SIMESCAR 4X4

4X4 VEHICLE SIMULATOR

simumak

Simumak is a Spanish company with an international presence belonging to *everis Aerospace and Defense*, which, in turn, is part of the NTT DATA group. Simumak has a long experience developing didactic simulation solutions for the Automotive, Construction, Mining, Logistics and Defense sectors.

Simumak develops 100% of its solutions in an affordable way, focusing on the specific needs of customers, combining the use of new technologies with the real needs of its customers.

How to operate it?

Simumak Immersive Simulators is the division from which we develop the software and hardware of cockpit simulators specifically designed for students to learn how to operate vehicles or machines. Boost the performance of your operators or qualify more prepared students thanks to our training plans on board Simumak simulators.

How does it work?

From the **Simumak VR Training** division, we design training plans adapted to the needs of the client, with the aim that the students are able to assimilate theoretical-practical knowledge, functions, or processes, using, as hardware, high quality and very low cost commercial products (Oculus Go). Optimize the assimilation of your processes or improve the understanding of your students through our immersive training tools.

Simescar 4x4 Simulator

Our goal is to maximize your profit by increasing the safety and productivity of your equipment.

After **more than 15 years of designing virtual trainings tools**, we have developed a product adapted to your needs with which you will be able to achieve real, measurable results that will optimize the operation of your company.

Fewer accidents, less fuel use, more profitable work cycles, recruiting, creating and retaining talented drivers through specific training programmes are just some of the examples where we can help you through our **virtual training tools.**
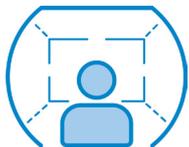
SIMESCAR 4X4 has been designed to achieve a level of immersion that allows training in a realistic, safe and efficient environment, from a cabin with medium immersion in the GOLD version in a semi-closed cabin in the PLATINUM version.

SIMESCAR 4X4 is an off-road pick-up vehicle simulator that allows the training, education, and certification, both at the initial and advanced levels, of 4x4 vehicle drivers. Especially designed for those sectors where driving this type of vehicle in conditions of safety and efficiency is critical, allowing the acquisition of the necessary skills to face various situations such as wading, ditching and steep slopes.

SIMESCAR 4X4 can operate stand-alone, but it can also be integrated with the **INSTRUCTOR STATION**, the student and exercise management platform **(SOCRATES)** and the exercises generator **(Training Manager)**, which will allow you to create training plans very quickly and at a very low cost.

We know that there are many different needs, even within the same company, that is why we have developed a product range with different models that adapt to different scenarios.

SIMESCAR 4X4 has been designed to achieve an immersion level that allows training in a realistic, safe and efficient environment, with a cabin with a movement platform and different levels of immersion, from a medium immersion in the GOLD version to a semi-closed cabin in the high immersion PLATINUM version.

SIMUMAK SIMULATION ECOSYSTEM

SOCRATES
- Students and instructors management
- Exercises settings
- Sessions scheduling
- Results displaying

TRAINING MANAGER
- Exercises creation and edition
- Generation of specific situations
- Guided learning plan

SIMFLEET MANAGER
- Simulators management
- HW and SW updates
- Maintenance
- Remote issues management

OBSERVER STATION
- It may be located in another room.
- Learning extension
- It allows the students to observe the development of the practice carried out in the simulator

INSTRUCTOR STATION
- Formed by three screens, a computer and a printer
- Telemetry application
- Visualization and communication with the student
- Modification of simulation conditions in real time (events, breakdowns, modification of weather conditions...)
- Interaction in real time with another vehicle thanks to the cooperative driving mode

SIMULATION STATION
- High immersion: realistic HW and SW
- Customizable learning program
- 3DOF movement platform to guarantee a complete immersive feeling.

AVAILABLE VERSIONS

Currently the simulator has several models of cabin depending on the degree of immersion.

SIMESCAR 4x4 PLATINUM

The SIMESCAR 4x4 PLATINUM option is a high immersion solution thanks to the semi-closed fiber coverage of the cabin and the 75" visual display system. It has realistic controls of a real 4x4 vehicle. Under the cockpit is located a movement platform of three degrees of freedom (3DOF), which allows the user to experience the movements of turns, accelerations and brakes, ups and downs.

SIMESCAR 4x4 GOLD

The SIMESCAR 4X4 GOLD option offers a realistic immersion solution thanks to the vehicle control system, which imitates the real controls of a 4x4 vehicle. The main difference with the Platinum version is that in the Gold version the screens are 42" or 65" and the cabin is open. As in the Platinum version, the three degrees of freedom (3DOF) movement platform is installed under the cockpit.

