
SİMBT
SİMÜLASYON BİLİM VE TEKNOLOJİLERİ

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MESSAGE FROM THE CEO

1. MESSAGE FROM THE CEO

Aiming to be among the top ten private companies in the field of military software in our country by starting its activities with the cooperation and support of the university, industry and private sector, SimBT has been providing engineering, software design and development and partial hardware production services at the METU Teknokent-Ankara campus since 2009.

Parallel to the software industry's rapid development since the second half of the 20th century and its access to an indispensable activity in all branches of industry, SimBT has maintained its high governance capability, up-to-date and advanced software, modeling, simulation and simulator technologies infrastructure, and efforts to identify it. With its efforts and success, it has become competitive with national and international companies in the same market.

SimBT, has completed 70 and more successful projects with R&D and Innovation in the fields of simulation, simulator, augmented and virtual reality, artificial intelligence, computer graphics, platform and system application software to our customers in the defense, security and health sectors, especially our Defense Industry Presidency and Turkish Armed Forces Foundation companies. Parallel to our work in the military field, SimBT has also become one of the important contractors of the procurement authorities in the civilian field.

Moving from the micro business class to the small business class in a short time, SimBT has reached the critical size level and has the identity of the main contractor especially in the fields of defense, security and health.

We continue our export-oriented product design and development activities in the light of our unique technological infrastructures and experiences in meeting the needs of the Turkish Armed Forces and Turkish Security units in the field of defense, security and operations at home and abroad. We know that the most effective management and development of our resources is essential in order to ensure the continuity of our aforementioned activities.

SimBT is a science and university-based company with technology depth and infrastructure, aiming to develop global technology, components and products. Since 2019, SimBT has aimed to transfer its scientific-based infrastructure, knowledge and experience in the field of defense and security to other sectors and especially to applications in the field of digitalization in health.

As a result, it is aimed to design and develop global technology and application development studies on augmented and virtual reality, artificial intelligence and image processing that will shape the future in all areas of life, from defense to education, from health to security and corporate solutions, both nationally and internationally. In the light of the goals we defined in our Strategic Plan for the Term of 2019-2023, we will continue to work to increase the security of our country and the welfare of our people, and to contribute to the country's economy with our national and global products.

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ABOUT SimBT

2. ABOUT SimBT

SimBT was established in METU Technopolis in 2009 with the principle of "Genuine Science and Technology Based 100% Indigenous and Global Product Design and Development" to provide solutions and products suitable for customer needs with its technological infrastructures and experienced personnel in the fields of Defense, Aviation, Education, Health and Security.

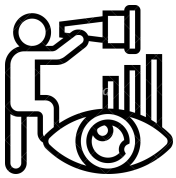
SimBT provides to domestic and international customers;

- Modeling, Simulation and Simulator Applications and Systems
- Defense, Aviation, Space and Security Applications and Systems
- Mixed, Augmented and Virtual Reality Applications and Systems
- Interactive Education and Training Systems
- Medical Informatics, Health Applications and Systems

SimBT has the knowledge, experience, infrastructure and product range that can meet the customer needs.

MISSION

Gaining the Latest Technologies Related to Modeling, Simulation and Simulator Systems with Military and Civil Purpose Systems, Adapting These Technologies to the Needs of the Country and Reducing Foreign Dependency by Developing New Technologies, Producing Spindle, Indigenous and Global Systems with High Competitive Chance, Taking Place in Domestic and Global Markets.



VISION

To be a reliable and flexible company that designs and develops National, Original and Global Systems in accordance with the Latest Technology and Standards, with our R&D and Innovation Focused Infrastructure in the Fields of Defense, Security, , Health, Transportation and Education.

OUR VALUES

At SimBT, Our Core Value is Human,

We Do Not Avoid Initiative and Responsibility,

We Guarantee Customer Satisfaction,

We aim for excellence and continuous improvement,

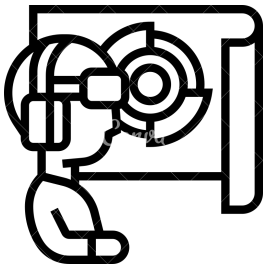
We Believe in the Importance of Cooperation and Coordination for Efficiency and Quality,

Robust as Tech Giants,

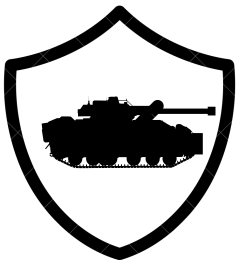
Flexible and Fast as Startups,

A Reputable Organization Is Our Core Values That Make Us Who We Are

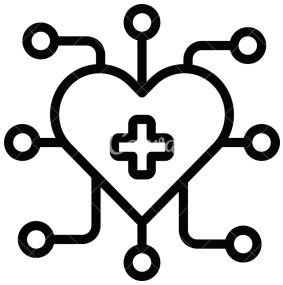
3. FIELD OF ACTIVITIES



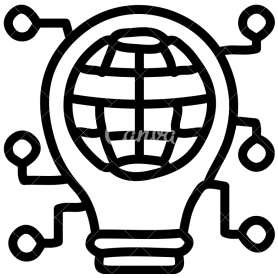
Modeling, Simulation and Simulator Solutions



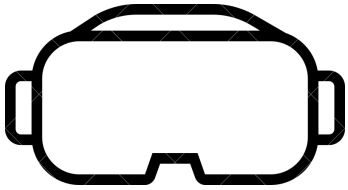
Defense, Security and Aviation Applications and Systems



Interactive Education and Training Systems



Medical Informatics, Health Applications and Systems



Mixed, Augmented and Virtual Reality Applications and Systems

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SOLUTIONS

3.1. Modeling, Simulation and Simulator Solutions

The constant and rapid change of the political-military environment in the world, the ever-changing identity and character of potential opposing forces, the increasingly uncertain and asymmetrical threat environment, further increase and complicate the duties and responsibilities of the Armed Forces.

This new threat environment encourages the Armed Forces to have more unique and national platforms and weapon systems, so a procurement method based on genuine design and development, more effective, more sensitive and multi-purpose indigenous platforms and research and development is adopted.

In the light of these determinations, modeling, simulation and simulator technologies and systems are needed in order to have more cost-effective, more benefit-value for the aforementioned national platforms and weapon systems. SimBT serves the needs of our country in the field of Defense and Security with its solutions, products, infrastructures and experience in the aforementioned technologies, and produces genuine and indigenous solutions with university-related research and development studies.

SimBT's areas of expertise are modeling, simulation and simulator, high-accuracy algorithmic modeling, real-time 2/3-dimensional visualization, distributed simulation and simulator systems, simulation/simulator tools (Scenario preparation, management and reporting, virtual environment editors, NATO and National Symbology Supports etc.) Embedded Simulation Systems are Hybrid, Virtual and Augmented Reality. SimBT also has a product family (MarSim) that includes products and solutions for marine simulations and simulators, and is a company that produces national solutions in this regard.

3.2. Defense, Security and Aviation Applications and Systems

The threat environment, which is becoming more uncertain and asymmetrical with each passing day, complicates the duties and responsibilities of the Armed Forces. This situation forces the Armed Forces to have more specific, more precise and multi-purpose national platforms and weapon systems with less budget.

In the light of these determinations, SimBT has ready-made solutions and products for the Turkish Armed Forces to have the said national platforms and weapon systems in a unique way. For this reason, we produce fast and high quality solutions in accordance with CMMI-3 standards for the components and weapon systems of these platforms with our experienced staff.

SimBT, especially in the field of defense and security; has taken responsibility for middleware, geographic information system, framework, graphics, communication, user interface, library, sound, simulator, database and web-based work packages and has successfully completed many defense and security projects. SimBT is also an expert in emulator/simulator design and development work required for testing the aforementioned software.

3.3. Mixed, Augmented and Virtual Reality Applications and Systems

Augmented Reality (AR) is a physical view in which real world and virtual images are brought together by enriching the real world environment and its contents with computer-generated sound, image, graphics and location sensor data. In other words, AR is the modification and augmentation of reality by computer. AR technology enriches one's reality. On the other hand, in virtual reality, there is a completely computer-generated world designed and animated instead of the real world.

The application areas of augmented reality (education, design, production, demonstration, simulation, game, analysis, etc.) are much more than virtual reality, since it can be easily blended with the real world view and can be easily used in daily life.At the same time, mixed/hybrid applications can be made by supporting augmented reality technologies-based applications with virtual reality technology.

SimBT uses different types of hardware in its augmented reality and hybrid-based solutions, from mobile devices to augmented/virtual reality glasses as needed. As SimBT, we design and develop products specific to customer needs, both in terms of content and software, both in the field of augmented/virtual reality and mixed/hybrid applications.

We invite you to our company to see our products, which also has an application development infrastructure within the scope of mixed/virtual/augmented reality technologies and can therefore produce **faster** solutions.

3.4. Interactive Education and Training Systems

Interactive education and training, one of the most effective education methods, actively engages students in their learning experiences. This education and learning can be through simulations, scenarios, role-plays, tests or games.

Those who learn to apply their new skills in realistic training scenarios are not only more engaged, but also more likely to retain what they have learned. However, situations where students receive regular and ongoing feedback from an instructor/content specialist can be more receptive than an in-person learning and training process.

