

AR Military sand table scheme

DJ digital AR sand table system

Catalogue

- Demand background
- Product presentation
- Product comparison
- Development tendency
- Product price

Background: There are problems with the traditional sand table

- Immobilized, unable to interact
- Large number of workers: it is difficult to upgrade the version
- Not portable: Not portable with the army
- Low efficiency: can't splice multiple sand table at will

project objective

- Using the new 3D simulation, human-computer interaction and MR imaging technology, to create a new digital sand table.
- Using big data analysis, visualization, simulation, monitoring and assessment, safety risk management.
- On the industry chain, to lead and promote defense industry upgrade.



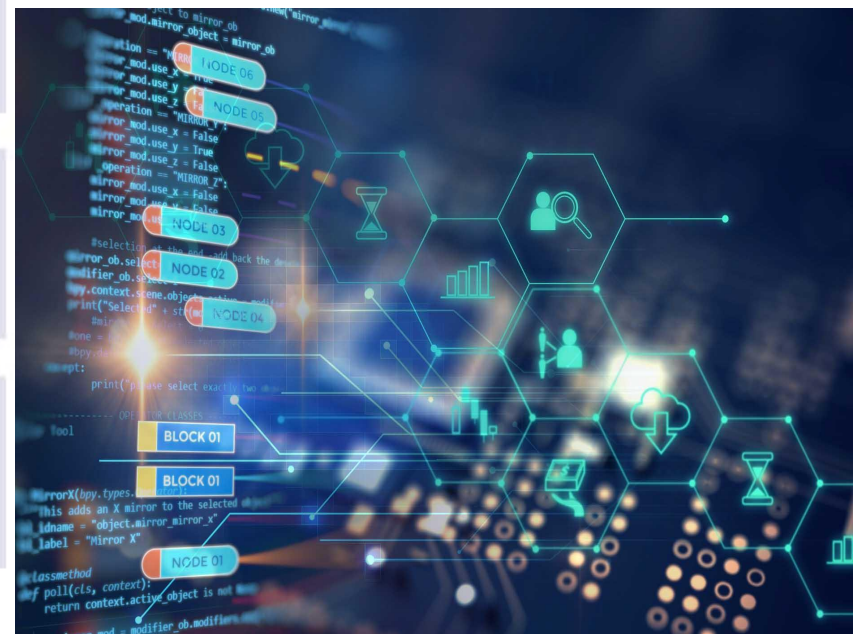
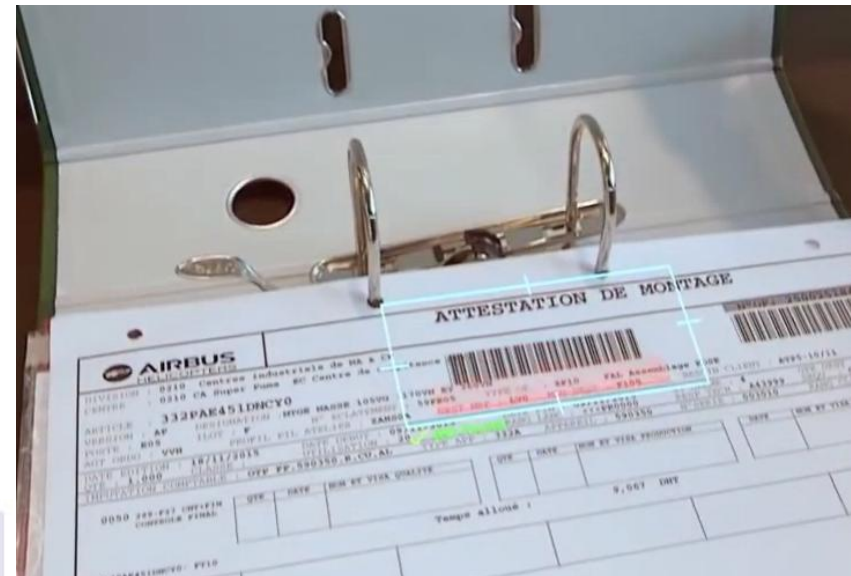


DJ Digital AR sand table function introduction

Function 1: Task digitization

Realize the function of the levels:

