

# SIMESBUS

BUS SIMULATOR



 **simumak**  
simulation as a service

[www.simumak.com](http://www.simumak.com)

*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.



# SIMESBUS 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**.



SIMESBUS has been designed to achieve training in a realistic, safe and efficient environment. It offers **several levels of immersion**, depending on the needs and the room of the user, through three cabins called, Silver, Gold and Platinum, from lower to higher immersion.



SIMESBUS 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, so we have developed a product range with different models to suit different scenarios.

## 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

- Formed by an elevated screen
- It may be located in another room.
- Learning extension
- It allows the students to observe the development of the practice carried out in

### 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 HA and SW
- Customizable learning program
- 3DOF movement platform to guarantee a complete immersive feeling
- Several buses in one simulator



## VERSIONES DISPONIBLES

The simulator has three different types of cabin depending on the immersion.



### SIMESBUS SILVER

The option **SIMESTRUCK SILVER** is a low immersive solution. It keeps the realistic controls system of the GOLD and PLATINUM cabins, with a compact size, since it has smaller screens of 42". It does not have a case at the back and it does not include the motion platform.



### SIMESBUS GOLD

The option **SIMESBUS GOLD** offers a realistic immersive solution thanks to the control system of the vehicle which imitates the real controls of a bus. The main difference with the Platinum version is that in Gold version the screens are 42" or 65" and the cabin is opened. As in Platinum version, the 3DOF motion platform is located under the cockpit.



### SIMESBUS PLATINUM

The option **SIMESBUS PLATINUM** is a high immersive solution thanks to the semi-closed fibre case of the cabin and the visual system with 75" screens. It has the controls of a real bus. Under the cockpit, it is located the 3DOF motion platform, which allows the user to feel the turning movements, accelerations and brakings.

#### SCREENS STRUCTURE

Control tower: this module contains the simulator's computer, as well as the main electronics. Moreover, it is used to hold the 42" (SILVER and GOLD) and 75" (PLATINUM) screens.

#### DASHBOARD

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

They contain the horn, the lights, the direction indicators, the windscreen wipers, secondary breaking systems, and on board technologies.

#### GEAR LEVER

Three modes of the gear lever: manual, semi-automatic and automatic.

#### SEAT

Truck/bus homologated seat with shock absorber and mechanical adjustment. It has a sensorized safety belt.

#### PEDALS

Realistic pedals with vibrating systems for the recreation of ABS and charging cell for the break pedal simulation.

#### SOUND SYSTEM

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

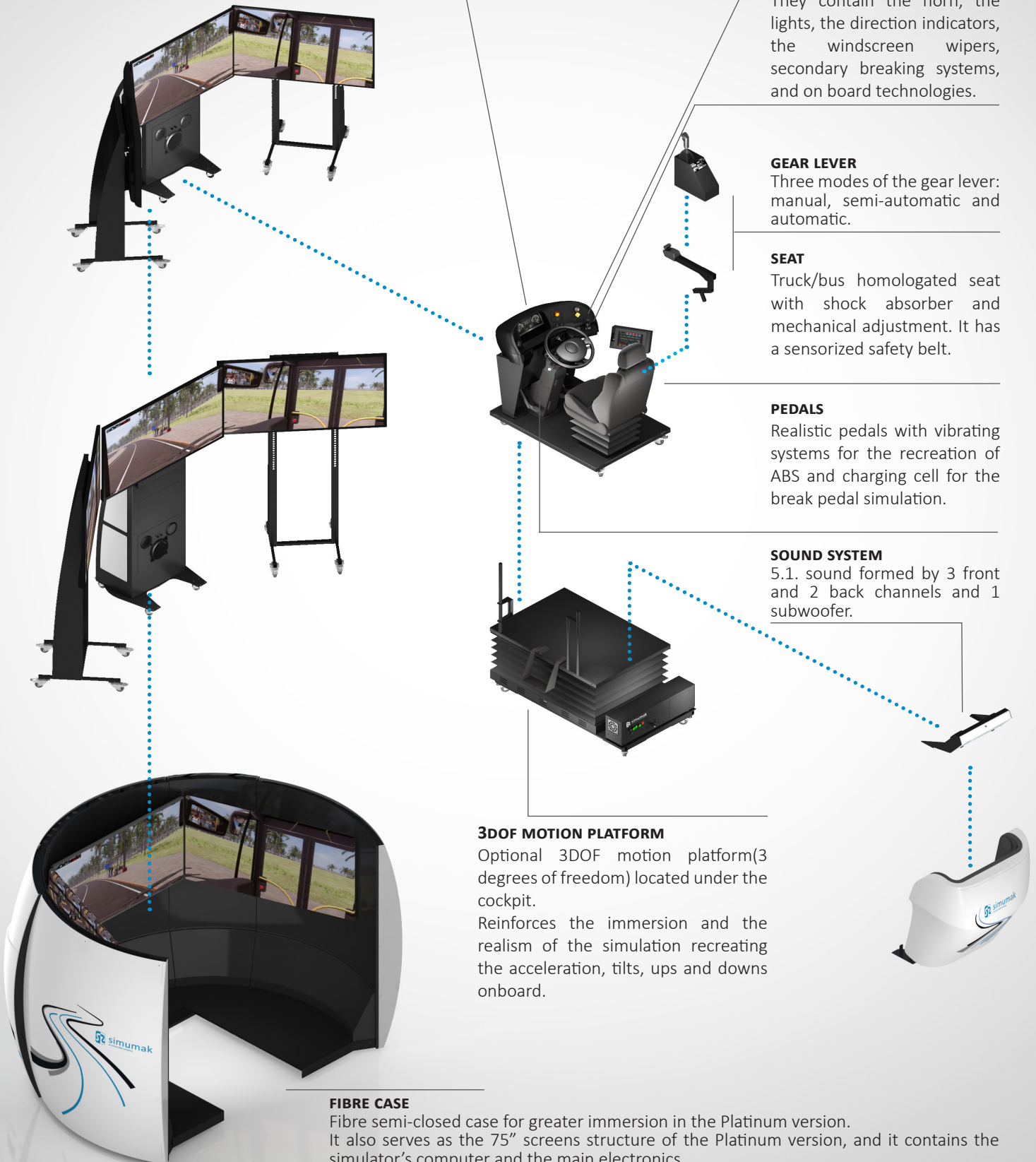
#### 3DOF MOTION PLATFORM

Optional 3DOF motion platform(3 degrees of freedom) located under the cockpit.