With our knowledge, infrastructures, experience and existing products/applications in the fields of augmented and virtual reality, artificial intelligence, software, 3D modeling and animation, simulation and computer graphics, we have produced and are producing more benefit-value and cost-effective solutions for interactive education and training systems. Our education and training management system (SimLMS→See Art. 4.7.), which supports current standards and can be configured in accordance with the needs of our customers, is ready to meet your needs for interactive training and environments with our experienced content and scenario development experts, modeling and animation team.

3.5. Medical Informatics, Healthcare Applications and Systems

Healthcare is one of the areas that are affected very rapidly by new technologies. Current technologies used in healthcare give doctors, nurses, and other healthcare professionals the chance to do their jobs with fewer mistakes, while enabling patients to recover in a shorter time.

In recent years, mixed/virtual/augmented reality technologies have also been used in order to increase the efficiency of education and service in the health sector, to diagnose faster and to make faster surgery planning. Mixed/virtual/augmented reality technologies, which are also clinically approved, have started to be used widely throughout the world.

These technologies, which are used in the fields of surgical planning, treatment, rehabilitation and education in the health system, are becoming more and more common day by day, as they provide convenience to both patients and healthcare professionals to do their jobs faster.

Considering the current medical errors, neuro-radiologists, neurosurgery, neurology, cardiology and cardiovascular surgery, etc. Simulation and simulator systems supported by mixed/virtual/augmented reality technologies, where experts will receive standard, multi-disciplinary and mixed training, have gained importance.

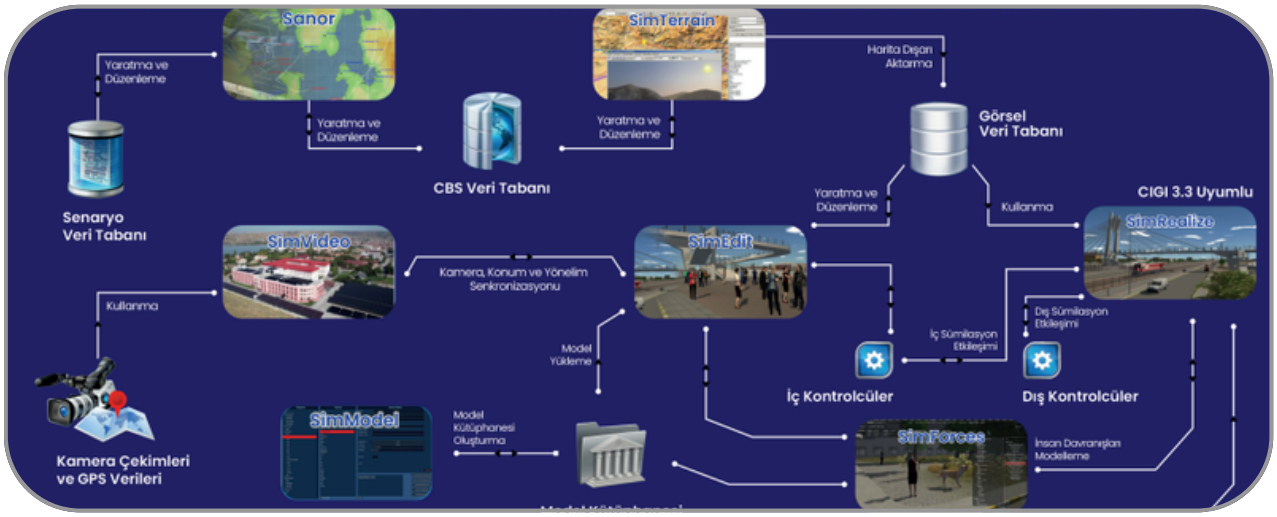
As SimBT, we have done and are doing many R&D and Innovation projects in the field of Medical Informatics, including our instructors in Medical Faculties, using our knowledge, experience and infrastructure from defense applications. With the knowledge, experience, infrastructure and products we gained as a result of these projects, we are ready to respond to all your needs related to mixed/virtual/augmented reality technologies that may be within the scope of digitalization in healthcare.

PRODUCTS

4. PRODUCTS

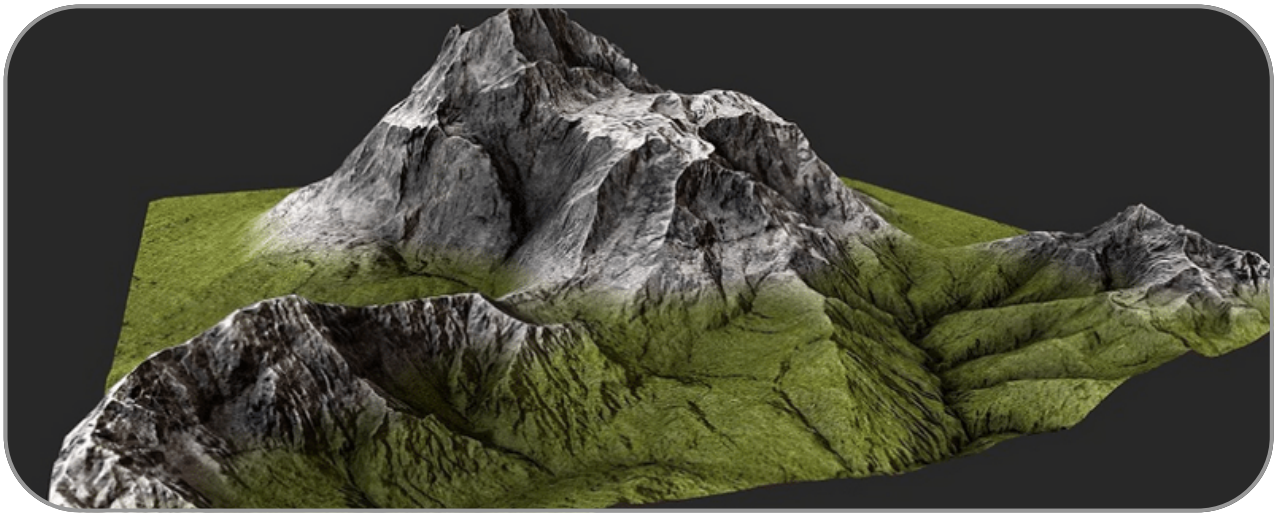
4.1. Image Generator Family

SimBT Image Generator Family is an indigenous product.



It is a unique and indigenous product consisting of nine sub-systems, which are shown in the figure above and whose capabilities and features are explained in the sections, working integrated with each other to prepare and display virtual environments for simulation and simulator systems in a faster and easier way. With this product family, it is possible to manage large area data, high performance display and simulation management. These products have been used and continue to be used in various simulation, simulator, platform and system application projects since 2009. SimBT's image generator has high drawing speed with low CPU and memory usage.

4.1.1. 3D Visual Database Creator (SimEdit)



SimEdit is a visual database preparation product that answers your most basic and most complex 3D virtual environment preparation needs. With this product, you can easily create any 3D content, digital terrain (including land, underwater and above) and 3D visual database with mouse interaction; You can prepare your simulations and simulators by transferring the data to our image generator SimRealize.

4.1.2. Simulation & GIS Development Component (SimWorld)

SimWorld is an infrastructure library and application development interface (API) component with over 1.5 million lines of code. This component includes geographic information system, generic map generation, tactical symbology and graphics compatible with military standards, astronomy and meteorology calculations, detection algorithms and artificial intelligence engine, scenario preparation and running, scenario run recording and replay, 2D map and 3D environment display and holographic imaging infrastructures.

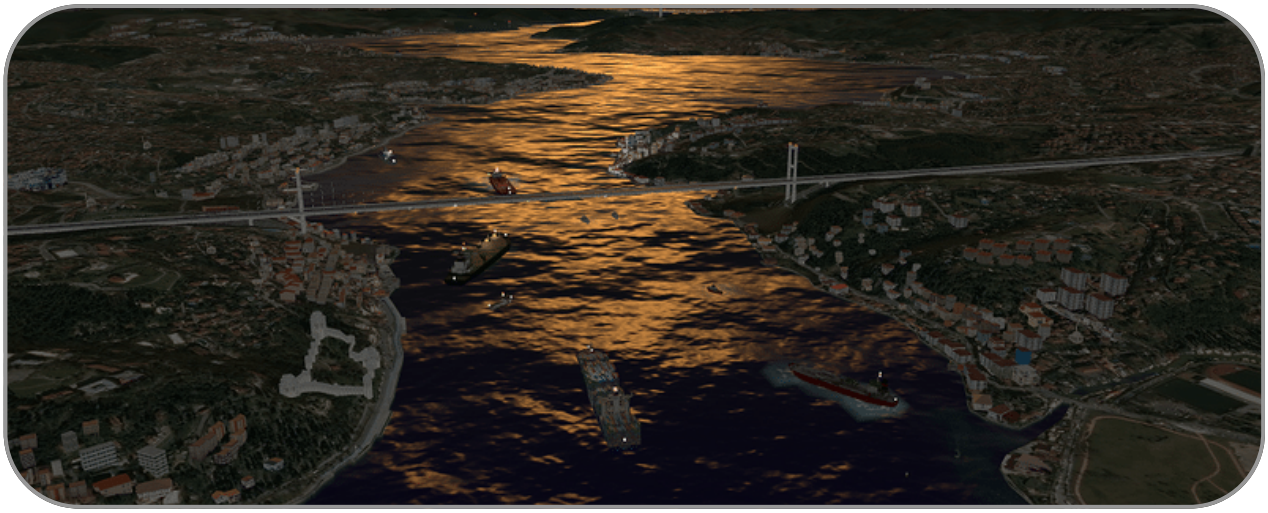
4.1.3. GIS Database Creator (SimTerrain)

SimTerrain is a unique and national product developed with SimEdit, our visual database producer, to prepare the terrain data required for the preparation of 3D virtual environments with the support of SimWorld. With SimTerrain, you can load data in different map formats and integrate these data to create a single geographic information system database. By transferring this integrated data to SimEdit, a visual database preparation tool, you can easily process natural and artificial objects such as vegetation, buildings, bridges, roads.

