TEKLE HOLOGRAPHICS
Bridging Reality

Industry Datasheet

SmartCity & Construction

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Introducing Tekle Holographics

"Discover a new way of interacting with your digital data. No more keyboards and no more mice. Simply control the devices like you would control real world objects."

Tekle Holographics is a Netherlands-based company that manufactures high-quality holographic software and devices. These holographic solutions are used in defense, automotive, manufacturing, government, education, construction and energy sectors.

Our company's holographic solutions solve key problems existing in the immersive technology space today and is widely seen as technology leader as evidenced by partnerships with leading companies like Microsoft, SAS Institute, ESRI, Nvidia, HP inc, NLR, Canon and leading technical universities like TU Delft, TU Twente and Fraunhofer. The newly build Tekle Holographics experience center in Hilversum, the Netherlands even allows you to bring your projects on a hard drive to test and experience them within minutes!

Holographic technologies are a natural fit for SmartCity and the construction

industry – it is much easier to use and more accessible than Virtual Reality. Holographic devices allow groups of people to have a social immersive experience together, with none of the motion sickness and other risks of Virtual Reality.

Design, construction and SmartCity development & management companies are extremely data driven, use extensive and complex data models while relying on often outdated 2D/3D visualization systems or when available, first-generation VR-CAVE solutions. Augmented Reality and Virtual Reality have proven not to meet the requirements of providing social immersive experiences at scale in these industries. Tekle Holographics provides you with an alternative – true Holographic visualization, interaction and through our partners, near real-time situational awareness and AI assisted decisioning.

SmartCity solutions

Tekle Holographics delivers on world-class SmartCity solutions, providing near real-time holographic visualisations and interactions at scale.

Native integrations with mobility related data solutions (Goudappel), AI data modelling solutions (SAS institute), integrations with industry standards for visualizing 3D maps (GIS) and BIM solutions allows Tekle Holographics's RealityBridge software to visualize environments, interiors and situational awareness on our Holo-Table. A true Holographic experience at the tip of your fingers!

Nearly any SmartCity application like crowd or staff monitoring & management, traffic control, city planning, decision making, and many more can be done faster, more efficient and reliable by using Holographic visualization.

With our holographic technologies you are not only able to experience and visualize your projects, but you are also able to interact with your applications through the holographic image and the Tekle Holographics Holo-Table in near real-time.

By combining BIM and GIS application data with input from mobility applications and IoT data (directly or through data analytics/ data management applications) Tekle Holographics allows you to monitor, control and operate your SmartCity operations through a holographic interface in near real-time.

Construction

Tekle Holographics has been closely aligned with construction from its inception. Our Holo-devices and RealtyBridge software platform have been build around the concept of fast, accurate and foremost usable holographic visualization of GIS and BIM 3D data models, creating a best-in-class solution for the construction world.

Our solution integrates natively with leading BIM applications like Autodesk Navisworks, Revit, Rhino, SketchUp etc. allowing architects and creatives to visualize existing 3D models in an interactive holographic image.

Project managers, construction workers and engineers can view, adjust, plan, and manage their work based on accurate, realistic conditions on the (virtual) ground in their applications of choice.

Changes and adjustments of 3D models are updated visually in near real-time, enhancing your ability to use what-if scenarios and improve your decision-making process.

During the construction period you can monitor your workforce's health, safety, productivity and visualize your resources on the construction sites through our partnership with True inSite. Tekle Holographics RealityBridge software allows 3rd party feeds from IoT devices, sensors, cameras etc. to be visualized in your existing 3D holographic models, providing near real-time situational awareness.

Project stakeholders can attend holographic progress meetings and approve design changes remotely when using a second Holo-device, providing a digital twin of your construction site and holographic 3D models.

The Holo-Table can be used by interior architects and designers to visualize/ showcase their designs and be re-purposed to a promotional centerpiece for prospective tenants and buyers throughout and after the construction process.
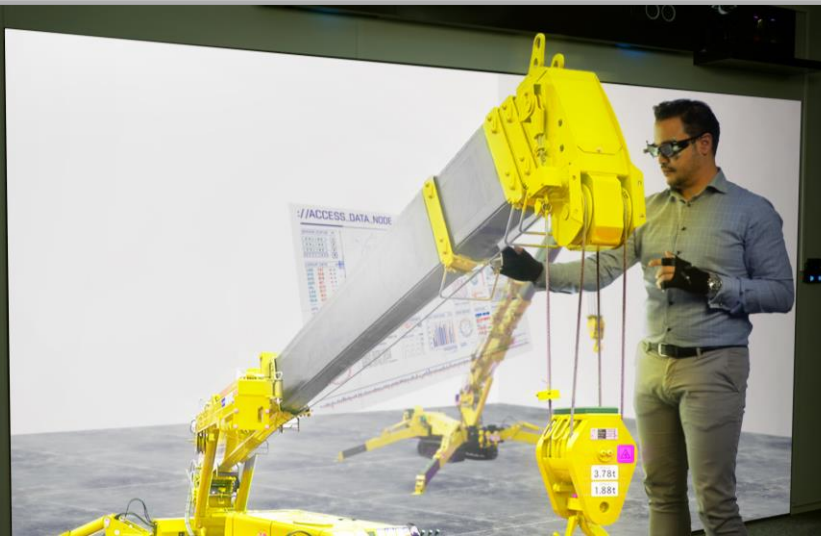
Design, planning, construction, operational control & management and maintenance – no other field has been affected by the IoT revolution as much as engineering. Tekle Holographics' solutions have traditionally been used in the design, planning and construction phase. With the ability to visualize and interact with application data from partners like True inSite, Goudappel and others, you can monitor operations during and after the construction has been completed.