DASHBOARD

It contains the control commands: navigation cross, volume regulator, transfer selector, beaconlight, switches, ABS, warning and differential lock.

It contains the controls of the vehicle. It has a 15" screens for the virtual representation of the instruments panel. In addition of the controls, it includes a system of biometric identification.

STEERING WHEEL

With force feedback to recreate the direction system and vibrations from the road.

LEVERS

Left: It contains the direction indicators, lighting controls and the horn.
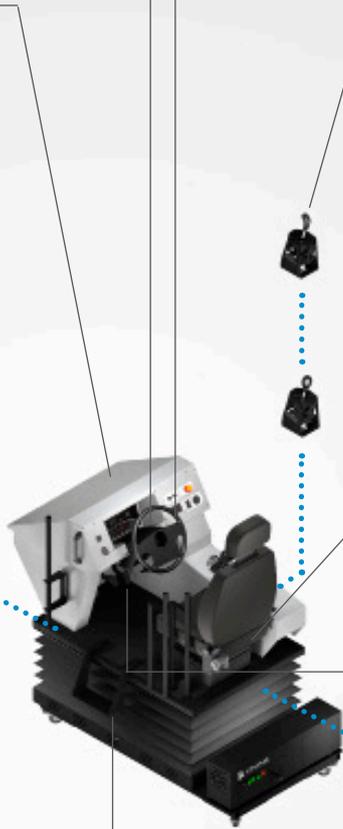Right: command control of the wipers.

GEAR LEVER

Two modes of use of the gear lever: manual and automatic.

SEAT

Homologated car seat with damping system and mechanical regulation. It has a sensorized safety belt.

PEDALS

Realistic brake, clutch and accelerator pedal. Equipped with vibration systems for ABS recreation and a load cell for simulating the brake pedal.

CONTROL TOWER, VISUALIZATION AND SOUND SYSTEM

This module contains the simulator's computer as well as the main electronics. It also serves as a support system for 42"(GOLD) and 75" (PLATINUM) screens.

3DOF MOTION PLATFORM

3DOF motion platform(3 degrees of freedom).
Reinforces the immersion and the realism of the simulation recreating the acceleration, tilts, ups and downs onboard.

SOUND SYSTEM

5.1. sound formed by 3 front and 2 back channels and 1 subwoofer.

FIBRE CASE

Fibre semi-closed case for greater immersion in the Platinum version.
It also serves as the 75" screens structure of the Platinum version, and it contains the simulator's computer and the main electronics.

TECHNOLOGY AT YOUR SERVICE

SIMESCAR 4x4 is equipped with the most cutting-edge technologies that turn this simulation experience into realistic and useful learning, making this product an essential tool for training.

VEHICULAR DYNAMICS

The SIMESCAR 4x4 simulator has a realistic vehicle dynamics system, which allows obtaining different reactions depending on the activated systems (ABS, ESP, selected transfer (2WD, 4H, 4LO) and ASR), the road conditions (wind, dry/wet asphalt, ice, etc.), location, weight and type of load when driving (braking, inertia and curves).

3DOF MOVEMENT PLATFORM

In order to get a complete feeling of immersion, SIMESCAR 4x4 implements a 3 degrees of freedom motion platform which simulates the driving movements: forward and backward tilts to recreate acceleration and breaking feelings, left and right tilts for curves and up and down movements. It also reflects the vibrations of the road.

INTEGRATED INCLINOMETER

Within the SIMESCAR 4X4 functionalities, an inclinometer is incorporated that allows viewing the angle of inclination in which the vehicle is at all times. Thanks to this device, it is possible to know the angle of inclination of the vehicle to avoid possible overturning.

SIMUMAK emphasizes not only in the maximization in the feeling of realism and immersion of its designs, but also in the strength of them. We garantee the optimization of maintenance cicles.

HARDWARE FEATURES

REALISTIC ENVIRONMENT

SIMESCAR 4X4 has a structure where 3 screens are located for the visualization of the student's operations, and speakers for sound. On the other hand, it has a movement platform on which the cockpit is located, equipped with a seat, pedals , dashboard, steering column and gear lever. The dashboard also has specific elements for 4x4 vehicles such as the differential lock switch and transfer selector.

All of these components have a realistic feel to increase driving immersion. The steering wheel and pedals have vibration motors that offer a more realistic feel.

INTERCHANGEABLE GEAR LEVER: MANUAL / AUTOMATIC

The modular architecure of Simescar 4X4 allows the gear stick module to be swapped between manual and automatic to accommodate both modes.