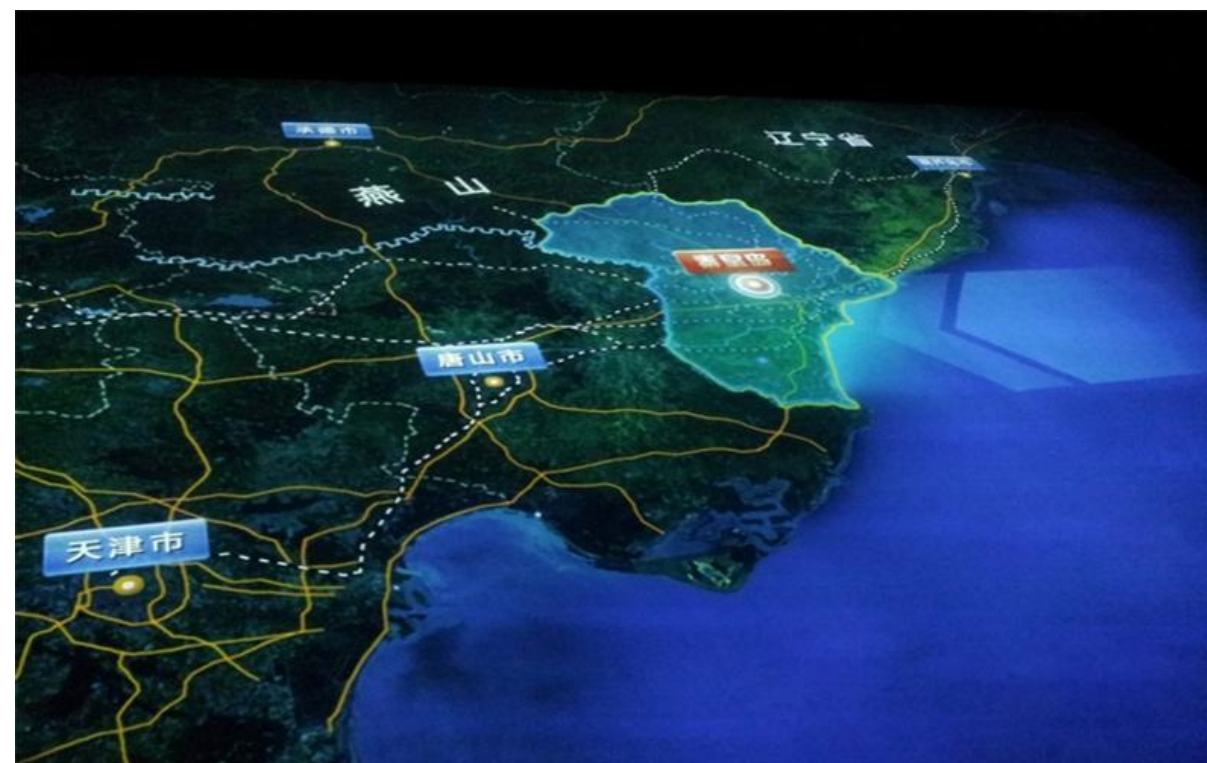
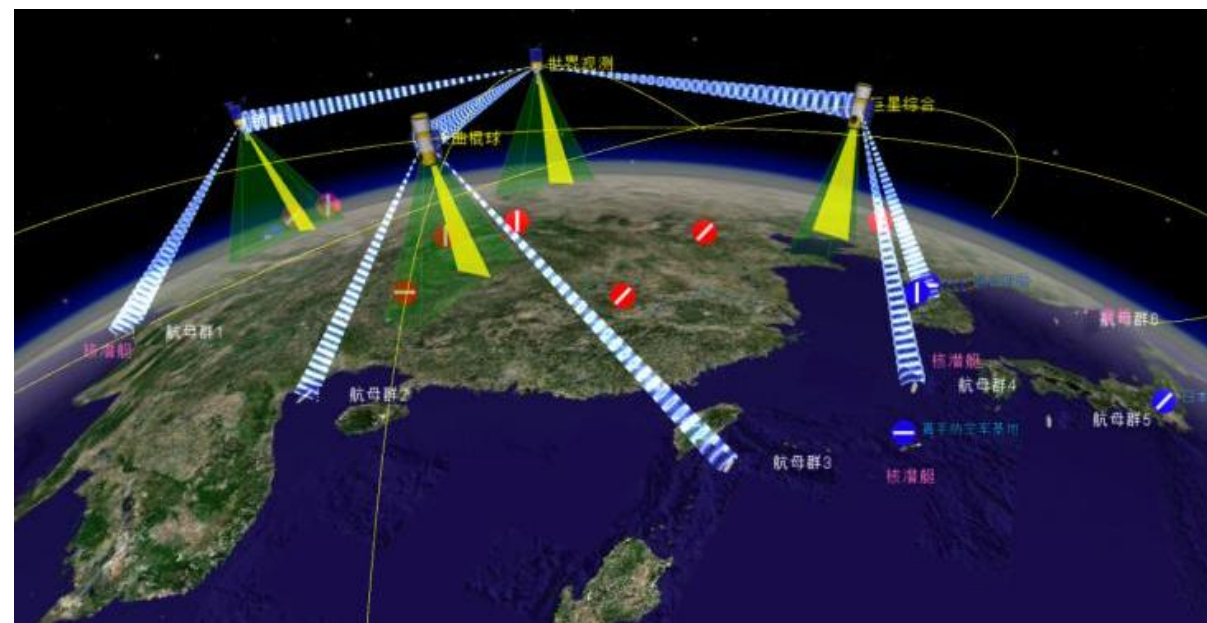
the first layer: the electronic document digital, digital,



