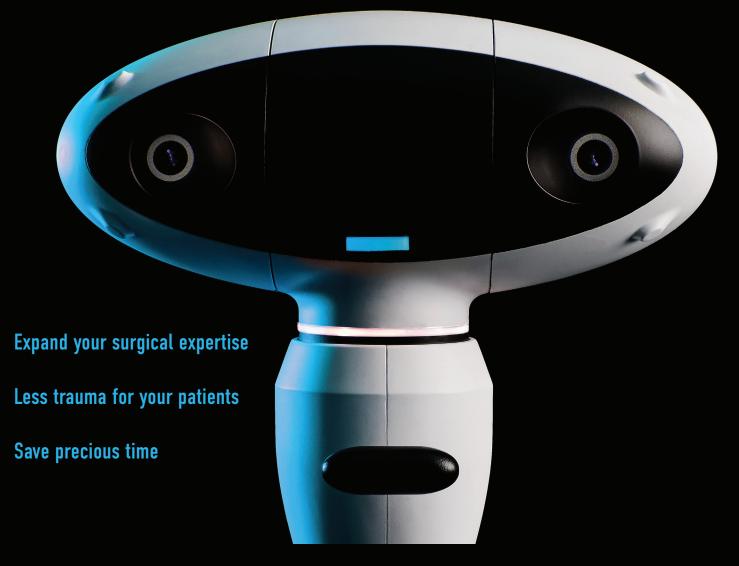


Precise. Efficient. Versatile



Single implants



Multiple implants



Fully Edentulous Implants



Precision Dentistry

Technical data

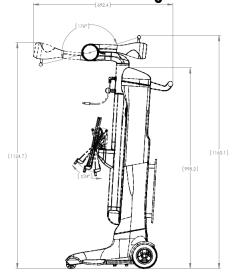
Camera system	 3X higher resolution for smaller-sized tag recognition and low latency Optional add on: Robotic motorized camera for autofocus, tracking and optimized field of view maintenance
User interface	 Place dental implants with precision and predictability Guided endodontics for accuracte access cavity preparations Optional add on: Piezotome bone surgery to perform treatments with confidence
Hardware parts	- Small-sized autoclavable hardware parts to precisely track surgical instruments
Patient registration	- Trace registration - no second scan needed - trace in chair. - Impression registration - using a fiducial while scanning the patient - instant in chair. - Pair-Point registration - using bone screws - touch in chair. - Optional add on: automatic drill tip calibration in combination with any registration method
Workflow	 Less overhead with registration options for any case scenario, including a new impression registration concept Enhanced 3D rendering to facilitate treatment planning Low procedure costs
Communication	- Import and export tools to communicate with third-party programs and/or dental labs - Optional add on: integrated portal for communication with peers or Navident support
Suspension system	 Mobile cart that allows to move the Navident system to alternate treatment rooms, eliminating the cost of wall or ceiling preparations Wall mount system with balancing arm to give users freedom in positioning the camera and screen* Ceiling mount system with balancing arm to give users freedom in positioning the camera and screen*
Ergonomics	- Elevate, tilt or move the Navident to allow for a standing or seating position - 360 degree handpiece tracker for the treatment of more complex, i.e. all-on-x cases - Compatible with inclined and supine positions

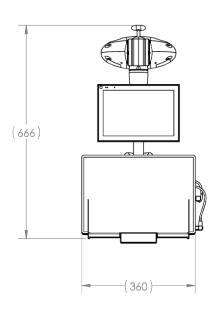
* Wall or ceiling preparations are not included

Configurations

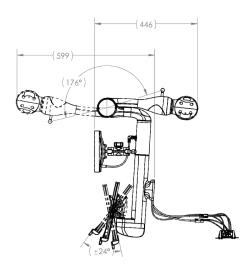
The right solution for each dental practice thanks to different system options. A highly compact instrument with a small footprint, Navident 4 fits seamlessly into virtually any practice workflow environment.