4.1.4. GPS Database Creator (SimVideo)

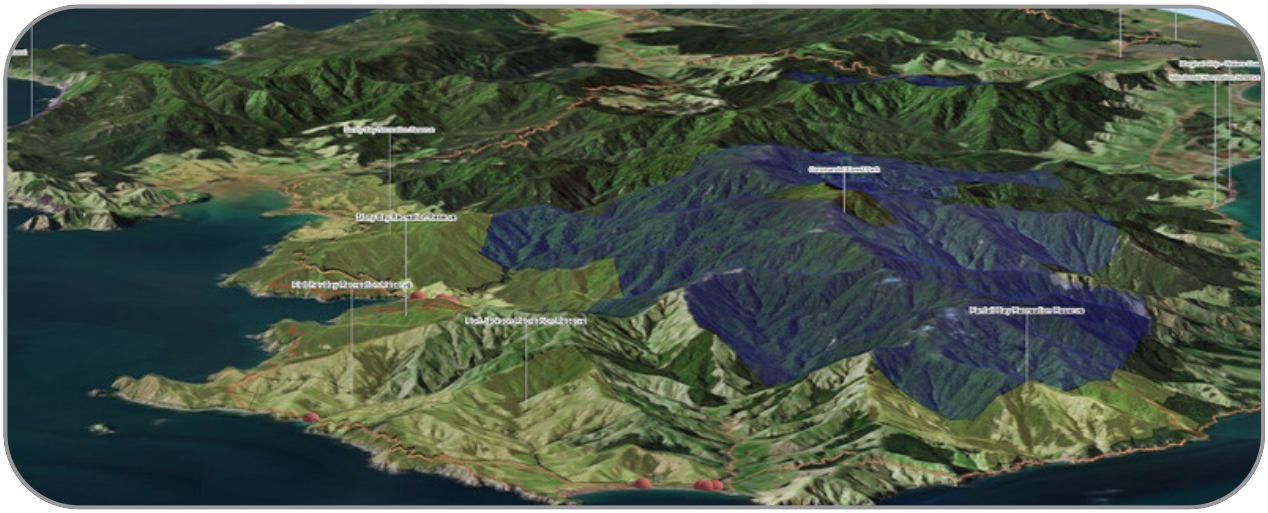
SimVideo is developed to play the 3D virtual environment developed using GPS integrated video camera footage synchronously and simultaneously in terms of camera position and orientation. While the displayed video frames are projected onto the screen, the position and orientation information that is matched with the image is transferred to SimEdit, our visual database producer, in parallel, allowing the virtual environment to be displayed on the side screen in the same position and orientation, so that the details seen can be processed realistically into the virtual environment to be modeled.

4.1.5. 3D Visual Database Creator (SimRealize)



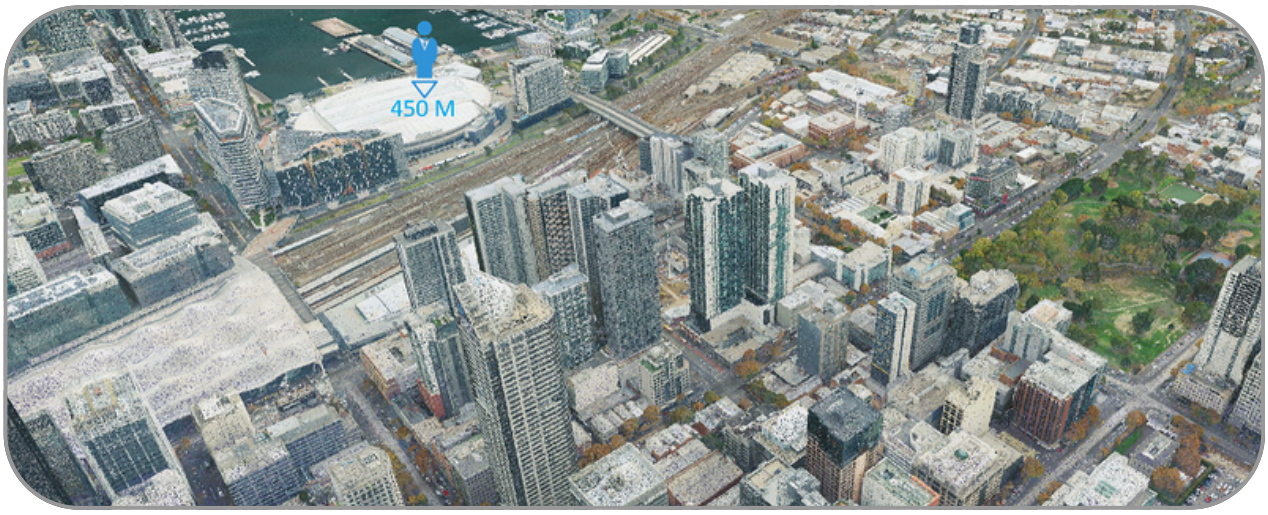
SimRealize is our CIGI 3.3 compliant indigenous image generator that allows you to create virtual environments from the simplest to the most complex, and quickly develop your simulation/simulator systems. SimRealize offers very realistic and high quality 3D graphics and sound infrastructure, even with low-cost PCs and graphics cards. SimRealize has high drawing speed with low CPU and memory usage. (average 60fps on PC)

4.1.6. 3D Generic Map Generation Software (GenMap)



GenMap responds to your needs for creating 3D generic maps and environments in a fast, easy and realistic way. It enables the design and production of generic (procedural) terrain and sea maps that are unique in the real world (without real/hidden maps) that will constitute map data for your modeling and simulation applications for training, analysis and supply purposes.

4.1.7. Virtual Environment Development System (SANOR)



SANOR is a simulation development system with scenario preparation, scenario execution, harness recording and replay, reporting and software add-ons and customization infrastructures developed using SimWorld API.

4.1.8. Model Library Creation Tool (SimModel)

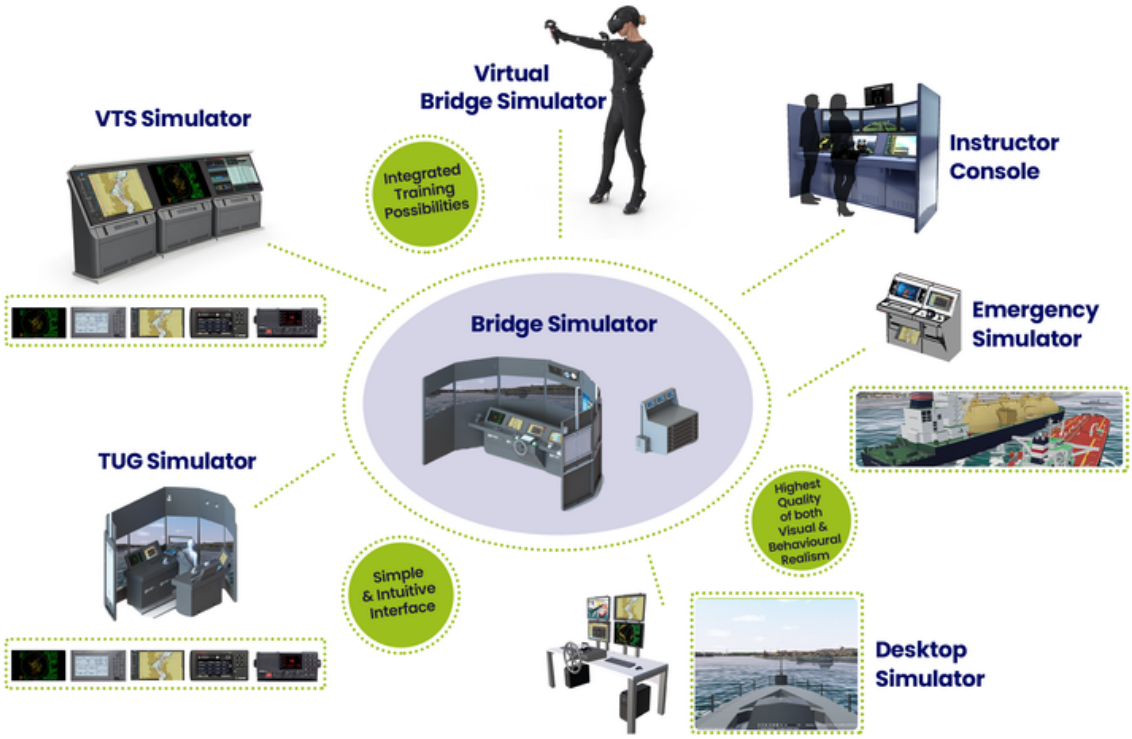
SimModel is the model library required in our simulation and simulator systems. This library contains over 2,250 models of land, air, surface and subsea models.

