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LUDUS is the ultimate platform for safety and health training
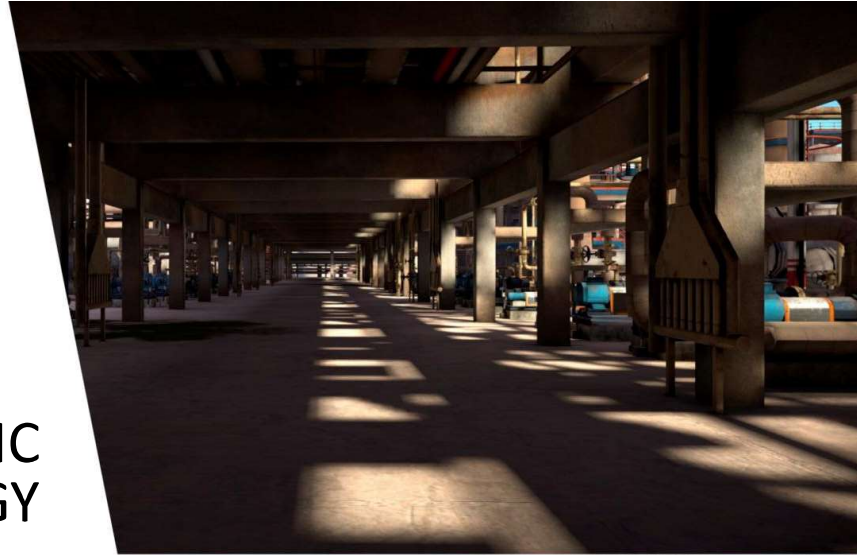
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LUDUS PRESENTS AN INNOVATIVE, 100% REALISTIC AND RISK-FREE TECHNOLOGY

▸ **Improves effectiveness** in the learning process of operators.

▸ **Reduces the costs associated** with training and travel.

▸ Reduces the number of **accidents and casualties.**

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▶ **VR SIMULATION**

Realistic interaction with the environment: body movement, VR glasses, hand tracking, surround audio.

▶ **SUPERVISOR**

A supervisor monitors the simulation and can also perform the exercise setup

▶ **STATISTICS**

Simulations **record decision-making and performance** of each user so that it can be studied later in the classroom.

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PRODUCT OBJECTIVE

▸ We firmly believe in the qualitative difference in learning using virtual reality.

▸ Our goal is for students (non-healthcare staff), who use our basic CPR product, to be more prepared to face a real situation with determination and success.

▸ We want to reduce a possible psychological blockage in a real emergency.

HOW ARE WE GOING TO ACHIEVE IT?

▸ Offering a formative tool that allows to make formations not only memorizing, but also memorable.

▸ The reason for creating this product is to help train people in a realistic environment where they will face unexpected situations without the need for a role play.

▸ Using the immersion offered by virtual reality as a catalyzing the processes of acquisition, accommodation and assimilation of knowledge.

INSTRUCTIONAL MODES

GUIDED MODE

Guided mode offers **hints to the student**, indicating what actions must be performed to complete the basic CPR algorithm correctly. It is conceived as a tool to reinforce the **initial acquisition of knowledge and contact** with the CPR algorithm.

UNGUIDED MODE

In the unguided mode the student must perform the basic CPR algorithm **without any indication.** It is designed to improve the processes of **accommodation and assimilation of knowledge** about the CPR algorithm.

▸ In both cases, **the trainer figure is important.** The trainer is key to energizing training, resolving doubts and making points.

▸ Both modes allow **group training.** In a classroom with multiple students, those who are not using the tool will be able to see in real time the performance of the partner. **Ongoing learning.**