Navident cart configuration

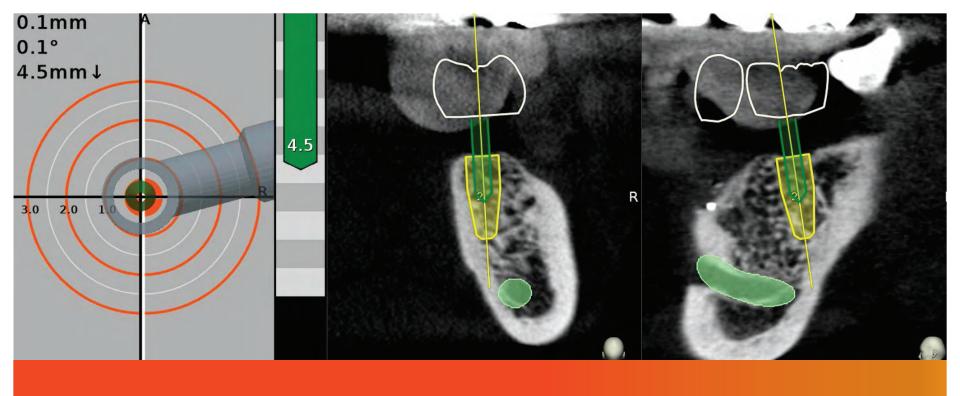




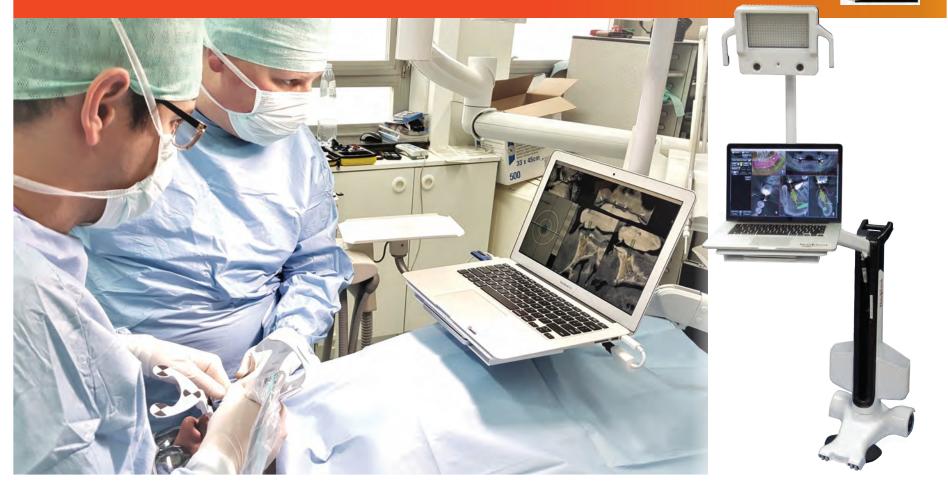
Navident mount configuration

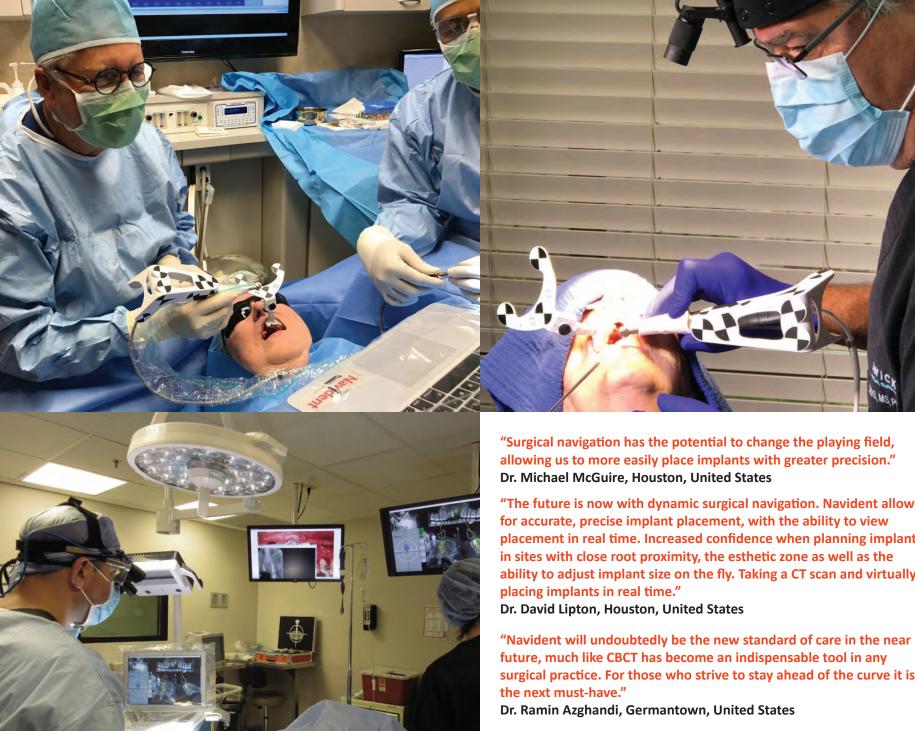


75x75mm standard VESA mount - weight: 7kg



TARGETING PERFECTION with Navident





Pictured:

(Top, left) Drs. Michael McGuire and David Lipton, Houston, United States (Top, right) Dr. Daniel Spagnoli, Southport, United States (Bottom, left) Dr. George A. Mandelaris, Chicago, Illinois (Cover) Drs. Jan D'haese and Johan Ackhurst, Ghent, Belgium

"Surgical navigation has the potential to change the playing field, allowing us to more easily place implants with greater precision."

"The future is now with dynamic surgical navigation. Navident allows for accurate, precise implant placement, with the ability to view placement in real time. Increased confidence when planning implants in sites with close root proximity, the esthetic zone as well as the ability to adjust implant size on the fly. Taking a CT scan and virtually

future, much like CBCT has become an indispensable tool in any surgical practice. For those who strive to stay ahead of the curve it is

"The Navident system is the next leap forward in CBCT based implantology. The ability to verify and validate, in real time, positional accuracy of osteotomy site preparation and implant positioning is unlike anything that has ever been available before outside a research center. Every day and every case now closes with me knowing (and having a medicolegal record of proof) that I am providing the