Function two: sand table digitalization

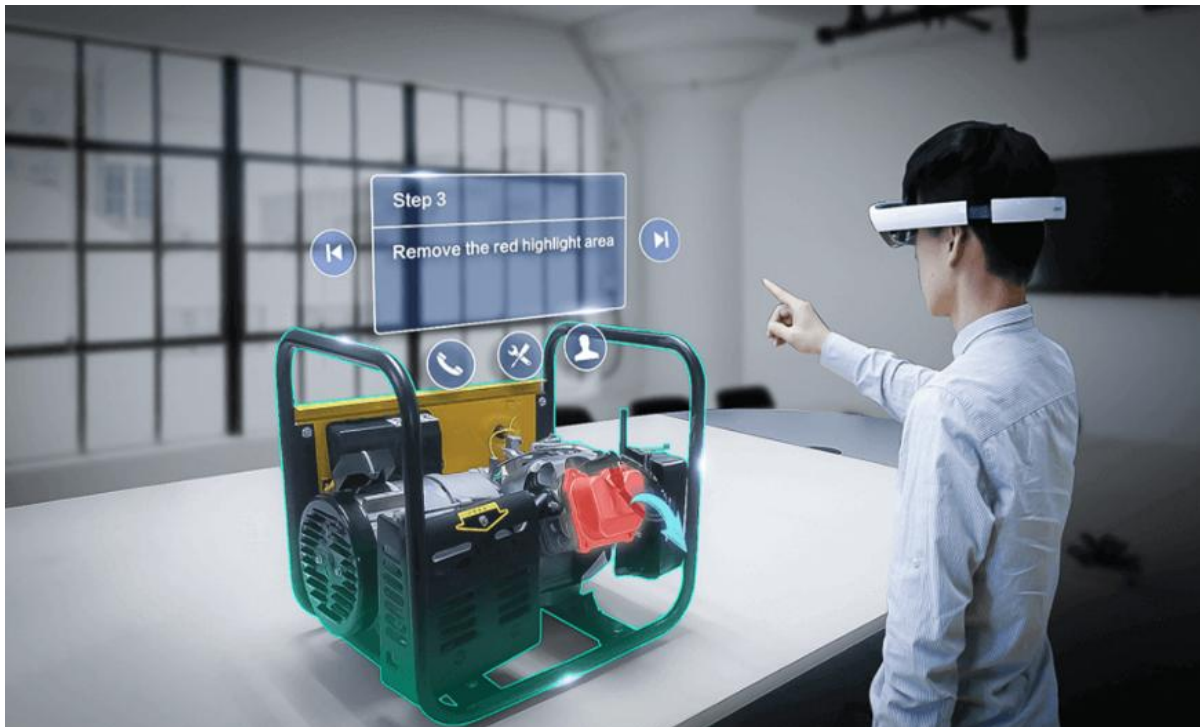
Realize the function of the hierarchy:

the second layer: sand table 3 d digital status display, restore the real scene, achieve global visualization, local thinning, process, dynamic.