HARDWARE SOLUTIONS

Thanks to the efficient compact architecture of the simulator, it is very easy to transport and position easily in a room.

SOFTWARE FEATURES

In the SIMESCAR 4x4 software, parameters such as:

- Variety of settings: asphalt intercity, land intercity...
- Simulated vehicle: volkswagen Amarok pick up truck.
- Climatology
- Wind
- Time of day
- Level of traffic
- Simulated vehicle equipment: inclinometer, ABS, ASR, ESP, snow chains.

SETTINGS

WEATHER RAIN

WEATHER SNOW

ASPHALT INTERCITY


LAND INTERCITY

EVENT CROSSING COW

EVENT ACCIDENT

INSTRUCTOR STATION AND SOCRATES

While the student is doing the practice, the instructor can observe him from different cameras, check the telemetry or interfere with it through the command sending system of the **instructor station**.

- Breakingdowns, malfunctions
- Modification of time of day / weather conditions
- Inclusion of risk situations or special conditions (traffic / pedestrians)
- Co-operative driving...
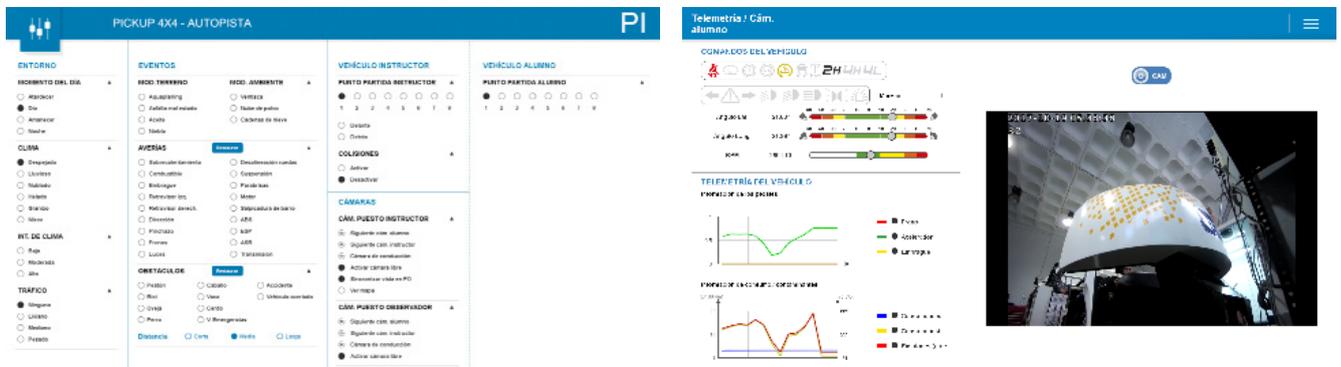
The simulator recognizes the student through a biometric identification system and stores its results in **SOCRATES**, generating a report of each practice carried out for later analysis.

At all times, the simulator supervises the student's practice, monitoring the correct handling of the machine and sending messages when it detects that incorrect maneuvers are being carried out. This automatic supervision system can be used to compute the note of the exercise, indicating in the design of the exercise which infraction or errors will subtract points from the student's grade.
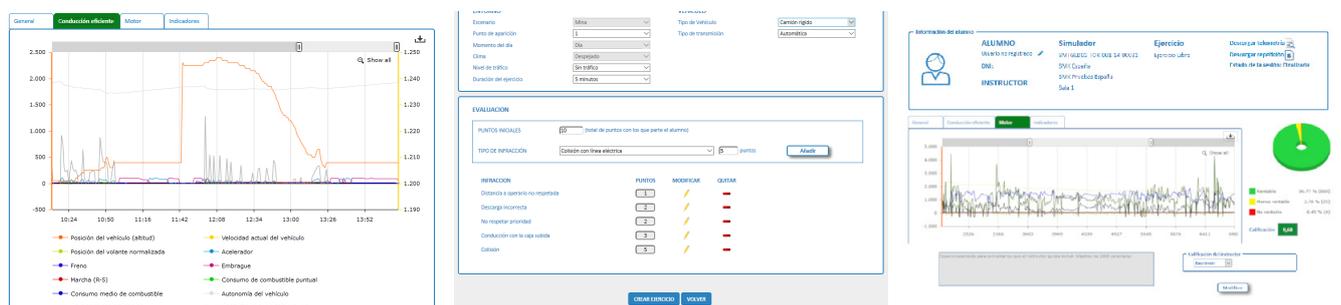
TRAINING MANAGER

Training Manager (TM) is an application that allows the user to create exercises for the simulator in a flexible way and without the need for specific programming knowledge, being able to upload these exercises to the cloud (socrates), including them in a student's training plan, and executing them in the simulator when that student connects.