▸ The trainer will be able to activate different **real-time situations.** This will allow the trainer to recreate **unexpected situations**, where the student will be tested.
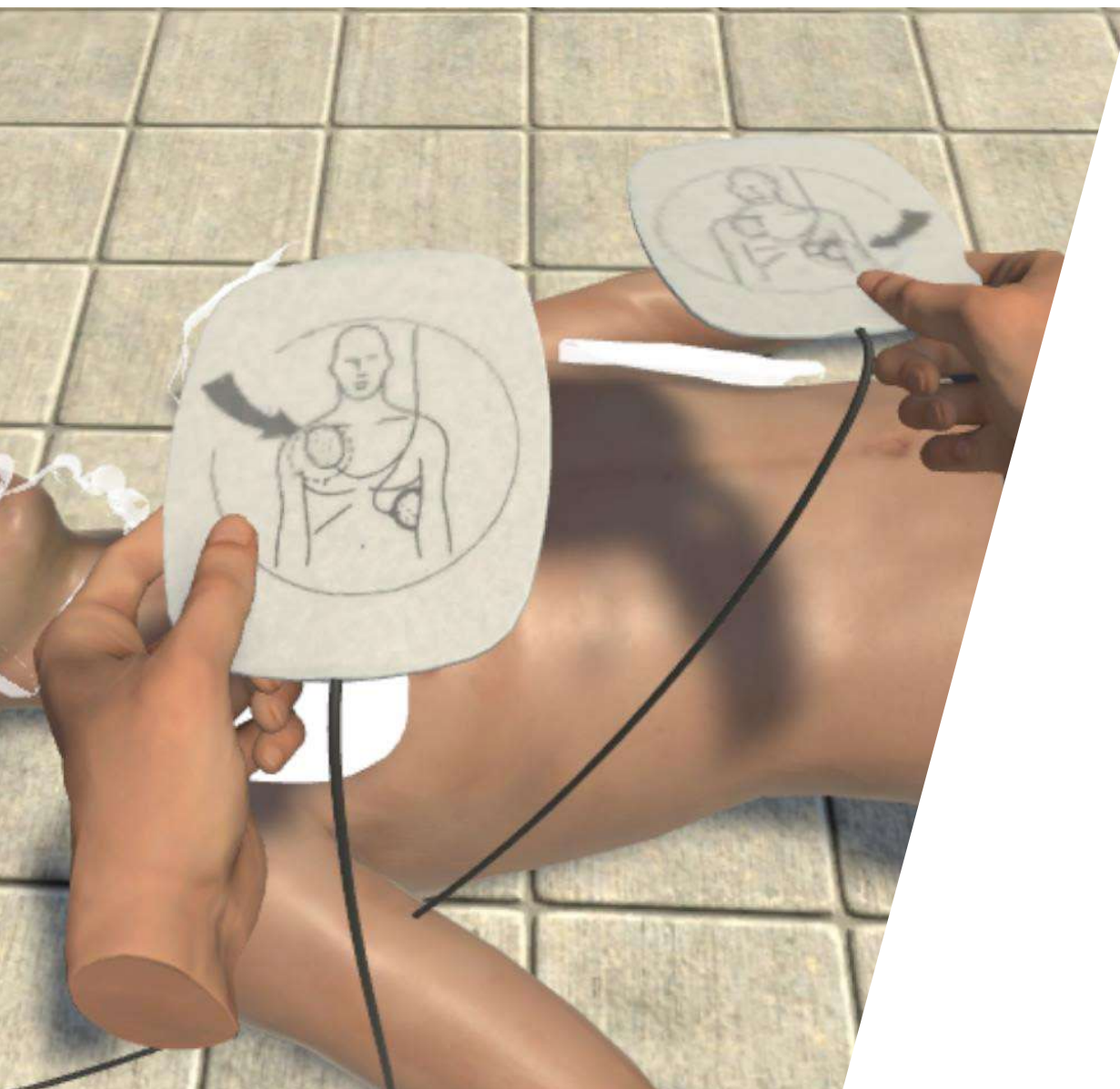
CPR PRODUCT

HAND TRACKING

This formative tool uses the latest technology in hand tracking. The student does not need commands to interact.

Hand tracking allows:

▸ Handle object with ease**.**

▸ Use the Defibrillator and all its functionality

▸ Interact with the patient to complete the steps of the Basic CPR algorithm**.**

Unresponsive
No breathing or
no normal breathing
(only gasping)

Activate emergency response

Get defibrillator

Start CPR

Check rhythm/shock if indicated
Repeat every 2 minutes

Push Hard • Push Fast

BASIC RCP ALGORITHM

This tool faithfully recreates the Basic CPR algorithm and evaluates the student based on his/her performance.

ALGORITHM STEPS

▸ Check the patient's consciousness.

▸ Open the airways and check breathing.

▸ Call the emergency service

▸ Find/Request a AED

▸ Perform the cardiac massage.