Reinforces the immersion and the realism of the simulation recreating the acceleration, tilts, ups and downs onboard.

#### 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.





## HARDWARE FEATURES

SIMESBUS has a structure where 3 screens are located for the visualization of the student's operations and speakers for sound, and 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.



### REALISTIC ENVIRONMENT

**SIMESBUS** has the controls of a real truck which give the product a level of immersion to achieve a unique learning experience for the user.



### 3DOF MOVEMENT PLATFORM

In order to get a complete feeling of immersion, **SIMESBUS** 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.

### HARDWARE SOLUTIONS

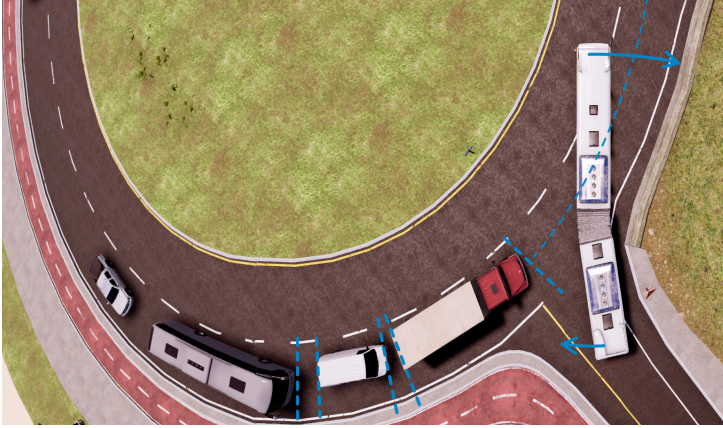
Thanks to the efficient compact architecture of the simulator, it is very easy to place it or move it from one location to another.



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 guarantee the optimization of maintenance cycles.

## TECHNOLOGY AT YOUR SERVICE

SIMESBUS is equipped with the most advanced technologies that turn this simulation experience into a realistic and useful learning one, making this product an essential tool for training.



### VEHICULAR DYNAMICS

Simesbus simulator integrates a realistic system of vehicular dynamics, which allows to experience different reactions depending on the activated systems (ABS, ESP, ASR), the road conditions (wind, dry/wet pavement, ice, etc) location, weight and type of cargo (breakings, inertias and curves).



### PASSENGERS GETTING ON AND OFF THE BUS

SIMESBUS has a passenger generation system for getting on and off the bus, both with and without reduced mobility (including a ramp system). They will raise their hand to request to get on the bus and they will press the acoustic signal to request to get off the bus.

## SOFTWARE FEATURES

### AVAILABLE VEHICLES

#### URBAN



#### ARTICULATED URBAN



#### BI-ARTICULATED U.



#### MINIBUS



#### INTERURBAN



## SETTINGS, WEATHER AND EVENTS

In SIMESBUS software, we can configure features as:

- Variety of settings: test track, urban BRT, highway, efficient driving, paved mountain pass and unpaved mountain pass.
- Different vehicles
- Climatology
- Wind
- Time of day
- Traffic level
- Activation / deactivation of embedded technologies and security systems.



NIGHT



SNOW



EXCLUSIVE BUS LANE



URBAN CIRCUIT



INTERURBAN CIRCUIT STOP



CLOSED BUS STOP



CROSSING DOG EVENT



ACCIDENT EVENT



## INSTRUCTOR STATION AND SOCRATES

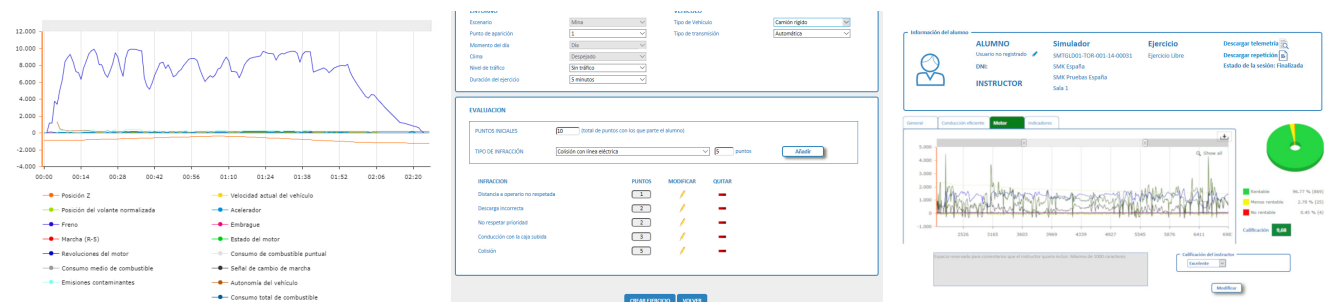
While the student is doing the practice, the instructor can observe him from different cameras, check the telemetry or interfere with it through the command sending system of the **instructor station**.

- 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.
- To include conditions or specify procedures that the student must meet to overcome the objectives through scripting programming.