Function 3: Computer aided drill

Function level: the third layer:
the task model, simulation deduction, guided by the tactical
training, troubleshooting, early warning, etc;



Extensible function 1: equipment library construction

Extended functionality level:

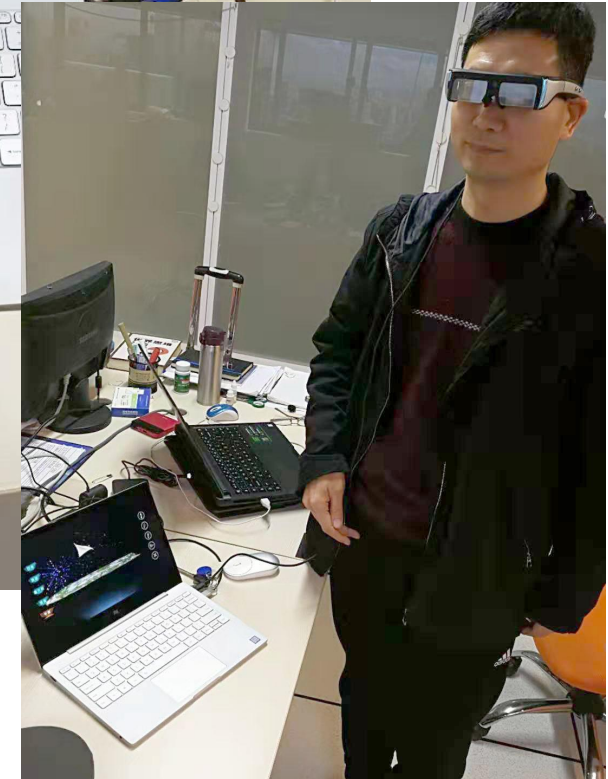
the fourth floor: equipment for the construction of the library, support click from Arsenal, added to the sand table, mobile and rotated to edit.



Extensible function 2: large-scale platform; Multiplayer Cloud collaboration

Realize the function of the hierarchy:

the fifth floor: collaboration, a local or Shared space to
end anchor, future support level one hundred people at
the same time collaborate online tactical plans.



DJ digital AR sand table system

Project plan Composition

- Hardware: customized MR hardware, holographic sand single terminal, server (to do cloud deployment)
- software tools: sand digital collaborative
- platform private cloud: privatization service architecture can be set up based on the private network

solution

- AR intelligent glasses
- AR remote mentoring
- AR edge visualization
- AR virtual display equipment

PROJECT	content description
HARDWARE	Terminal equipment MR glasses, supporting equipment, high-performance computers, servers
Software	Interactive content of holographic sand table system (hardware driver development +3D modeling + program simulation + courseware interaction + data interconnection and thread optimization...)
LEAD TIME	4-6 MONTHS

Product comparison

Network Management Products Investigation		
	Holographic projection digital sand table	DJ digital AR holographic sand table
U S A G E	advantage	<p>Products through the 3D projector, the field of vision is large</p> <p>High product maturity, early intervention, many times to participate in military related technical activities</p>
	defect	<p>High environmental requirements, need to demonstrate under dark light</p> <p>Wearing 3D glasses has strong vertigo, and the 3D effect is poor when viewed by many people</p> <p>The interactive synergistic effect is mediocre</p> <p>It's not portable, it's not portable</p>
T E C H	advantage	<p>Software algorithm has its own core technology</p>
	defect	<p>3D short focal projection technology is a relatively backward 3D simulation technology. AR devices with no development prospects are still in the process of development, and there is still room for improvement in performance</p>

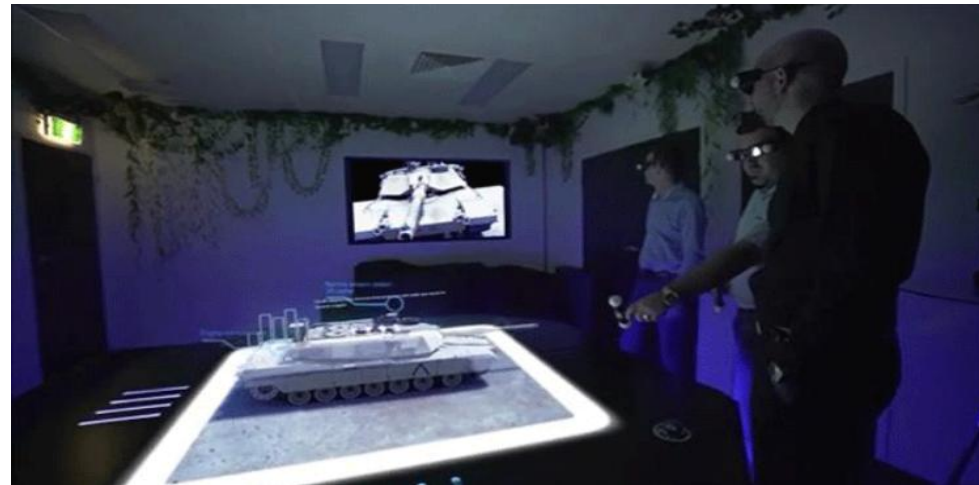
Digital sand table development: Stage ONE