▸ Follow the AED's instructions

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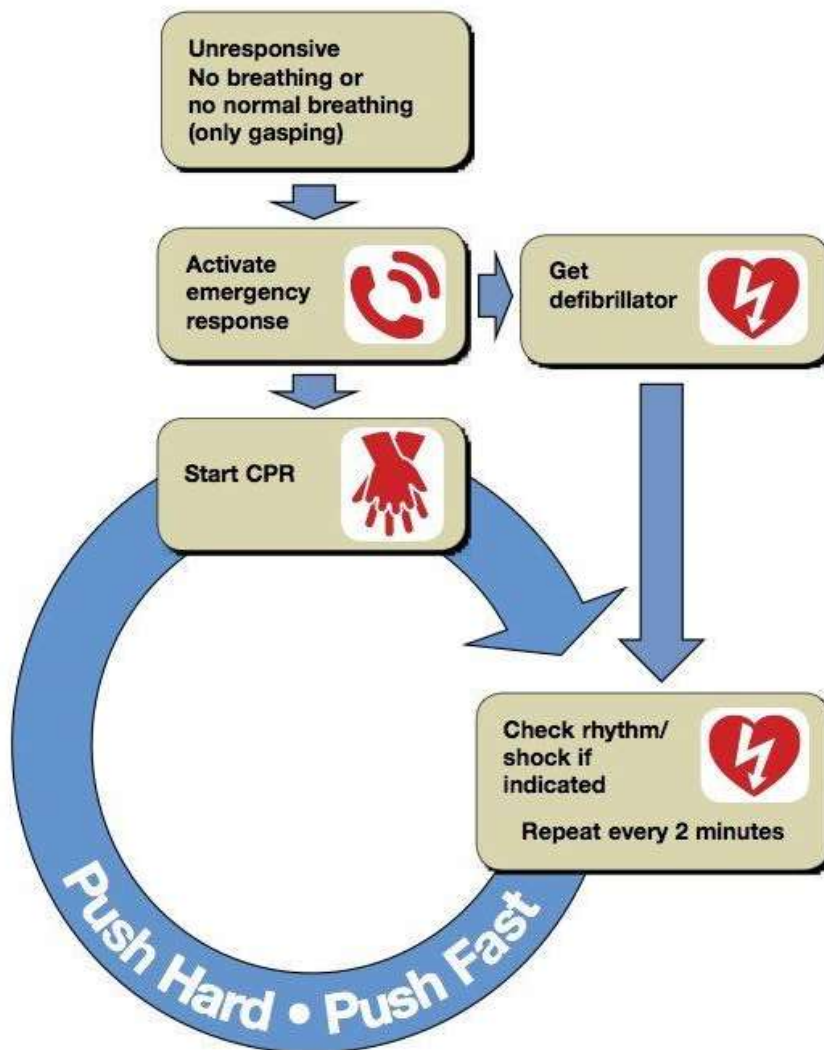
CARDIAC MASSAGE

HARDWARE AND SOFTWARE

This training tool uses a certified bust for CPR training.

▸ The bust is connected to the tool software.

▸ The student performs the cardiac massage on the bust itself.

▸ The tool detects the student's compressions and provides information for the student to make the appropriate corrections.

▸ The depth and pace values collected by the bust are shown to the student and the rest of the class in real time.

▸ In addition, depth and pace values in compressions are recorded in the system and used for student evaluation.

AUTOMATED DEFIBRILLATOR

▶ During training the user can use a virtual AED that 100% simulates all the functionalities of a real AED:

    ▶ Detects if the patient is conscious and/or breathing; in addition to the type of breathing (e.g. Gasping).

    ▶ Detects movements in the patient. For example, when the student touches it.

▶ The AED provides the student with precise instructions based on the patient's condition:

    ▶ Instructs the student not to touch the patient during the test.

    ▶ Instructs the student to manage a shock.

▶ It has two electrodes that the user must place on the patient's chest and side for proper functioning.

▶ Different situations can be configured that affect the functioning of the AED.

VARIABLITY IN THE AED

WHAT CAN WE SET UP?

Before starting the training exercise, the trainer can configure different options that affect the functioning of the AED.

▸ AED Presence.

▸ Dischargued AED.

▸ Expired electrodes.

▸ Presence of scissors to cut clothes.

▸ Presence of razor.

These options increase the training possibilities, so that the trainer can configure different training scenarios, allowing to adapt the instruction to the students.

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OTHER CONFIGURABLE OPTIONS

WHAT ELSE CAN BE SET UP?

In addition to the configuration options that affect the AED, the trainer can use the following options:

▶ **Patient with hair on the chest.** So the student must remove it for the patches to work properly.

▶ **Patient with a chain in his chest.** So the student must remove it before administering a shock.

▶ **Patient breathing.** For the student to decide that he/she should not perform the cardiac massage.

▶ **Patient with agonizing breathing.** So the student must make the decision to perform the cardiac massage.

REAL-TIME VARIABILITY

WHAT CAN BE MODIFIED IN REAL TIME?