4.1.9. Living Asset Software (SimForces)

SimForces is a software developed for modeling and controlling lifelike creature characteristics.

4.2. Maritime Simulation and Simulator Product Family (MarSim)

The MarSim Maritime Simulation and Simulator Product Family is uniquely designed and developed maritime product family in order to ensure that seafarers receive training at the highest level of proficiency and increase their efficiency level as much as possible.



MarSim; consists of a new generation bridge simulator, TUG simulator, emergency response simulator, vessel traffic simulator and virtual reality based bridge simulator. With MarSim simulators, individual trainings can be provided, as well as joint trainings. containing various training scenarios, MarSim family products provide training in accordance with the International Convention on the Training Certification and Watchkeeping Standards of Seafarers (STCW) statute I/12.

4.2.1. Full Mission Bridge Simulator (MarSim - FMBS)

The Full Mission Bridge Simulator has been designed and developed to support the training to be given to Seafarers and Helmsman in order to provide them with the skills specified in the Training and Examination Directive. This Bridge simulator meets STCW's training standards.

Indigenously designed and developed "Ship Dynamic Model Software", "Image Generator", "ECDIS", "ARPA Radar" and "VHF" simulators are used in our bridge simulator.

This simulator has a high quality image generator that provides a realistic three-dimensional (3D) training environment. In this way, different weather conditions and wave heights can be modeled easily and realistically. With the ship motion and maneuver dynamic models we have developed with our indigenous software, many environments including shallow water and narrow water effects can be reflected, and rope and anchor tensions are calculated with high precision. In this way, backup training can be carried out realistically.

With our FMBS, training can be given with 40 commercial and military ships of our own and more than 100 target ships.

With this simulator, we can create 3D images from 225 degrees to 360 degrees using LED screens or projectors.

4.2.2. TUG Simulator (MarSim - TugSim)

Another product of the MarSim family of products, the TUG Simulator can be configured to support towing ships in oceans, seas or ports. Towing drills may include one or more towing boats, towlines and reins for boats needing assistance in the training scenario. Tug simulation provides realistic training experiences in real-life scenarios, as well as ensuring that tug handling training is risk-free and cost-effective.

TugSim includes a full-scale model of a tug bridge with all the tools necessary for navigation and maneuvering, as well as a full-scale view of the ship and the surrounding area as seen from the windows of the wheelhouse.

The tug's movement and dynamics are also fully synchronized with the wave action and sea condition. Visual scenes are highly detailed, with features and effects creating an impressively realistic educational environment. This creates a unique opportunity for procedural training and mission rehearsal for complex operations.

Coastal and offshore towing with TugSim; ship assistance work; high-speed escort work; oil rig and platform movements; search and rescue and emergency response; close quarter multiple TUG maneuvers and integrated TUG master and helmsmen training can be provided.

4.2.3. Virtual Bridge Simulator (MarSim - VBS)

Using virtual reality technologies, we designed and developed the first Virtual Bridge Simulator in Türkiye. We established and commissioned the Virtual Reality Training Classrooms at three different navy bases within Turkish Navy Command which was delivered as a turnkey project.

The aim of the virtual reality classrooms is to maintain and develop the competencies and abilities of the officers on watch who will work on all surface platforms.

The virtual environment and three-dimensional radar images of this simulator family were developed by means of our indigenous products called "3D Image Generator-SimRealize" and "Ship Dynamic Modeling Software-GeDiMod" which provides the hydro-dynamic models of the ships in six degrees of freedom.

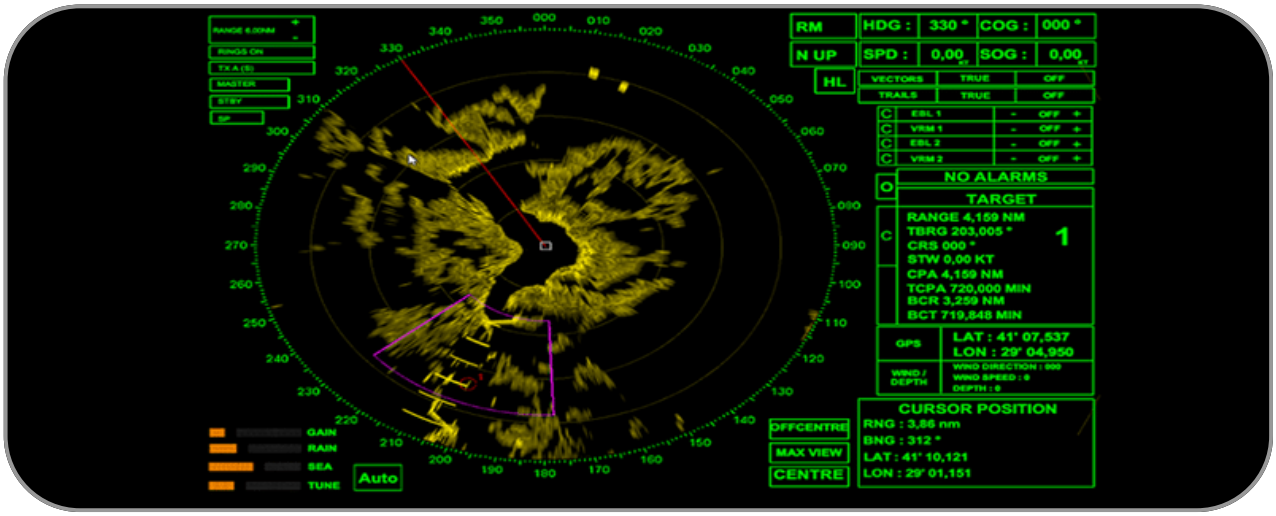
The main differences that distinguish virtual reality based simulators from classical "Full Mission Bridge Simulators" are:

- There is no need for a physical console. Therefore, it is possible to create a more effective and mobile education environment with less cost.
- Trained personnel feel in a more realistic training environment, so that it is faster and easier for the trained personnel to adapt to their real task areas.
- Individual, team and joint trainings can be given by selecting more than one ship, different virtual environments and scenarios with a single simulator.
- A new ship can be integrated into the simulator in a very short time and cost-effectively by our team.

This simulator architecture and capabilities can be easily adapted to customer needs and new capabilities, scenarios and ships can be easily integrated on our indigenous infrastructure. At the same time, the development of a dynamic model of any ship, modeling of internal and external ports, straits and canals can be done easily and very quickly with our existing software, infrastructure and experienced personnel.

4.2.4. ARPA Radar Simulator (MarSim - ARPA)

Radar simulator is developed to simulate the use of radars used on the bridge in which situations and for what purpose, and to provide relevant training. With this simulator, ARPA radars operating in X and S bands are visually simulated.



While creating this image, all factors affecting the real radar image such as pulse length, range selection, weather conditions are evaluated. MarSim-ARPA has the capabilities of North Up, Head Up, Course Up, True Motion and Relative Motion image modes; ability to work in X and S bands; Short, medium, long wavelengths; Manual and automatic target tracking; Display at least 60 ARPA contacts; Display of contact AIS information; EBL and VRM viewing.

4.2.5. ECDIS Simulator (MarSim - ECDIS)

ECDIS is a computer-based navigation system that supports up-to-date electronic maps in accordance with IMO and SOLAS rules for civil surface platforms. ECDIS provides the relevant navigation personnel with the ability to plan a safe route and follow the route by continuously determining the position of the ship according to the land, navigation aids and invisible dangers by using the instantaneous information it receives from the navigation systems. The main capabilities of ECDIS; Query of objects and creation of map corrections; Fast and easy route planning and tracking; Ability to perform Trial Maneuver; Creation of Man Overboard (MOB); Easy and fast integration with navigation systems (GPS, Gyro, Speed by Ground/Water, Sounder, Wind and Current devices); Instant and past track display of AIS and ARPA contacts; With the training mode feature, the application can be trained without the need for any device integration.

