**System Structure**

**Input editor**
- Create road
- Read/write data

**Simulator**
- Set simulation conditions
- Control vehicle (trajectory tracking)
- Read/write data

**Summary results**
- Operating environment
  - OS: Windows 10
  - CPU: Intel Core i3-6100 or higher is recommended
  - Memory: 4GB or more
  - Hard disk space amount: 1GB or more

**Network**
- Internet protocol
- Web browser
- Access point

**Traffic flow parameters**
- Volume of occurring traffic
- Traffic data
- Traffic flow rates
- Lane direction
- Number of lanes
- Speed limit
- Volume of occurring traffic
- Travel ratio
- Parking spaces
- Service hours
- Through-traffic volume
- Travel time
- Length of congestion
- Traffic jam length
- Movement position
- Movement speed
- Movement conditions
- Transit time
- Vehicle type
- Travel speed
- Vehicle trajectory

**Simulation**
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**History**
- Measurement position
- Vehicle type

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**Traffic Simulation System**

**Hitachi image traffic counter (offline processing)**

**System outline**
- Automation of traffic volume measurement operations based on recorded pictures using existing CCTV and video cameras.
- Simultaneously reads traffic volume, speed, and vehicle tracking etc. in many points.
- Results of reading are outputted by text or CSV files.

**Importation results**
- Economization of traffic volume examinations
- Increased measurement data reliability
- Reduced cost with easy-to-use machinery

**Adaptations**
- Existing road traffic volume measurements
- Basic data acquisition for traffic simulation
- Travel speed measurements (speed required by vehicle to travel between two points)
- Vehicle mobility assessments (movement direction analysis of passing vehicles)

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City planning partner
- Fine detailed simulation of traffic conditions
- Compatible with overseas road transportation systems

Traffic simulation visually demonstrates various events with video data and makes quantitative evaluations of traffic volume possible by reproducing simulated vehicle movement on a computer. The use of this system also:enables congestion of city streets to be evaluated in fine detail since it can incorporate computations which include the movements of each vehicle, signal changes, vehicles parked at roadsides, and pedestrian behavior. In accordance with the Large-scale Retail Store Location Law, analysis of traffic conditions which will affect plans for parking facilities based on the openings of large-scale stores, as well as their surrounding roads, can be performed and effectively applied when making presentations.

Fine detailed representation of vehicle behavior using a drive event formula

Various events that occur on the road, such as signal changes, vehicles merging and diverging, and pedestrian crossings, are reflected on each vehicle movement. Complicated movements of thousands of congested vehicles can be finely simulated.

Operational improvements with GUI formula

By using GUI, easy input of a wide range of road structures is possible, and time requirements for input or revisions are reduced. Easily responding to a variety of situations.

Visual presentation function

The traveling conditions of each moving vehicle can be verified using road conditions in 3D or 3D animation. Additionally, the results can be output in the form of graphs which show data such as the number of vehicles traveling in different directions on each road or at each intersection, the travel time between road sections, and the length of congestion delays. The 3D simulator can also display environments which closely approximate the actual landscape for effective use in presentations.

Supports Windows OS
Supporting most types of operating environments. Can be used on laptop computers for mobile presentations.

Example of traffic simulation adaptation

1. Local traffic congestion countermeasures (intersections, road structure improvements, traffic control and others)
2. Road planning and relevant evaluations
3. New large industry location facilities constructions and event countermeasures
4. Evacuation simulation in the event of a large-scale disaster

Example of input items

- Volume of occurring traffic
- Divergence rate or OD
- Signal aspect
- Network data
- Parking information
- OD: Origin-Destination

Examples of output items

- Travel time
- Length of congestion
- Congestion length
- Waiting order conditions
- Vehicles in transit
- Animation

Supports Microsoft Windows 10
*Supports Microsoft Windows 10

Example of traffic simulation adaptation

1. Analysis of congestion degree
2. Analysis of improved measures
3. Vehicle movement model
4. Network analysis
5. Parking data
6. Signal control

Examples of visual presentation function

- Fine detailed simulation of traffic conditions
- City planning partner changes, vehicles parked at roadsides, and pedestrian behavior. In accordance with the Large-scale Retail Store Location Law, analysis of traffic conditions which will affect plans for parking facilities based on the openings of large-scale stores, as well as their surrounding roads, can be performed and effectively applied when making presentations.

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Vehicle position management according to latitude and longitude

Vehicle positions according to latitude and longitude can be managed using the World files*. In addition, the vehicles can be deployed to Geospatial Information Authority of Japan maps or Google Earth.

TRAFFICSS Viewer Software

*1. World files: Text files which include records of latitude and longitude coordinate position data, and can be used with the Geographic Information System (GIS), etc.
*2. Created by loading simulation results (kml file) on the Geospatial Information Authority of Japan map website.