GROUND VEHICLES SIMULATION

Training devices for any kind of ground vehicle
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The most efficient training tool with all conditions under control

A new concept in drivers training

Currently, Indra is a world leading provider of flight simulation and has been able to port such technology to the ground vehicles simulation. This brings to the market a state-of-the-art system for drivers training.

The new training system for ground vehicles simulates urban and rural environments, street drawings, traffic, pedestrians, and traffic rules.

The simulator is designed to provide a fully-controlled environment, with a high level of realism, to train drivers in a safe and effective manner.

The simulator environment includes:

- Virtual city: Different types of elements such as single to six lane streets, traffic lights, turns, and roundabouts, different slopes, bus stops, buildings, urban furniture, and other elements.
- Passenger and pedestrian model: Special buses modules, responses of other vehicles to bus stops, passenger falls due to aggressive braking, response training for usual malfunctions, and handling of each simulated vehicle.
- Traffic: Generate different types of traffic: fluid, parallel, and emergency situations that may affect driving safety.
- Environmental sound generation: Engine, traffic, passengers...

Relevant system capabilities

- Driving: Enhancement of the acquisition, development and maintenance of the skills and capabilities necessary for driving tasks and handling of each simulated vehicle model.
- Training exercise control: The instructor station includes the capabilities to plan, control, and analyse the exercises, with the possibility of complete or partial exercise replay.
- Pedestrian and passenger behaviour: Simulation of pedestrian and passenger movement in the control area and inside the vehicle.

Training goals

- Improve the quality of driver practical training
- All the situations that condition driving impartially and simultaneously, improving training effectiveness and reducing training time.
- Reduce accident risk during driving training
- The amount of practice on the streets is significantly reduced through the use of a simulated environment.
- Reduce driver training related costs
- Minimisation of the negative repercussions on service registration of traffic offence for drivers and companies in countries and independent training operators of the new models, and technical and professional improvement for drivers with high accident rates.
- Increase driver selection criteria
- Improved number of objectively evaluable parameters such as reaction time, fatigue, stress, braking, acceleration, and handling of each simulated vehicle.

Simulator overview

- Driving station: Interactive real elements for eight different urban models of different furnishes, dashboard, steering column, brake and accelerator pedals.
- Side console with instruments on LCD touch screen panels.
- Ticket machine for buses and operational panel.
- Pedestrian system: Acceleration and braking simulation, side acceleration (curb bumps and potholes), visual presentation system.
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The simulator contemplates all the typical incidents that may affect the vehicle and its passengers, including:

- Driving-related events: braking, overtaking, lane changes, parallel traffic, red light running...
- Pedestrian events: pedestrian and passenger behaviour
- Environmental sound generation
- Autonomous movement of each vehicle
- Generation of different types of traffic: fluid, congested, intermediate, dense...
- Response training for usual malfunctions, unexpected and emergency situations that may affect driving safety
- Environment sound generation
- Engine, traffic, passengers...

Driving
- Enhancement of the acquisition, development and maintenance of the skills and capabilities necessary for efficient driving and handling of each simulated vehicle model.
- The simulator contemplates all the typical incidents that may affect the vehicle and its passengers, including:
- Traffic
- Passenger and pedestrian model
- Special buses modules
- Special functions modules
- Training station
- Passenger and pedestrian behaviour
- Respondent model
- Vehicle simulator
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- Passenger and passenger behaviour
- Simulation of pedestrian and passengerBehaviour: In the control area and inside the vehicle.
- Crossstops, passengers boarding or disembarking at bus stops, falls due to sudden braking...
- Traffic
- Generating different types of traffic: fluid, congested, intermediate...
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The simulator takes the driver to different scenarios outside and inside the vehicle, allowing the driver to improve their skills and knowledge of urban driving.

The simulator allows for the generation of situations that may cause accidents and the evaluation of the reaction of both the driver and the vehicle to such events.

In particular, the simulator includes the following capabilities:

- Virtual city: Different types of elements such as single or dual lane streets, straight, turns, roundabouts, one-way, different stops, bus lines, buildings, urban furniture and other elements: bus stops, trees, container, pavement, traffic lights, pedestrian crossings.

- Traffic: Mobile controllable area centered on the current position of the vehicle. Different parameterized vehicle models ranging from motorcycles to utility vehicles for trucks and buses.

- Passenger and pedestrian behaviour: Special vehicle modules: Boarding and unboarding at bus stops, passenger falls due to bad road conditions or conduct of other vehicles, unboarding at bus stops, passenger falls due to aggressive driving.


- Relevant system capabilities: The simulator contemplates all the typical accidents that may affect the vehicle in both straight and curved roads, including traffic and pedestrian interactions and urban environment.

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Indra reserves the right to modify these specifications without prior notice.
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