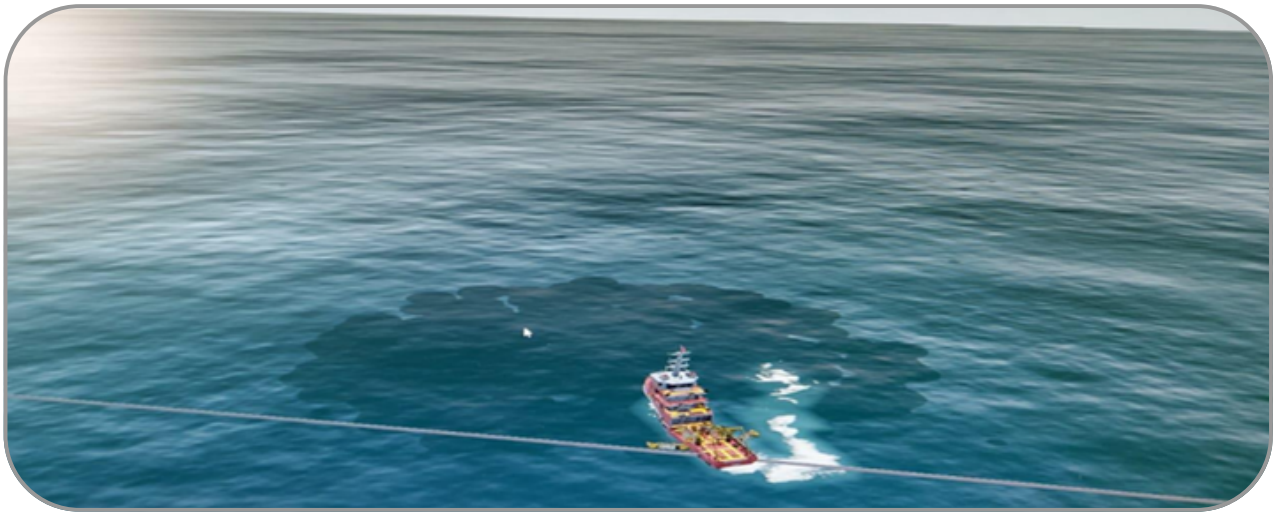
4.2.6. GMDSS Simulator (MarSim - GMDSS)

The MarSim Global Maritime Distress Safety System (GMDSS) simulator helps trainees to understand and train on how to operate marine search and rescue devices through Emergency Positioning Radio Beacons (EPIRB) and radar SARTs in marine hazards.

Certified to Class A standard, MarSim-GMDSS has the functions of VHF radio, NAVTEX receiver, SART, 406 MHz EPIRB and two-way VHF portable radio on GMDSS equipped ships.

The MarSim-GMDSS complies with STCW requirements regarding NAVTEX, Inmarsat C, Inmarsat Fleet-77, EPIRB, SART, VHF DSC Radio, MF/HF DSC Radio, Portable VHF Radio, Radio Telex (NBDP) and Maritime Safety Information (MSI) and fully compliant with standards.

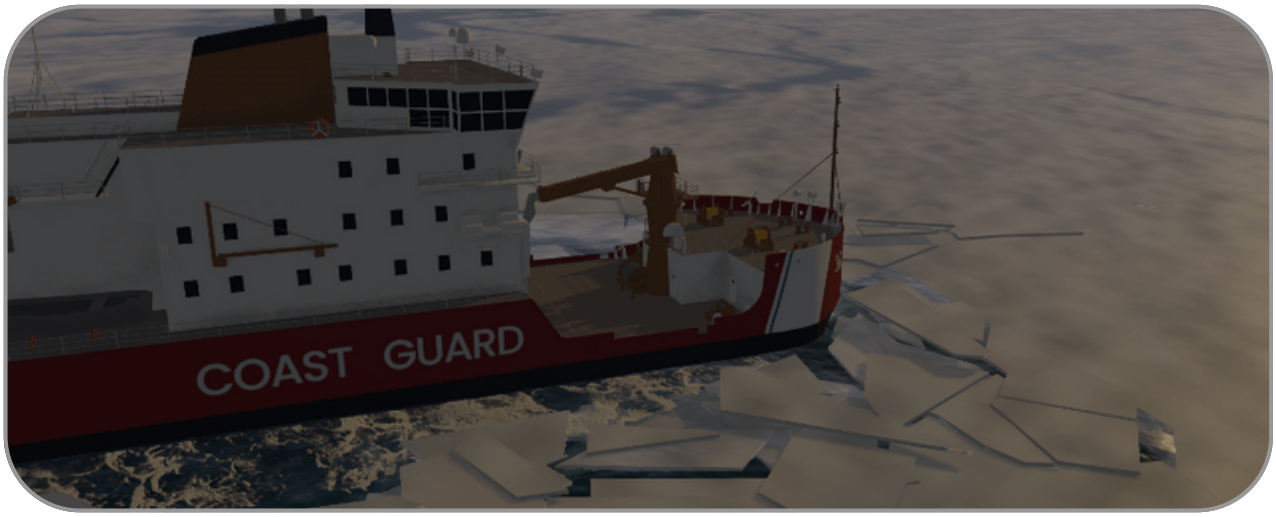
4.2.7. Marine Oil Spill Simulation System (MarSim - AMS)



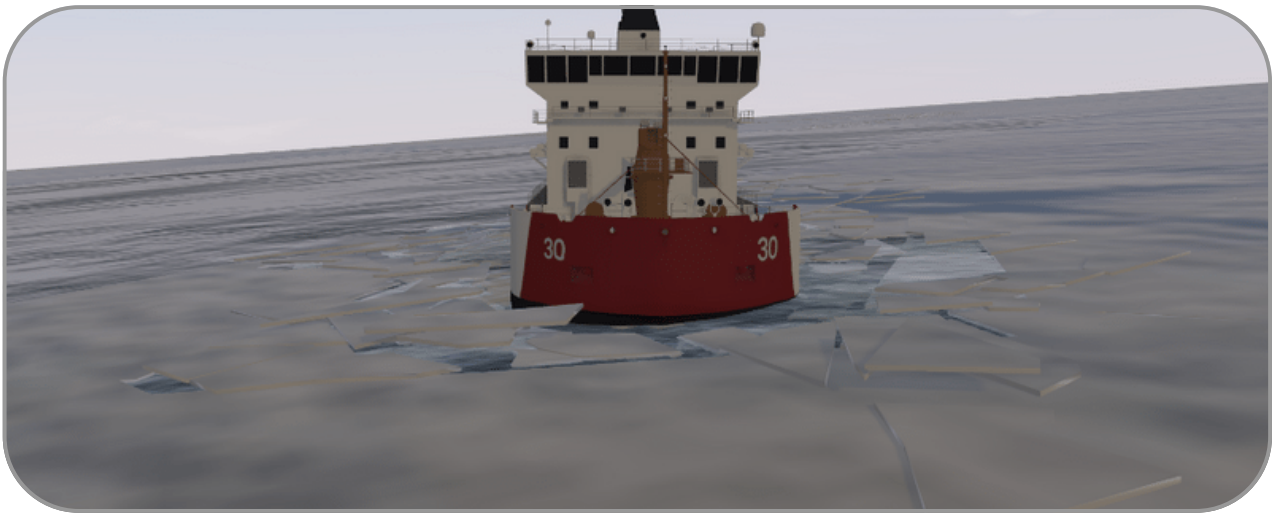
This simulation system, which works integrated with the simulators of the MarSim product family, is a system that assists in the training of the crew on the use of emergency response equipment, the progression and prevention of pollution spread, during possible leak monitoring and response operations for both the ship crew and the land command-control center.

4.2.8. Ice Navigation (MarSim - IceNav)

Our IceNav simulator enables vessel navigation training in freezing weather conditions and ice-infested areas. The solution covers training modules for accessing ice and weather conditions, safe handling of ships and equipment in different scenarios, and reducing the possibility of accidents. The IceNav configuration covers a full and part mission bridge.



Instructor can define ice type, ice concentration, thickness, and icebergs. Motion through ice hummocks simulated realistically. Showing concentrations of solid and broken ice realistically. Solid ice effects to ship speed and turning radius modeled realistically. Ice Charts can be shown instructor console and Ecdis. Navigation within Ice Breaker convoy.



4.3. Mixed, Augmented and Virtual Reality Systems

SimBT uses different types of hardware from mobile devices to augmented/virtual reality glasses as needed in our augmented reality and hybrid-based solutions. As SimBT, we design and develop products specific to customer needs, both in terms of content and software, both in the field of augmented/virtual reality and mixed/hybrid applications.

4.3.1. 360° Display, Information and Situational Awareness System (AnyView360°)

AnyView360° is a mobile imaging, information and situational awareness system integrated into augmented reality supported smart glasses that enables 360-degree external environmental images taken from the cameras on the armored vehicle and the tactical information on these images to be seen and/or displayed in accordance with the personnel's perspective.

By using this mobile and multi-functional system, the armored vehicle operator will be able to see the outer environment of the armored vehicle, looking in any direction with a 360° translucency to the vehicle's interior walls. In addition to the skin display, an operator will be able to receive vehicle and mission information such as navigation maps, compass, location, direction, altitude, humidity, fuel, speed, ammunition, messages, missions, friends, targets and more.

