Pre-Study 2003/06/03
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A Measurement system for investigating how people move around in a railway station

Background

-Importance of town centers, especially those for pedestrian, is increasing

Concept of "Compact City"

This concept attracts a great deal of attention these days. Its main idea is that we should make cities smaller and more efficient (Figure.1). The idea is based on the assumption that long commuting time and energy consumption in traveling from suburban areas to town centers can be solved by making cities as described below;

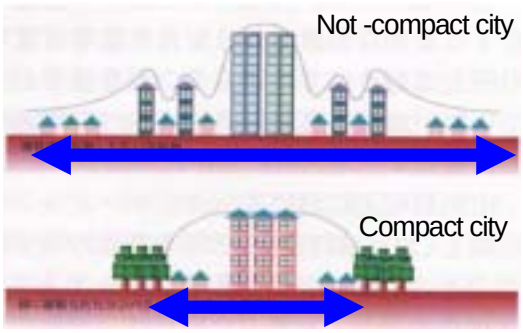

Figure.1 Compact city and Not-compact city

- Town centers and residential areas are close to each other
-Equipped with intensive infrastructure
-Tracts of green land to prevent expansion of cities

Details of this concept are available at the website below;
http://www.the-silo.com/melbourne2030/content/policies_initiatives/01_compact.html#

Concept of "Walking Friendly City"

Many cities adopted policies based on this concept recently. For instance, In London, one of the central planks of the Mayor's Transport Strategy (Livingstone 2001) is to "make London one of the most walking friendly cities for pedestrians by 2015". There has been a number of projects to improve current town central pedestrian's environment by getting rid of unpleasantness, inconvenience and danger caused by motor vehicle.

Details of this concept are available at the website below;
http://www.london.gov.uk/approot/mayor/strategies/ transport/pdf/final_ch04i.pdf
http://www.londontransport.co.uk/streets/pdfdocs/ walking/walking-plan-summary-DRAFT.pdf

- **Objective analyses on people's movement in town centers are necessary for implementation of these concepts in urban planning**

Pedestrian movement should be analyzed in quantitative ways, which help all different stakeholders reach consensus. Thus, development of measurement systems that provide quantitative data is needed.

Aim and Structure of the study

-to develop a measurement system of pedestrian movement
-to test its accuracy by an observation study in a railway station

In this lecture, an observation study in which we used laser scanners as measurement systems is outlined with brief explanation of systems and main results of the study. We focused on pedestrian movement in a railroad station, as it is one of the busiest and commonly used town central facilities.

Observation Study of pedestrian movements in a railway station

Time 2003/02/21 4:30 - 2003/02/02 23:50
Venue The concourse around East exit of Ebisu station, JR Yamanote line (Figure.2)

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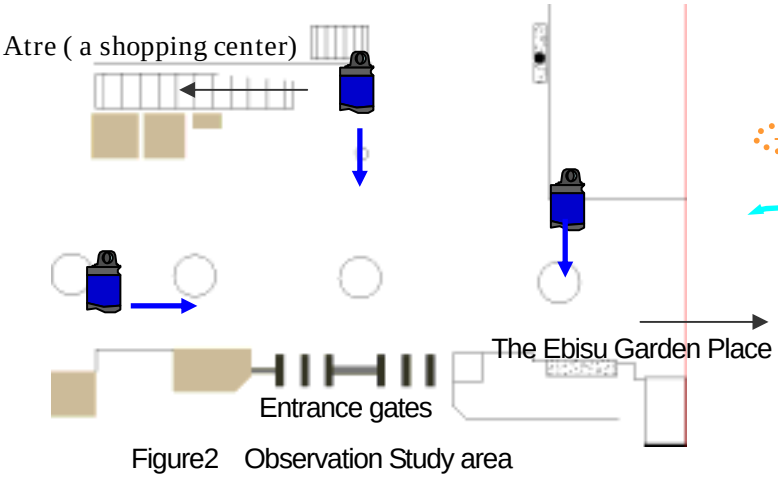

Figure2 Observation Study area

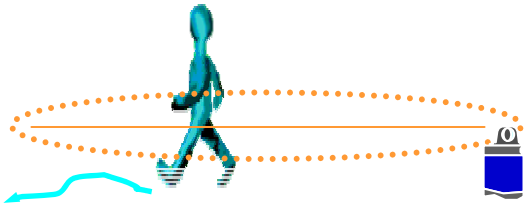

Figure3 Image of measurement system

Pedestrian flows in the station were measured by laser scanners set on the floor (Figure.3) The datasets obtained from the observation study were analyzed in 3 ways as stated below;

-Trajectories of pedestrian

How are pedestrians walking around in the station?

-Occupation

Where is the most crowded area in the station?

-Staying at the same place for a long time

In which areas people stay long time?

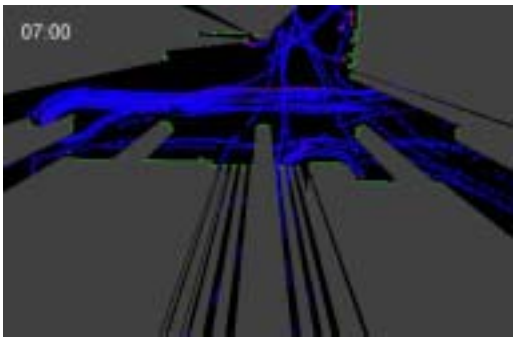

Figure.4 pedestrian flow at 7:00 AM

Results

-People's flows were successfully represented (Figure.4)

-Time series changes were seen.

-It is suggested that these changes are caused by the change of aims of each pedestrian

-It is illustrated that people tend to stay near walls and columns

References

Livingstone, K., (2001) The Mayor's Transportation Strategy, **Greater London**

Glossary

Words	Meanings
Pedestrian	A person traveling on foot
Suburban	A usually residential area near a city
Vehicle	A device for transporting persons or things
Implement	To ensure that what has been planned is done
Quantitative	Expressed as amounts or number
Accuracy	Precision or exactness
Concourse	A large open space for passage of clowds
Trajectory	The path or route of moving body through space
Occupation	The act or process of holding a place