07 Satisfying Visitors with Collective Navigation While Predicting People Flow
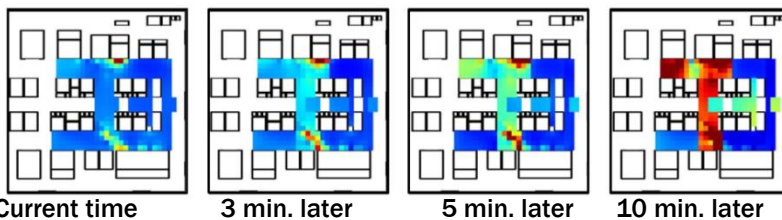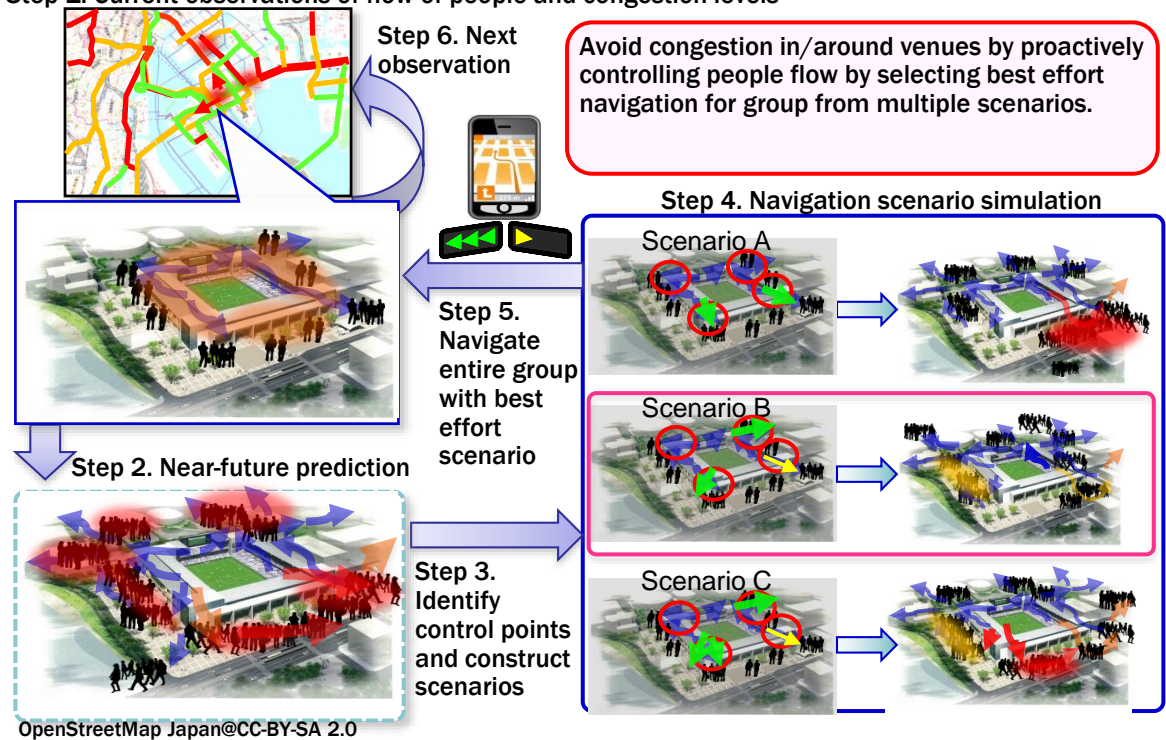
Spatio-temporal data analysis for controlling massive people flow

Abstract

We are researching and developing techniques that allow movements of entire groups to be efficiently navigated by making near-future predictions of people flow and congestion levels based on such information as event information and real-time observations of people and traffic flows.

We help event-management businesses perform smart venue administration by providing comfortable personalized navigation tools based on a visiting plan suited to customer preferences. Our goal is proactive risk management to prevent serious impact on social infrastructure at sporting events, concerts, and exhibitions where there are many people moving around, generating large road traffic and network traffic fluctuations.

Step 1. Current observations of flow of people and congestion levels

Step 6. Next observation

Avoid congestion in/around venues by proactively controlling people flow by selecting best effort navigation for group from multiple scenarios.

Step 4. Navigation scenario simulation

Scenario A

Scenario B

Scenario C

Step 5. Navigate entire group with best effort scenario

Step 2. Near-future prediction

Step 3. Identify control points and construct scenarios

OpenStreetMap Japan@CC-BY-SA 2.0

| Current time | 3 min. later | 5 min. later | 10 min. later |

Example of prediction of people flow for future 10 minutes from previous five minutes

Related works

[1] NTT R&D Forum2015: "Satisfying Visitors with Collective Navigation While Predicting People Flow".

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