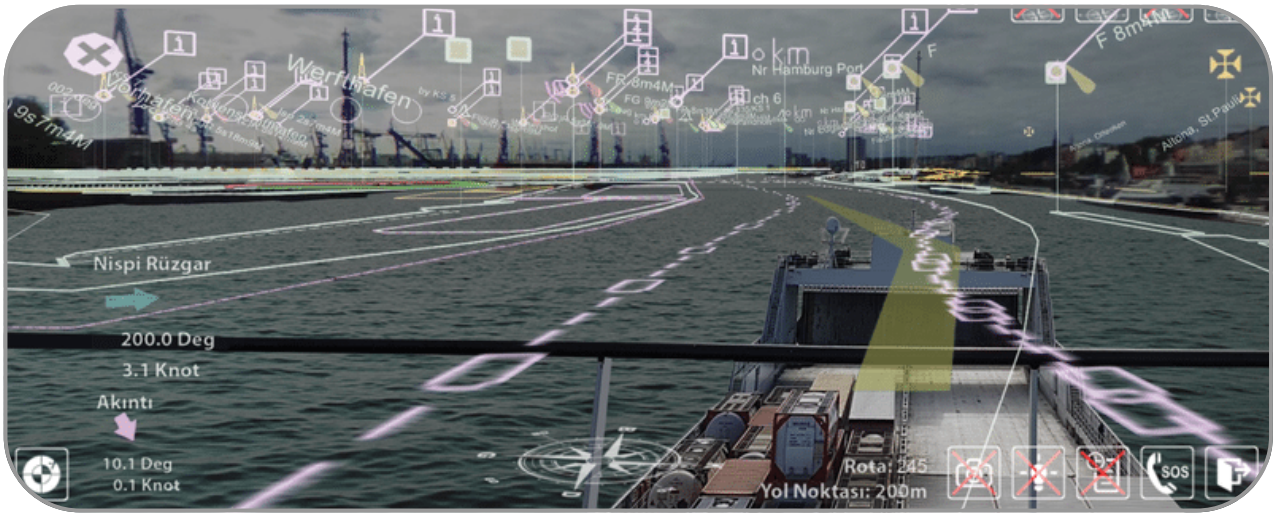
AnyView360° is suitable for use in many different security and surveillance areas such as airports, train, port and bus stations, park and meeting areas, business and shopping centers and stadium entrances, border, traffic and checkpoints etc.

4.3.2. VR/AR Based Occupational Health and Safety Training System (EDSIS)

EDSIS is a virtual and augmented reality-based occupational health and safety education system developed to experience risks and dangerous situations in the electricity distribution sector in a safe environment, to create a risk perception among employees working in these sectors with high risk factors, and to provide technical trainings more effectively and permanently.

With the aforementioned system; Trainings on “working at height with baskets”, “working in distribution box and transformer” and “working with high voltage disconnector” can be given.

4.3.3.AR Integrated (W)ECDIS Map Display and Information System(ArWECDIS)



ArWECDIS is a marine navigation aid software which provides situational awareness for the officers of the watch for ships capable of creating a 360° map image by making the S-57 / AML nautical chart symbols three-dimensional and reflecting the map image in the direction of the person wearing AG glasses in an integrated way with the direction of looking on the screen of the glasses.

With ArWECDIS, officers of watch can have W(ECDIS) static and dynamic information; AIS tracking and data, radar tracking and data; safety area information; own ship data course, course, speed and depth; dangers from ENC; clear lines; defined area information; like ENC charts on the screens of their smart glasses.

4.3.4. AR Supported Remote Maintenance and Repair System (ARBAKO)

With the ARBAKO which is based on augmented reality technology, interactive basic on-the-job, technical level maintenance-repair training, simultaneous remote maintenance-repair and real-time periodic maintenance can be done in a shorter time and flawlessly.

ARBAKO is a maintenance, repair and remote support system that can work both online and offline. In the online solution, the person in the field can connect to remote specialist personnel and perform complex maintenance and repair processes with real-time collaboration and direct expert instructions. In the offline solution, maintenance and repair instructions allow the implementation of the defined steps in the previously prepared scenario. In addition to the online and offline solution, ARBAKO can create complex real-time animation scenarios with the help of the editor without knowledge of modeling and animation.

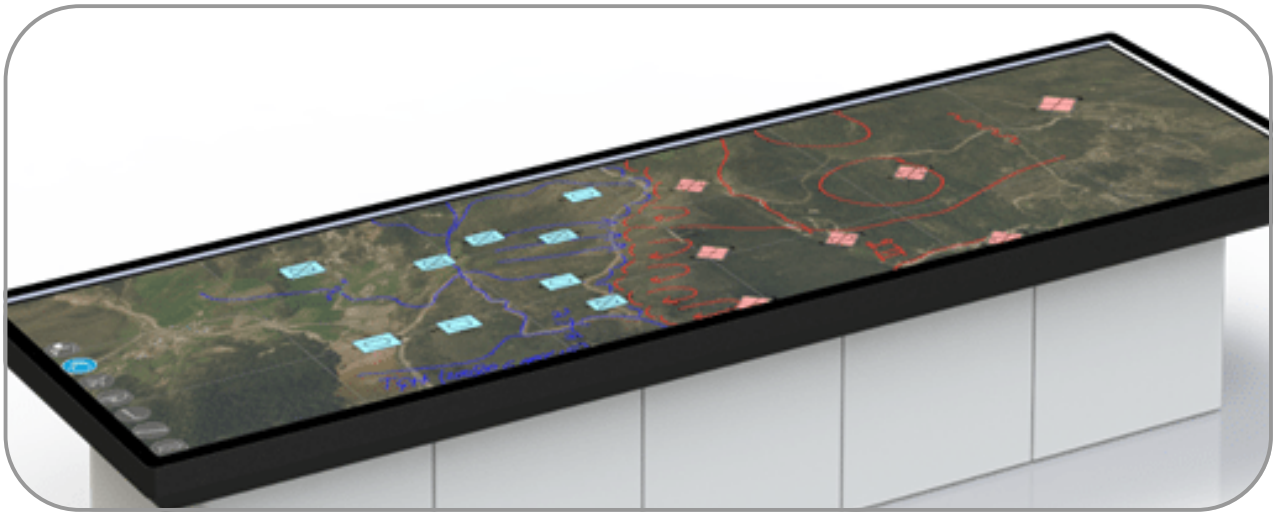
4.4. Command Control and Situational Awareness Systems

Sharing tactical field information with command and control users and creating situational awareness is very critical for the management and course of the operation. The nature of display devices currently in use allows for two-dimensional display applications.

In the light of technological developments in recent years, R&D studies continue in order to quickly analyze the situation in tactical battles and to make the right decisions more quickly. Some of the products we have developed as a result of these studies are explained in the following sections.

4.4.1. Mission and Operations Planning System (HoloTable)

HoloTable provides theater planning and management; increasing situational awareness; conducting operational analysis; provides engagement planning and management. HoloTable is available in both 2D and 3D versions.



HoloTable system has features and capabilities such as raster and vector map (Satellite Image, Military Raster Maps, DTED) representation; military symbology support; military plan creation with tactical graphics and symbols; drawing of military, strategic and security zones; sensor optimization and deployment; distance measurement, section analysis, route planning, uploading any terrain map etc. Multiple HoloTable systems can be connected to each other simultaneously and integrated into command-control systems.

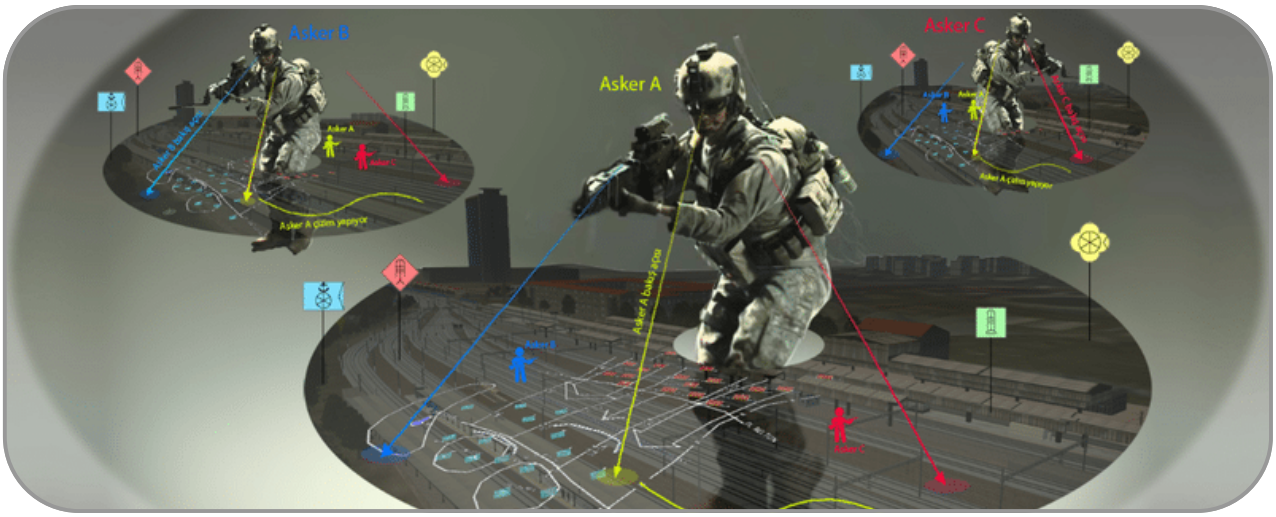
4.4.2. AR Integrated ID, Face and License Detection and Recognition (TakBul)

TakBul is a mobile and multifunctional safety and security system. The smart glasses and system, which do not keep information on it, enable security and security officers to detect and recognize suspicious persons and vehicles in a few seconds by simply looking at their faces, ID cards and license plates of vehicles. TakBul can also query vehicle and motorcycle license plates and identification numbers by voice.

