e-Technologies Solutions, Corp.

e-Technologies Solutions is a leading North American company, established in West Palm Beach, Florida, which specializes in providing information and tools for professional, academic, and technology training in Latin America and the Caribbean.

Featuring a decentralized office structure across the continent, e-Technologies Solutions offers sales, installation and maintenance in each country, for the entire line of products offered through its simulation division.

e-Tech designs, manufactures, and assembles its simulators depending on the requirements and geographical area of its clients in USA, Panama, Brazil or Colombia, thinking about the development of training systems that make a production process with optimal results for the entity that acquires.

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**Our Team**

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e-Tech Simulation

e-Tech Simulation is a division of e-Technologies Solutions dedicated to the design, development and manufacture of simulators as a training method for both apprentices as well as experienced personnel so they can improve their performance and help the company to achieve its productivity goals.

In addition to manufacturing simulators, we represent companies recognized internationally for its developments in the area of simulation. This way we offer several state-of-the-art simulator ranges for training in the fields of:

- Harbour crane, lifting and trucks simulators
  - STS Crane
  - Mobile Harbour Crane
  - RTG Crane
  - Reach Stackers
  - RO-RO Trailer
  - Forklift

- Construction Simulators
  - Mobile Crane
  - Tower Crane
  - Backhoe
  - Hydraulic Excavator
  - Wheel Loader
  - Forklift

- Mining Simulators
  - Mining Truck
  - Off-Highway Truck
  - Drill Jumbo
  - Electric Rope Shovel
  - Hydraulic Excavator
  - Wheel Loader

- Forestry Simulators
  - Harvester
  - Forwarder
  - Hydraulic Excavator
  - Wheel Loader

- Transportation Simulators
  - Automobile
  - Bus / Truck
  - Train / Metro
  - Race Car / Formula 1

- Welding Simulators, Graphic Arts, and others.
why simulation?

Training is, without doubt, one of the most profitable techniques in occupational hazards prevention. From a preventive point of view, education should be integral and directed not only to get a change of attitude towards preventive measures to be taken, but also to achieve the desired change of aptitude for a particular job and do it safely.

The use of simulators in workers training, is presented as a useful tool when acquiring safe habits while operating different equipment, which provides a cost reduction in such training to enable simultaneous practice by several operators and greater availability of time to perform them.

the possibility of accidents should always be considered during loading and unloading operations, but a well trained operator can avoid accidents that can be fatal. Statistics show:

- 87.5% of accidents were caused by human factor and 23.5% for machinery failure.
- 36% of these accidents were caused by the machines operator
- 3.5% understanding failure.
- 7.5% reaction failure.
- 12% perception failure.
- 13% decision failure.
structure of a simulator

Training

Each equipment developed by e-Tech Simulation consists of a complex simulation system containing a series of modules or subsystems that are responsible for the simulator’s different functionalities.

A simulation system consists of an immersive environment based on virtual reality techniques that reproduces the work environment simulated on different machines and a set of logical and mathematical models which makes the behavior of the virtual environment be similar to the real environment and equipment.

elements of the simulation system

Dynamic Simulation Subsystem

A set of scientific applications which mission is to calculate the simulated equipment status and environment at each instant of time, through a mathematical model. This subsystem is designed so that implementation is through a computer with a high performance processor.

Instructional Design

It is a set of exercises programmed in the simulator software which along with a training manual allows maximum system performance as an instructional and training equipment.

Chair and controls Subsystem

That part of the system that allows the operator to communicate to the dynamic simulation (software) and visual subsystems. This is where the user carries out the decisions to be interpreted by the dynamic simulation subsystem and be played on the visual subsystem. It consists of a generic chair identical to real one, where controls are located on the chair’s arms. The chair is designed with orthopedic and mechanical suspension cushions where you can adjust operator’s weight and also have good posture during training. The chair design meets all the international standards requirements.
Visual Subsystem

Generates a visual representation of the work setting. This subsystem is running on a high performance computer with high resolution graphics cards that allows for a single image on multiple LED HDTV monitors. The visual image can change at different viewing angles depending on the machine to be simulated.

Simulators Controls

The controls are a replica of the actual ones taking into account size and fit according to the real machine manufacturer.

Images

Images of the simulator visual software system
Simulators could have an instructor station and management software to facilitate teaching and student monitoring. The instructor can select different visual perspectives that allow him/her to monitor trainee’s performance during the exercises.

At the end of the practice a student’s exercise performance report is generated which includes different execution times, angles, different heights, number of collisions and heavy hits among others.

Allows the operator to experience acceleration and braking in the simulator and the expansion of vestibular and tactile sensation, minimizing the kinetosis effect (SAS Simulator Adaptation Syndrome).

The Q Motion platform integrates a range of bi-directional 6 degree movement at a radius of approximately 72 “/ 1.80 m, with a reaction signal of 250 ms., 2Gs amplitude. Compact and robust design, aluminum manufactured, adjustable to different cabin sizes to simulate.