most accurate and precise implant placement for my patients and referring doctors to maximize functional and esthetic prosthetic outcomes. In a discipline that depends largely on precision and accuracy, there should be and can be no more excuses."

Dr. George A. Mandelaris, Chicago, United States

From Virtual to Reality

A breakthrough in computer-aided implantology, Navident offers dental surgeons an easy to use, accurate, highly portable and affordable way to plan the desired restoration and implant placement on a virtual patient, then execute the plan on the real patient's jaw.

The virtual patient's jaw is created from the CT and, optionally, digital impression data, in seconds. The plan, including crowns and implants, is prepared in a few minutes and can be modified any time. During surgery, Navident shows the advance of the drill tip or implant in the patient's jaw relative to surrounding structures and the implantation plan.



Let Navident help you become a better surgeon

Do a better job

Plan the restoration on screen, then optimize the implant positions considering both bone and crowns. Then let Navident guide you to accurately implement your plan in the patient's jaw.

Reduce harm to patient

Perform flapless surgery, leading to reduced patient discomfort, reduced risk of infection, and faster recovery. Avoid unintentional introgenic damage to nearby anatomical structures.

Increase your efficiency

Eliminate plaster models, wax-ups and fabrication of guides. Reduce chair time by eliminating raising and suturing flaps.