TakBul has both glasses and mobile phone integrated versions. TakBul System is used as a complement to the safety and security system in places like airport, port, train and bus stops; parks and rally areas; stadium, business center and shopping mall entrances; border gates, traffic and vehicle checkpoints, etc.

4.4.3. Mobile User Centered Holographic Imaging and Situational Awareness System (HolAround)

HolAround is a patented system consisting of Helmet Integrated AG Glasses and AG Supported Individual and Team Mobile Awareness and Command-Control Software. The system supports known techniques of processing information on objects, mini-map and bird's-eye view all together.



It is a real-time situation awareness system that can interactively share developing situations with all team/team personnel over the map; unlimited interaction and planning can be done on the map in the battlefield; situation awareness information can be transferred to team/team personnel and command-control centers in real time.

For the individual on the battlefield and the Commander, HolAround is a force multiplier that increases situational awareness, data and information sharing, rapid decision support, command-control, coordination, movement and survivability.

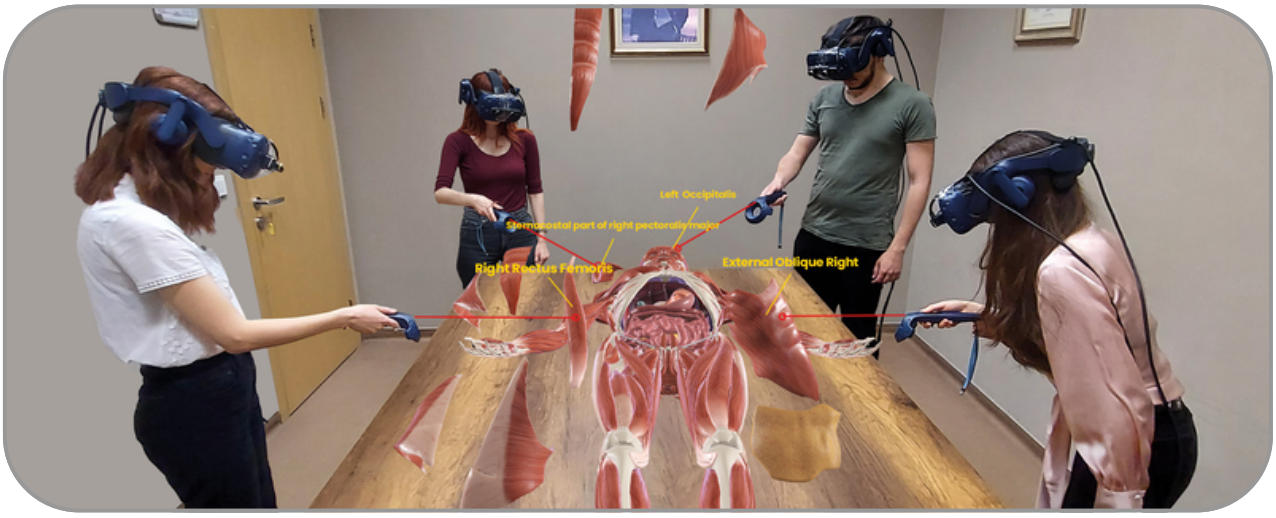
4.5. Medical Informatics, Health Applications and Systems

In recent years, simulation and simulator systems where experts will receive standard, multi-disciplinary and mixed training, supported by mixed/virtual/augmented reality technologies, have gained importance in neurology, cardiology, cardiovascular surgery specialist to reduce medical errors, improve the quality of clinician's education and shorten the learning curve without risking the patient.

As SimBT, we have done and are doing many R&D and Innovation projects in the field of Medical Informatics, including our instructors in Medical Faculties, using our knowledge, experience and infrastructure from defense applications. Some of our indigenous products that we have acquired as a result of these projects are explained in the following sections.

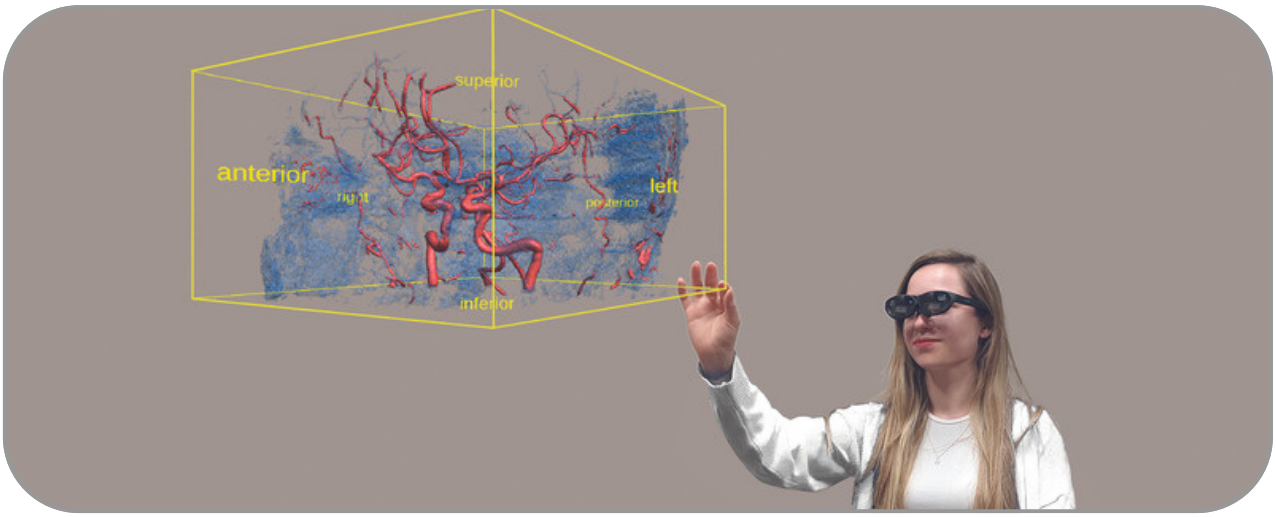
4.5.1. XR Integrated Anatomy Display And Education System (ARTOMI)

The ARTOMI system helps health vocational high school students, health sciences and medical students to explore human anatomy in new and innovative ways.



ARTOMI is designed to provide a better understanding of the spatial relationships of important anatomical parts. It enables multiple people to learn interactively at the same time on an accurate, high-quality 3D virtual cadaver image that can be viewed layer by layer and piecemeal. ARTOMI has more than 3,500 3D anatomical models of 14 systems of our body approved by medical doctors and anatomy professors; hierarchical structures and search function based on terminologia anatomica database; exam preparation and evaluation features and currently all the anatomical models and labels are available in Turkish, English and Latin languages.

4.5.2. AR Integrated Brain Surgery Training and Planning System (ArBrain)



ArBrain aims to “increase the confidence of neurosurgeons to perform delicate neurosurgical procedures”, “eliminate the need to mentally reconstruct images or project them mentally to patients”, “prevent constantly switching views between the surgical field and the computer screen and disrupt the surgical workflow” and is a mixed reality supported training and planning system developed to “guide surgeons with high accuracy to support determining the optimal drill position and drill angle in neurosurgery procedures”.

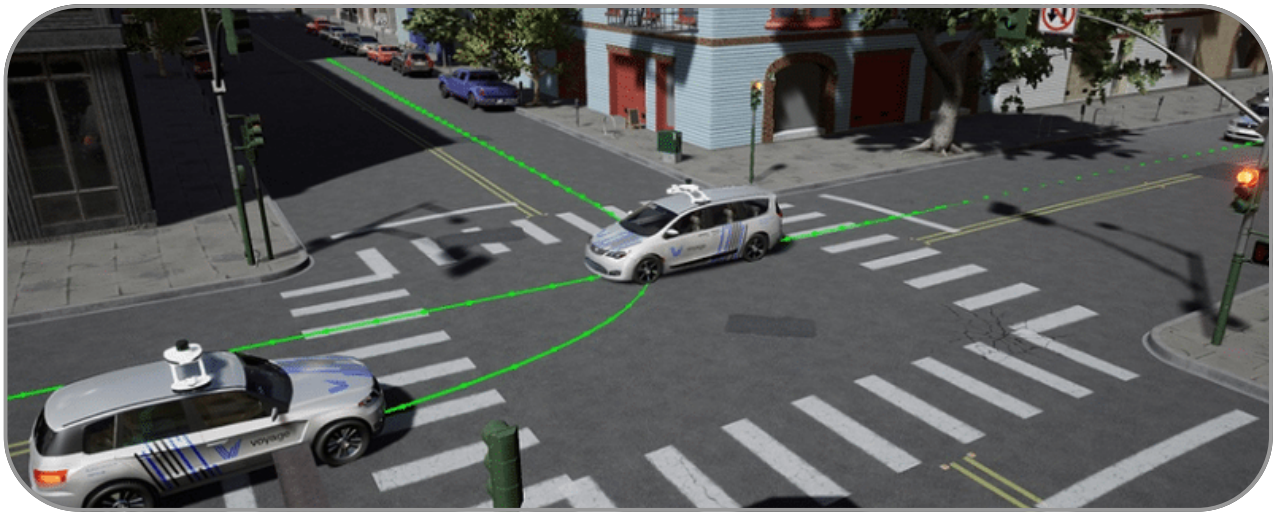
4.5.3. Automatic Detection System of Emergency Brain Diseases (TOTSIS)

TOTSIS is an artificial intelligence-based pre-diagnosis and early warning system. Detection of anomalies such as cerebral hemorrhage and stroke from CT images within a short period of 6-10 seconds after the CT image is taken, the prompt warning information is given to the relevant physician in line with this detection; In case of a possible brain hemorrhage, stroke, it makes it possible for the patient to be intervened immediately by the doctor.

