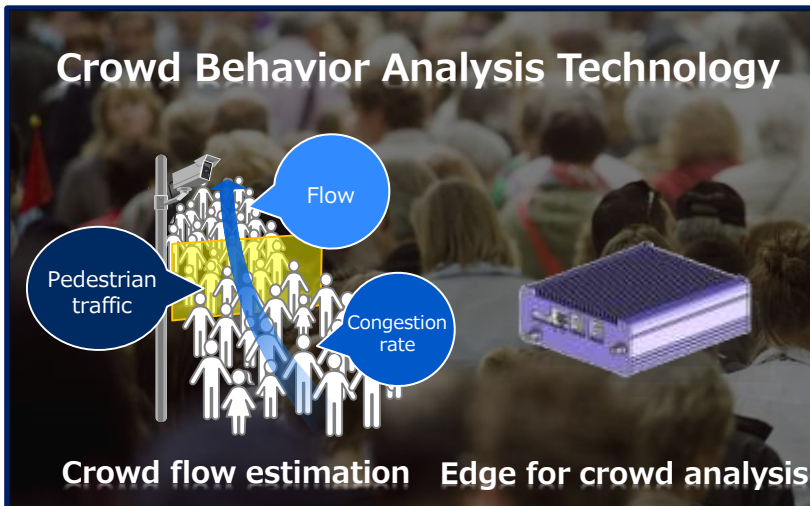


Congestion Management Solution

Image analysis technology for visualizing crowd density or pedestrian flow under overcrowded situations, which prevents accidents, and makes environments safer and more comfortable.

Benefits of the solution



Crowd flow estimation

- Congestion rate
- Number of staying people
- Pedestrian traffic
- Velocity distribution

Edge for crowd analysis

- Cooperate with crowd service
- Consider privacy by processing beside camera

Under development

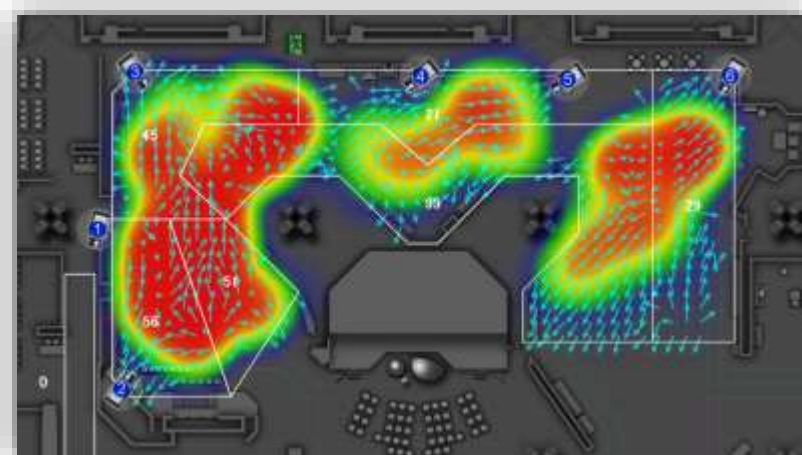
Best Practice of Crowded Environment Management

— Solution for minimizing inherent risks, maximizing values of crowded environments —

1. Real-time detection of overcrowded situations and pedestrian for providing proper navigation to prevent serious crowd accidents
2. Pedestrian traffic measurement which contribute to comfortable urban design and improving profitability of facility management

Example of crowd flow visualization

Real-time estimation of crowd flows by using cameras installed at an event site



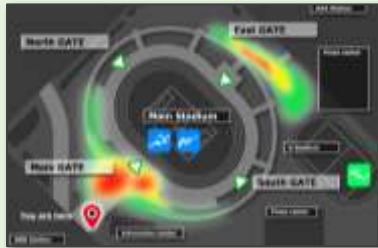
- Flow quantity
- Flow direction
- Congestion rate



Quantification of people distribution and pedestrian flow in each direction even in severely crowded situations from security cameras. Generation anonymous information using privacy-conscious image analysis which unidentified individuals.

Functionalities

Serious congestion detection



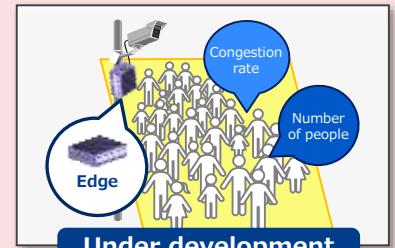
- Precise and real-time detection of serious congestion using security cameras by learning-based NEC original crowd behavior analysis, which enables proper and efficient crowd navigation in over-crowded situations.

Crowd flow estimation



- Crowd information such as number of people and pedestrian traffic in each direction is quantified in crowded environments by recognizing a crowd as a single entity by machine learning and combining the result with motion analysis.

Edge for crowd analysis



Under development

- Device for processing images beside camera and outputting basically pedestrian information as anonymous data. It makes possible to utilize the data without image transmission while protecting privacy or personal information.

Use cases

■ For stadiums, stations, entertainment parks, commercial facilities etc.

Prevention of serious crowd accidents by real-time detection of overcrowded situations and proper crowd navigation



■ For facility design, city design etc.

Design support of comfortable and efficient pedestrian space by utilizing statistics of pedestrian traffic such as flow quantity, velocity and density.



For more information

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