"Navident is another step towards a complete digital workflow for dental implant treatment. Having used the system for several months now, I would not want to go back to preparing and placing dental implants without its 3D visual guidance. For me, acquiring Navident has been a logical progression in my personal desire to achieve the very best I can for my patients."

Dr. David Burgess, Carbis Bay, United Kingdom

Reduce treatment costs

Leverage accuracy to reduce the need for custom abutments, bone augmentation and re-work. Use retrievable screw-retained, rather than cement-retained, superstructures.

Attract referrals

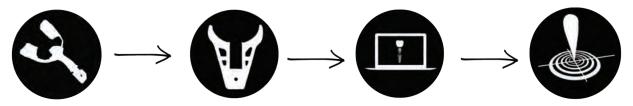
Demonstrate to patients your ability to leverage the latest technology to deliver better, safer, less invasive care.

Relax and enjoy

Reduce your mental stress. Sit up during surgery. Use exciting new technology. Increase your job satisfaction and extend your career.

Simplified Workflow

... which, with an on-site CBCT scanner, can be performed in a single appointment



Stent

Scan

Plan

Place

A NaviStent is fabricated directly on the patient's iaw

The process starts with a quick in-office preparation of a hot water thermoplastic stent, called NaviStent. The stability of NaviStent's fit can be immediately evaluated to ensure predictable results.



Scan patient in a CT machine with a NaviStent and CT Marker in place

A "CT Marker" part containing a precision manufactured fiducial body is attached to the NaviStent and the patient is scanned as usual. Navident is compatible with all dental CBCTs on the market, including small field ones.





Plan restorative-driven implant placement on a laptop

The restoration and implant placement plan is created using the CT image data, optionally with added intraoral scans or any other surface data (STL files). The plan can be modified at any time, even during surgery. Navident is compatible with any implant size and type available on the market.



Drill and place the implants under dynamic guidance

Following a brief drill or implant calibration, Navident dynamically presents the deviation between the position and orientation of the drill/implant and their planned ones, guiding the surgeon to accurately implement the plan.

(see next page)





Dynamic over Static

"Real-time navigation is a valuable alternative to stereolithographic (static) guided surgery as it offers the clinician some advantages compared to the former technique. Using real-time (dynamic) navigation one can avoid the fabrication of a stereolithographic template resulting in a less expensive treatment. As navigation is considered as a dynamic guided surgery system, changes to the treatment planning (location and size of the implants, number of the implants, flap or flapless...) can be easily made intra-operatively. Also the tactile feeling during the drilling procedure, as well as the manual control over the implant stability, is still present when using navigation surgery."

Source: "Use of Dynamic Navigation Implant Surgery In Combination with An Immediate Loading Procedure" by D'haese et al, 2015

Flexibility	Immediacy	Predictability	Safety	Simplicity
View the CT data and change the plan at any time, even during surgery.	Guidance immediately available following planning – no need to wait weeks for guide to arrive.	More predictable – stent problems can be detected and corrected on the spot.	Accuracy check always available – large errors immediately observed and addressed.	User friendly and intuitive planning – no need to design the guide and sleeves.
Economy	Irrigation	Access to implantation site	Integration	Completeness

Solution for Fully Edentulous Cases

For fully edentulous jaws, or when the teeth are insufficiently stable or expected to be removed during the implantation procedure, Navident offers a unique Bone Anchoring Solution. A single small diameter implant (SDI) is temporarily inserted in the jaw, either vertically or horizontally, to provide a stable bone anchor. A special version of the NaviStent arm, with a bracket designed to provide strong and stable coupling to the head of the implant, is then used to attach the CT-Marker or the JawTag to the jaw. The bracket has a built-in safety snap mechanism to prevent damage to the bone or the SDI when the CT-Marker or JawTag are accidentally hit.

"For the 30 implants where the mini-implant approach was used, mean deviations of 0.78 mm at entry, 1.22 mm at apex and 1.91° of angulation were achieved. These results are statistically consistent with the results obtained using Navident's partially edentulous protocol."