TOTSIS is an indigenous product with high added value that we believe will minimize deaths and disability due to cerebrovascular diseases (the second most common cause of death in our country) and can be used in provinces, regions and countries where the number of specialist doctors is low.

4.6. Land Vehicle Simulator (Ar-Sim)

Ar-Sim simulates vehicle driving and engine dynamics in a high resolution visual environment. It is a training simulator that enables all land vehicle drivers, including disabled and risky drivers, to drive in various virtual traffic environments with different traffic densities and signaling, weather, pedestrian and road conditions, making the driver feel realistic to use the vehicle.



Our land vehicle simulators include lane, traffic light, traffic warning light and speed violation, collision with the vehicle and pedestrian, pressing the gas and brake at the same time, overtaking and turning without signaling, sudden accelerator and braking, insufficient clutch pressure, high-speed operation, irregular gear. It has measurement features and capabilities such as change in fuel consumption, average and total fuel consumption and total carbon emission.

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R&D CAPABILITIES

5. R&D Design and Development Capability

The main purpose of our company; for civil and military needs; modeling and simulation (including simulator and stimulator), virtual and augmented reality, command control and situational awareness systems, medical informatics, healthcare applications and systems, serious gaming, computer-based education, computer graphics, multimedia, image generator, artificial intelligence, to design and develop geographical information systems and technologies, to design and integrate hardware of these software, to develop prototypes and to make mass production, to provide scientific and technical training on all these subjects and to engage in trade in all these subjects.

Based on this purpose, our expertise and capabilities regarding requirements definition, software requirement analysis, design, development and testing processes are as follows:

Our Software Capabilities: Modeling, Simulation and Simulator Software, User Interface Software, Virtual and Augmented Reality Software, Optimization Software, Decision Support Software, Serious Game Software, Computer Aided Education System Software, Image Generator Software, 3D HoloGraphic Display Software, 3D Virtual Media Editor Software, Geographic Information System Software, Middleware, Framework Software, Embedded Software, Image Processing Software, Graphics Software, Communication Software, User Interface Software, Simulation Based Supply Software, Library Software, Sound Software, Web Based Software, Serial Channel Interface software and Test Software/Simulators related to all these software.

Basic documents developed within the scope of SimBT software development process; Software Specifications Document, Software Interface Design Document, Software Design Definition Document and Software Test Definition documents. In this process; As Application Development Tools; Microsoft Visual Studio, Borland C++ Builder, Borland Delphi, Netbeans, Eclipse; As Runtime Infrastructures (KOZA); DMSO RTI, MaK RTI; SonarQube for Static Code Analysis, as Database Management Systems; Oracle, MS SQL Server, Interbase; As Programming Languages; C, C++, C#, Pascal, Basic, Java; As Game Engines, Graphics and Software Libraries; OpenGL, DirectX, Vega Prime, Unity3D, UnReal, Qt; As Computer Aided Software Testing Tools, Junit, Nunit, Microsoft Test Professional; As Configuration Management Tools; SVN, TFS; As Computer Aided Software Engineering Tools; Microsoft Project, Telelogic DOORS, JIRA (Agile, WorkFlow ToolBox, EazyBI Reports, New Status Colors Pro, Atutomated Log Work), MAVEN, (dependency management), Jenkins (Build and deployment management), BITBUCKET (code repository and code review) , Microsoft Visio etc. Applications, projects and products running on Windows, Linux, Android and IOS operating systems are developed using these programs/editors.

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QUALITY MANAGEMENT

6. QUALITY MANAGEMENT

The goal of quality management of SimBT, which has Facility Security and CMMIDEV/3 quality certificates, is to design, develop, produce and manage the life cycle of reliable products/projects that fully meet customer expectations, using the latest and sustainable advanced technologies, in the light of its vision. SimBT plans and performs its work in the light of the following principles and procedures:

- Complies with applicable laws, regulations and standards in all projects/products/services.
- Continuous improvement of our quality management system, software/system lifecycle processes and configuration management to meet the requirements of ISO 9001, ISO 12207, ISO 27001, MIL-STD 498, MIL-STD 973 standards ensures that it is carried out at CMMI Maturity Level 3.
- By fulfilling the requirements of the NATO Confidential and National Secret Facility Security Document, we ensure the physical security of documents, projects, products and materials.
- Ensure that our products are produced in accordance with the latest technologies in the light of our production permit and capacity report.
- Based on the philosophy of total quality management, we oversee the achievement of Company and unit targets in a team spirit by encouraging a risk and opportunity based approach.
- Works to determine the preventive approaches that will improve our performance and quality processes, by constantly reviewing our business processes with the self-assessment process.
- The infrastructure required to ensure that our employees perform their jobs in line with our goals provides a healthy and safe working environment.
- Our main principle is to create and maintain relationships based on trust that add value to each other and meet the expectations of our customers, employees, solution partners and the society we live in.
- Works to adopt improvement as a part of our business, to make it continuous with the participation of our employees at all levels, and to increase our corporate performance.
- Plans and carries out trainings that will increase technical and behavioral competencies by giving importance to employee satisfaction and encouraging innovative and creative approaches.
- After the acceptance and inspection of the project and product management, we maintain customer satisfaction with user, installation and assembly, logistics, maintenance and repair, technical support and training.
- By managing all our activities in an integrated manner with environmental, occupational health and safety management systems, we work with all our strength to become an exemplary organization in terms of quality in the defense, security, safety, health, transportation, game and education sectors.

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INFORMATION SECURITY MANAGEMENT

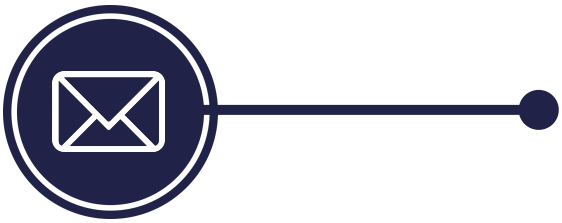
7. INFORMATION SECURITY MANAGEMENT

Acting with the awareness that the information produced in our company should be protected at the highest level of security, SimBT; Adhering to its mission and vision, in order to manage the information in printed and electronic media, which form the basis of the information security concept, in accordance with the principles of "confidentiality, integrity and accessibility", in the light of legal regulations and using risk methods;

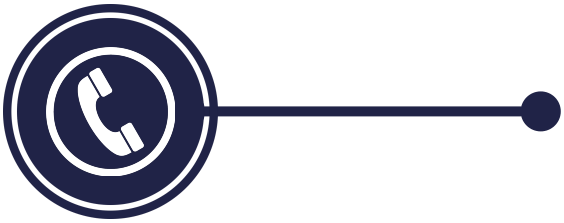
Fulfilling the requirements of information security standards,
Compliance with all legal regulations regarding information security,
To identify risks to information assets and to manage risks systematically,
Continuously reviewing and improving the Information Security Management System,
Carrying out trainings to develop technical and behavioral competencies in order to increase information security awareness, developing main policies

In order to create a successful and effective information security awareness process, the duties and responsibilities in this field have been clearly and unequivocally determined.
In accordance with the "Information Security Policy", our company undertakes to protect information assets, to ensure the confidentiality of information and data, to protect it against access by unauthorized persons who will try to disrupt its integrity, and thus to eliminate situations that will undermine the trust and reputation of our company.

8. Contact Information



info@simbt.com.tr



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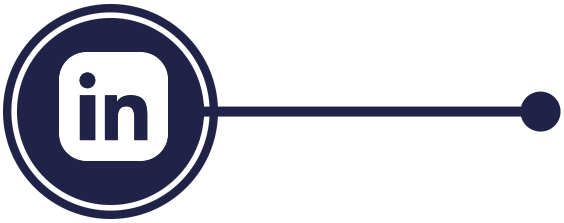

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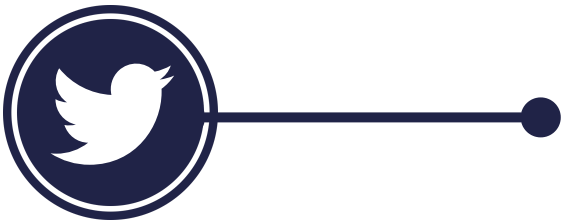

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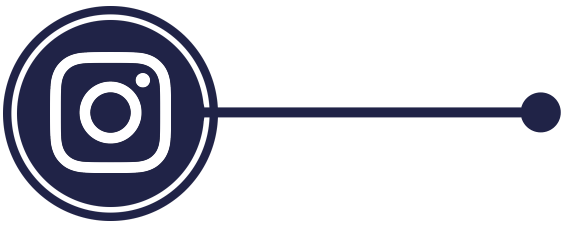

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