When creating exercises, TM allows:

• To set up the initial configuration as in the simulator configuration menu. Choosing the setting and the setting's features, choosing the vehicle, and the vehicle's features, etc. among the available options.
• To add objectives to achieve, for example "complete the following circuit".
• To add driving points and to choose what infractions and driving errors take them out.
• To create user's routes and traffic to guide the student or to generate specific situations with other vehicles.
• To generate events in specific places (all the ones contained in the Instructor Station)
• To create situations / circuits with elements such as cones, fences, stopped vehicles, signs, pedestrians, animals.
• To include instructions to the student, written and in recorded voice.
• Through scripting programming, include conditions or specify procedures that the student must meet to exceed the objectives.
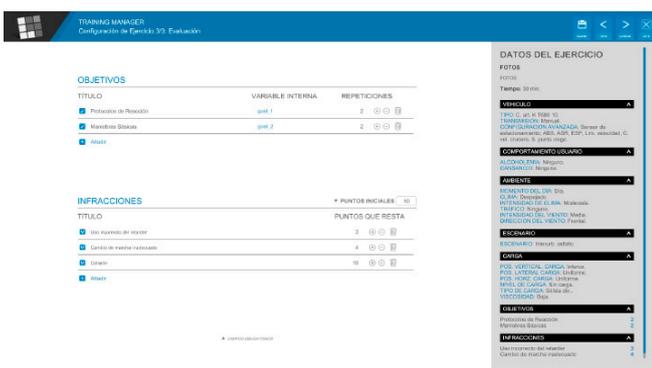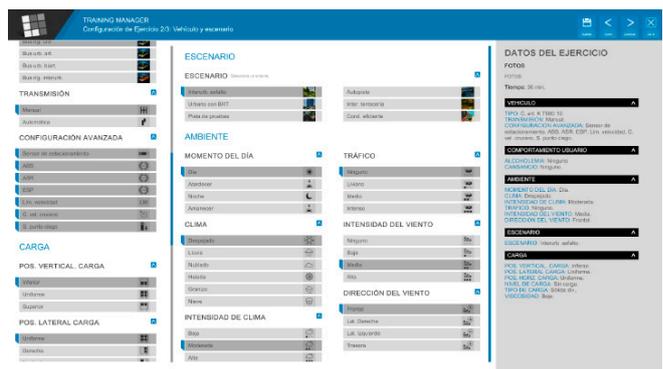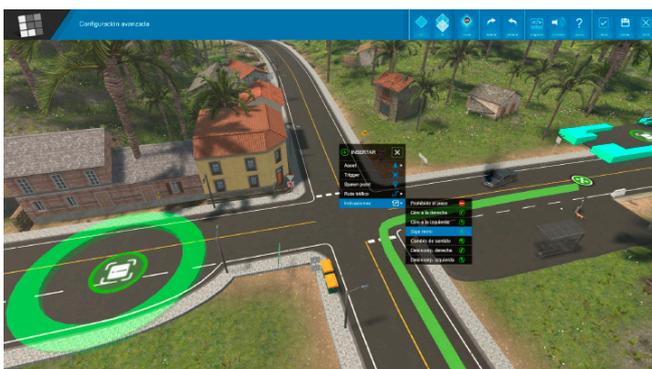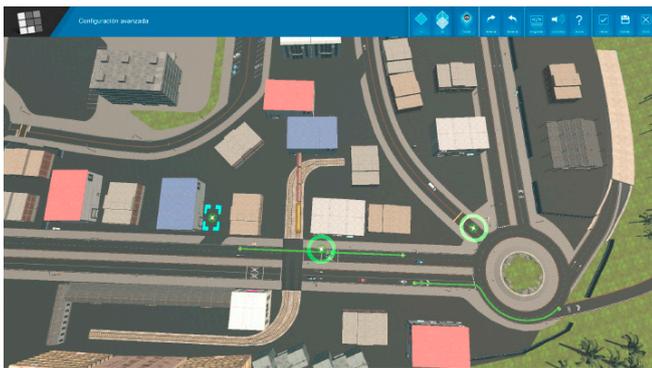
simumak

an everis ADS company

+ 5000
simulators manufactured

+ 15
countries with installed base

+ 20.000.000
performed sessions

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