Planar projection - digital sand table is based on computer technology as the core technology to generate realistic model of 2 d and 3 d images with the help of a projector, or other display device image model is shown to the booth. In simple terms, it is to project the simulated two-dimensional and three-dimensional images to the corresponding position of the solid model, and the solid sand table display response brightness, so that the sand table demonstration effect is vivid. Users can interact with images through control systems such as touch screens.



Digital sand table development: Stage two

Holographic projection - digital sand table by holographic 3 d projector will be presented to the user in a three dimensional image, the user can through the screen or wear optical 3 d glasses to see 3 d images, and easy to be controlled by touch screen, the computer infrared. At present, timely transmission in air camera without media cannot be realized. Mainly used in real estate and urban planning, can also be used in enterprise exhibition hall, military command field.



Digital sand table development: Stage three

MR 3 d digital sand table by MR

(enhancement) technology, by the user through the AR glasses show relaxed view 3 d map, and thus for the corresponding mission planning and training. Applied to the military in the world at present is mainly Microsoft HoloLens, domestic (arf) has not been reported.



Application of MR in military field

U.S. army IVAS project participants:

Microsoft, the us army features: based on Microsoft HoloLens 2, 120000. Goal is to create AR systems for combat and training. It is understood that IVAS project based on Microsoft HoloLens 2 head show improvement. Foreign media reported that its field of view is about 80 degrees, and it has built-in sensors common in military equipment such as night vision instrument and thermal sensor, which can be used for various purposes such as simulation training and auxiliary combat. Specific USES, IVAS can display the enemy position (night), including the important marker in the building, and can fully feel when virtual combat, shooting, all kinds of passwords, both sides of the explosion, the enemy cries, vivid simulation effect. Currently, IVAS going smoothly at present, the army plans to deploy at the end of 2021 the formal version IVAS head show, size or up to 100000 units, this will be the AR/VR + the most notable in the military field



Us Navy MR Training System

According to foreign media reports, the US Navy, the Dahlgren Navy and the US Army have collaborated to create a soldier training system based on Magic Leap One. Equipped with a custom head-mounted, hand-held Haptech motion-sensing weapon system that simulates recoil, soldiers also wear a backpack PC. Training content part, it is by the Magic Leap Horizons (Magic) Leap subsidiary development, provide troops, for example: deal with the gunners and capture the criminal scene, the commander also will give the instruction by MR head show, when MR simulation of the prisoners to surrender, soldiers training mission is completed.



Australian MR Naval Combat system

Based on HoloLens, the Australian Navy is experimenting with MR technology for auxiliary operations, including looking at 3D visualizations of combat systems that can clearly see land, sea and air combat tools in real time. The highlight of the system is the combination of SAAB's advanced naval defence system and the MR overlay. In the future, it will also combine tactical DISPLAY UI, similar to 3D holography, so that the overall combat system is clearer and more definite.



Airbus Holographic Tactical Sandbox combat system

Similar to SAAB's MR Naval Tactical Command programme, Airbus Defence and Space has a holo lens-based holographic tactical sandbox system. The application is a MR version of tactical sandbox, characteristic is based on the airbus Fortion TacticalC2 military applications, make report task or exercise more interactive and more convenient, intuitive, also used for collaborative decision-making and so on. MR sandboxes are more responsive to the needs of the new era military than traditional tactical sandboxes, and their interaction is familiar enough to accelerate military readiness, support remote collaborative mission readiness, and enhance battlefield awareness. Using HoloLens gesture recognition technology, you can use the holographic map rotation, tag, manipulation and interaction, and view from the Angle of various terrain, terrain before going ahead to find out.



Project development cost assessment

Prototype: software development,
hardware development and
integrating content production - 60 w,
40 w development cycle: 4-6 months *

hardware and product customization
open mold design according to needs
assessment