Where your construction site would monitor progress and resources, your SmartCity or plant operation centre would manage and operate thousands of connected systems, IoT devices and sensors remotely. Data from climate control systems, elevators, fire and safety devices, security feeds, water works, electrical equipment, etc. can be visualized by our RealityBridge software.

By combining BIM and GIS application data with input from mobility applications and IoT data (directly or through data analytics/ data management applications) Tekle Holographics allows you to monitor, control and operate your operations through a holographic interface in near real-time. You can zoom into specific locations and interact with your applications managing IoT sensors and devices to change climate settings, lights or react swiftly to emergency situations without having to look at several screens to gain situational awareness.

Our partnership with the leading data analytics company SAS institute and integrations with the SAS Viya/intelligent decisioning software brings data driven AI decisioning power to our clients. Tekle Holograpics' solutions visualize data through Holographic technology, facilitating faster and visual decision making. SAS data analytics adds a data driven approach to making or automating decisions. SAS Viya (visual analytics) visualizes your decision making through our Holographic image. SAS intelligent decisioning software empowers your decisions with AI capabilities.

Especially complex facilities like SmartCity, plant or engineering sites will benefit greatly from this joint offering. As part of our partnership, we provide OEM licenses with our Holo-devices and RealityBridge software platform at affordable prices.

Technology

What we provide is not only the ability of visualizing 3D objects, environments and scenarios with the help of our Holo-Devices, but also a strong, efficient and robust software suite, integrating the capabilities of industry standard applications.

Hardware

The hardware that we provide are our Holo-Devices and the tracking, control/sensory devices required to make 3D-Holographic visualizations interactive. Before looking at the devices individually, let's investigate the technology that makes this possible.

Projections and Tracking

3D projectors are used to project images on a surface, allowing users to perceive depth both in and outside the projection, providing an immersive experience. We see 3D projection technology in 3D TVs and 3D movies at the cinema. However, these technologies don't give users the ability to interact or walk around a 3D object or immerse yourself in a 3D environment.

We use similar 3D shutter glasses that are used to view a 3D movie, with the exception that the spatial position of the glasses are tracked and mapped respective to the virtual environment. This allows us to alter the holographic images projected to the viewing perspective of the user, so you can perceive depth, volume and interact naturally without nausea or headaches after extensive use. The holographs can also be experienced by passive users, who can view the hologram from the perspective of the active (tracked) users.

Input and Output

Any input device(s) can be used to interact with the holographic environment. This includes handheld devices like wands (similar to VR controllers), gaming controllers, gesture-control gloves, driving simulators and so on. These input devices are also tracked, thereby providing a seamless interaction with the 3D holographic environment.

Output devices provided by Tekle Holographics are our industry leading Holo-devices: Holo-Wall, Holo-room and our Holo-table. These provide the most realistic interpretations of the virtual world created in your favourite 3D applications. In addition to the visual output, there can be auditory and even sensory outputs allowing you to "feel" texture of a holographic projection.

Technology

Holo-Devices

Holo-Room
The Holo-Room consists of four holographic surfaces, strategically positioned, to maximize the immersive experience within a limited area of 4x5m. Anything from single 3D objects like engines, body-parts or people to fully immersive 3D environments like cityscapes, GIS information, simulated worlds, buildings etc. can be visualized in the Holo-Room, to-scale.
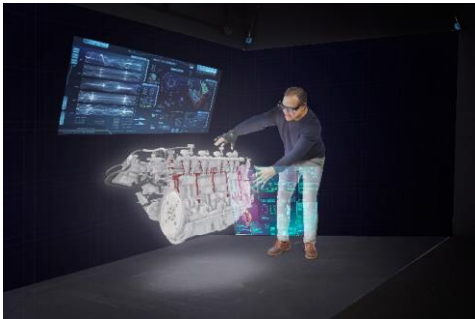
Holo-Wall
The Holo-Wall, is a scalable projected vertical surface which can be used as a single purpose holographic visualization device where depth perception occurs both inside and outside (up to 4 metres) of the wall. While it has capabilities similar to the Holo-Room, it is most useful to visualize and interact with single objects like a human heart, or an engine, as immersive experiences would be limited by the viewing angle of the user.

Holo-Table

The Holo-Table consists of a holographic table-top, where users can have the perception of depth both into and outside of a horizontal display, i.e. the surface of the table. It is the most useful overview of environments such as cities, buildings, maps, etc. The Holo-Table can optionally also be accompanied with an External 2D screen which can act as a 2D mirror, display additional information and viewing points, exterior views, interact with your applications or reveal more in-depth meta data.

Table Dimensions
Floor Space approx. 2.1m x 2.1m
62cm Height
Weight approx. 75kg

Supported Applications	Autodesk Navisworks, Revit, Rhino, Sketchup, SAS Institute Intelligent decisioning, Ramsis, Argis Pro, Microsoft DevOps, Nvidia Omniverse and many more
Supported File types	All 3D file types, all IOT industry standard sensory data, all BIM file types, Lidar and photogrammatry file types, CAD files, GEO file types, underground GEOTOP files and many more
Supported 3D engines	Unity 3D, Unreal

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