Source: "Accuracy of a Dynamic Dental Implantation Navigation System in Regular Clinical Usage" by Stefanelli, 2017

NOTE: Navident is cleared by the FDA in the United States for use with partially edentulous patients. This solution for use with completely edentulous patients is not currently available for use in the United States.

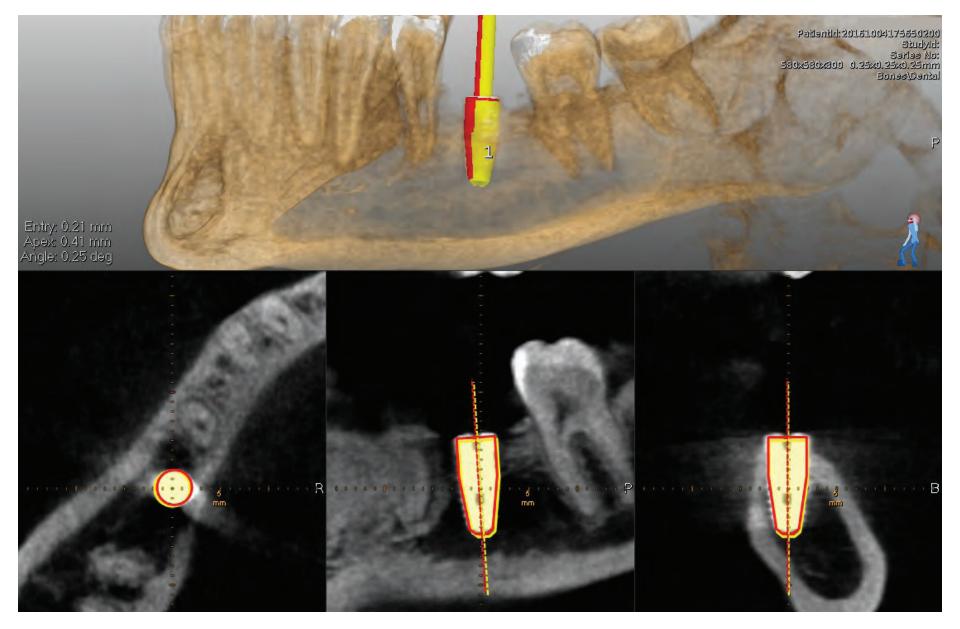


Fig 1: Arm rigidly anchored to the mandible using a single vertically inserted SDI



Fig 2: Anchoring to the mandible using a horizontally inserted SDI





EvaluNav

The EvaluNav application, included in Navident, enables evaluation of the deviations between the planned and the actual position of implants appearing in a post-operative ("post-op") CT scan. Once the pre- and post-op scans are loaded and registered to each other, the exact position of each implant is detected in the post-op CT and compared to its planned position in the pre-op scan. The deviations at entry and apex and angle are automatically computed and presented both visually and numerically. Provided the implant itself was inserted under guidance, EvaluNav is able to further separate guidance deviation (system error) from drilling deviation (user error).

"Having participated in guided surgery since 1999, first utilizing the beta version of 3D planning software and stereolithographic guides and ever since participating in the digital explosion of technology, I am now more excited than ever with dynamic navigation that Navident is leading. The workflow that we are implementing is awesome and I believe the future of guided implant treatment planning and delivery for our patients."

Dr. Todd Scheyer, Houston, United States



The Dynamic Navigation Society is the educational division of ClaroNav, which organizes courses worldwide. Interested dental clinicians can attend Navident training sessions and hands-on courses.

Leading clinicians from around the world have joined the Dynamic Navigation Society (DNS) to be at the forefront of dynamic guided dental surgery. Peer-to-Peer Education is critical to the success of any evolving technology and with our current group of renowned clinicians we feel we are in an excellent position to lead the way.