In addition to the configuration options described, the trainer can modify stage elements in real time testing the student even more:

▶ **Activate breathing.** The trainer can enable/disable the patient's breathing so that the student acts accordingly.

▶ **Activate nervous person.** With this option, the trainer can activate one of the people present at the scene, so that he/she challenges the student from restless behavior.

▶ **Activate indiscreet person.** With this option, the trainer can activate one of the people present in the scene, so that he/she challenges the student from a meddling behavior and providing wrong clues.

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SCENARIOS INCLUDED

The trainer can select a scenario from the 6 proposed locations, allowing greater variability during the instruction of different students. Each of the locations represents real places where the need for basic CPR may arise.

OFFICE

Office or room in industrial context, with loud noise of background machinery. Two other people will be present next to the user.
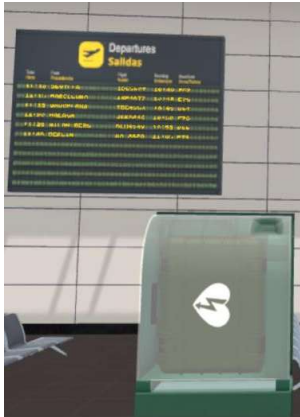
AIRPORT

Waiting room of an airport. On stage there will be other passengers.

URBAN ENVIRONMENT

City street with tall and low buildings. On the street there will be passers-by and curious.
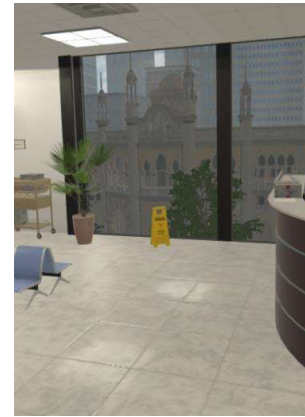

TRAIN STATION

Stage next to the tracks of a train, with countryside around. This scenario will feature two other people next to the patient and the user.

MALL

Clothing store inside a mall. Two other people will be present next to the user.

HOSPITAL

A hospital waiting room. The user is alone, with no help.

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STATISTICS SYSTEM

▸ **Deployed to the user** at the end of the simulation.

▸ It saves **individual reports** for subsequent consultations.

▸ The following data is displayed and saved:

✓ Exercise time
✓ Total session time
✓ Mistakes
✓ Values of depth and pace of compressions
✓ Approved/Not Approved

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CPR PRODUCT

PRODUCT ADVANTAGES

BE A PIONEER

▶ Using the most innovative technologies on the market.

▶ Positioning itself as a leading company in the use of technology.

▶ Possibility to attend events with super innovative product.

▶ Surf the current wave of digitization, Industry 4.0

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BASIC CPR TRAINING IN VIRTUAL REALITY

ADVANTAGES BETWEEN BASIC VR CPR TRAINING AND TRADITIONAL TRAINING				
OPTIONS	**Traditional training Basic bust**	**Traditional training smart bust**	**VR training**	**INFORMATION**
Hearing (breathing)	✗	✗	✓	With the CPR product the student will be able to hear whether the subject breathes or not, or if he or she has agonizing breathing.
Measuring compression pace	✗	✓	✓	Unlike traditional training, the CPR product will be able to measure the rate of compressions throughout the exercise.
Assess compression pressure	✗	✓	✓	The depth of each compression will be measured in the CPR product.
Assess compression elevation	✗	✓	✓	Not only can depth be measured, but also assess if the student raises his or her hands to the starting position to generate proper blood circulation.
Stress	✗	✗	✓	Through sounds, screams and situations caused by third parties, the student will train the basic CPR process under stress, avoiding ideal situations that do not train equally in the face of real situations.
Third-party management	✗	✗	✓	The user will be able to interact with third parties so that they do not disturb, learning to better manage the situation.
Rain	✗	✗	✓	Rain will be a possible situation, not imaginary as in a traditional formation.
Expired electrodes	✗	✗	✓	The student will have to decide what to do if he or she encounter expired electrodes.
Necklaces, bracelets or metal watches	✗	✗	✓	The student will have to prove that he or she has understood that he or she must be removed to avoid fatal mistakes.
Body hair	✗	✗	✓	The student will decide whether or not to put electrodes based on the body hair of the unconscious subject.
Suffering shock from touching the subject	✗	✗	✓	If the user is touching the patient when the defibrillator shocks, he or she will suffer an unthinkable consequence in a traditional training.
Third person suffers shock when touching subject	✗	✗	✓	If the user have not managed third parties well, and one of them touches the subject when the discharge is made, the student will be able to see the consequences.