The cab provides a much more real environment to help with the operator's immersion in the simulator. We manufactured real equipment or cranes replica cabins.
The driving simulators are immersive virtual reality generated by high-fidelity computer processors, controlled by common software programs networked and developed to provide high performance during execution. The e-Tech simulators using multiple scenarios in vehicle dynamics including the interaction between road surfaces, tires and vehicle suspension.
Bus and/or Truck

Bus Simulator and / or trucks are computerized virtual simulators, high definition multi-channel high-definition monitors (LED HD) including specific vehicle dynamic models specialized software controlled and adjustable to different types of features.

The simulator includes virtual sets suitable for the evaluation, certification and / or training of drivers driving under typical virtual environments including urban, sub-urban and rural highway, which can lead to different weather conditions (rain, fog, snow, day, night) and traffic density.
The locomotive simulator system e-Tech is designed to train personnel in the operation of railway locomotives, EMD and GE of any model. The simulator replicates the cab of a locomotive and covers all the indicators present in a real engine, and includes a set of controls type Desk Top or AAR-105 to provide a realistic training.

AAR-105 (Deluxe) vertical control with complete systems including training of instructors in the operations of entire configuration simulation as well as its location 200 miles of railroad generic or custom option of the tracks.

For lovers of speed, extreme feelings or simply as a business in gambling houses, e-Tech Simulation Platform provides real designs different tracks movement and current world championship.

We customize the frame to different models and there are various alternatives in the visual system, including motion platform.

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Simulation as a learning tool

Learning to operate heavy machinery was a complex task. In the formative stage, there was not perception and risk prevention tools, these are factors that are learned with practice and monitoring. In dangerous situations, the operator tends to panic and react inappropriately because a step between theory and practice did not exits before, this step created by our company allows the operator recreate accidents and emergencies and learn the proper procedures in each of these cases.

Instructional Design

The use of a simulator for training also allows detailed tracking of apprentices by expert staff, both in the operation of machinery and in the teaching and learning. To this end, it incorporates a working METHODOLOGY and tools that enable the creation of operation situations according to the knowledge of the instructor. The simulator provides an experiential reality ultimately used to:

Demonstrate: The simulator gives the operator the opportunity to perform live demonstrations to the operator at training.

Instruct: The apprentice receives information and lessons to help him/her learn the correct way to operate.

Practice: After receiving the right directions, the apprentice should practice the various operations and tasks to assimilate its proper implementation.

In short, e-Tech’s training simulators provide a complete instructional design that guides both the apprentice and instructor, drawing on the experience of him/her, in order to maximize production capacity.

Advantages

The main objective of a training simulator is that users learn to operate real machines in a safe environment, minimizing the number of hours of practice in the actual machinery and that learning is performed using an educational plan for training. The use of this technology is reflected in the results obtained, providing the following benefits to those who acquires it:

Advantages for the operator or apprentice:
- Immediate application of lessons learned in lectures.
- Working environment for real and safe learning.
- Faster learning curve.

Advantages for the training department:
- Focus on specific areas of training, with the possibility of repetitive exercises.
- Lower cost of training.
- Shorter equipment use outside the areas of productivity.
- Repair costs and maintenance reduction.

Advantages for the administration or management team:
- Increased productivity
- Significant reduction of occupational hazards and accidents.
- Reduction in insurance costs
- Higher profits
- It is an accepted tool for certifications of operators on different Quality Control Systems.

simulator + theory + methodology + profesional practice = increased productivity
other services

**Turnkey Solutions**

e-Tech Simulation offers different levels of service: designs and manufactures the most advanced simulators for operators training and also provides turnkey solutions providing a comprehensive training package called DIESEL (Dynamic Instructional and Educational e-Lab Simulation). DIESEL solutions ranging from architectural design, including high-tech simulators, methodologies and training with full academic curriculum are based on our customers’ needs.

* Note: DIESEL solutions can also be mobile.

**Training**

e-Tech Simulation has developed a complex training curriculum with simulation as an essential tool for handling heavy machinery because it offers the possibility of improving the worker’s efficiency when operating the equipment. In turn allowing users to adapt to different types of circumstances that arise during the actual work. It also provides employees the opportunity to acquire greater abilities that enhance their skills in handling this type of machinery, carrying out their work successfully. Thus, the simulation proves to be an important learning tool.

This is an activity planned and based on the real needs of the workplace and oriented to safety while improving user’s broader knowledge. For operator’s training, a theoretical approached is used followed by practice in the different simulators and ending with the actual equipment.

Before the start of each course, e-Tech Simulation with the help of a profesional makes a selection of personnel who meet the profile required for different equipment operations. Using psychological tests, acrophobia test, skills, interviews, among other.
Canada
U.S.A
Mexico
Panama
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Ecuador
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