DNS organizes high quality courses all over North America, Europe and Asia. Courses are offered in a variety of formats (half day, 1-day, 2-day, weekday or weekend) to accommodate the clinician's schedule. Curriculum includes education on demo models and observation of live surgery. First feedback has been extremely positive, as clinicians discover the way from a good treatment plan to an excellent surgical outcome.





About ClaroNav Inc.

ClaroNav is wholly owned by us, its founders and employees. Our mission is to do good, have fun and make money.

Our surgical navigation roots go back to the development of the first commercial CT-based navigation system, the Viewing Wand, which our founders developed while at ISG Technologies (now part of IBM). The Viewing Wand, FDA cleared in 1994, was used to guide neurosurgery. After we left ISG and formed our own company in 2001, we developed and marketed the first vision-based optical tracking system for surgery, the MicronTracker (2003). We then helped other companies develop their own complete MicronTracker-based surgical navigation systems, and, starting in 2010, we initiated our own. We worked closely with dental surgeons at the University of Toronto School of Dentistry to develop and market Navident, and with ENT surgeons to develop and market NaviENT.

We currently develop, test, manufacture, market, sell, train, and support our products at our Toronto headquarters. We also market, train and support out of our offices in Europe and East Asia, as well as through a network of national distributors.





Experience Navident with a Master Clinical Trainer in your area and become part of the worldwide Dynamic Navigation Society dns@claronav.com



Purchase Navident for your practice

TORONTO HQ 1140 Sheppard Avenue West Unit 10 Toronto, Ontario, Canada M3K 2A2

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EUROPEAN OFFICE ClaroNav Pieter Ballewijnsstraat 1 3500 Hasselt Belgium

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Navident is cleared by the FDA for sale in the United States 0473 Approved for commercial sale in Canada and the EU

NAVIENT Surgical Navigation System





Smart Solution for Enhanced Productivity

Simple, Accurate and Affordable

Navient is an innovative image-guided navigation system, utilizing the latest technologies in the field and bringing simplicity, accuracy and affordability to the surgical navigation system.

Navient is designed for convenient routine use. There are no cables to connect, no spherical markers to mount, no field generator to place, and no consumables to order.

Key Features

- Spine, Cranial, Biopsy and ENT procedures
- Sleek, compact and portable cart
- Large touch screen for natural interaction
- Powerful and intuitive software features
- Pre-calibrated navigation probes
- Fast registration and precise navigation
- Affordable and no consumables

Fast Registration

Navient's registration is simple, accurate and fast. It detects multimodal fiducials for automatic registration as well as allows using anatomic landmarks for manual registration.

Navient's innovative trace-based registration technology further fine tunes registration and provides best in class accuracy. The process takes less than a minute to complete.



Ergonomic Instruments

- Pre-calibrated navigation probes equipped with permanent markers
- Universal trackers easily clamps to any surgical instruments such as biopsy needle, pedicle screw driver, drill or suction
- Steam sterilizable navigation instruments
- No consumables

Reusable Instruments



- Articulated arm
- Two cranial frames
- Cranial probe
- Registration probe
- Tip Calibrator
- Sterilization tray





- Articulated arm
- Dual adaptor
- Biopsy aiming device
- · Biopsy probe
- Reducing tube
- Sterilization tray





Spine Instruments

- Spine Reference clamps (Open and percutaneous)
- Universal Trackers for pedicle screw driver, tap
- Patient Reference Frame
- Automatic Registration Fiducial
- Navigated Awl
- Registration Probe
- Tip Calibrator





- Bayonet probe
- Registration probe
- Maxillary seeker
- Frontal seeker
- Universal tracker
- Patient tracker
- Sterilization tray



Sleek, Compact and Portable



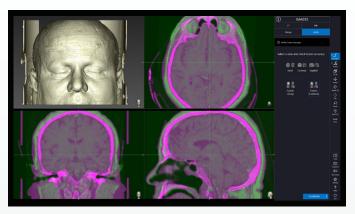
Simple, Elegant and Precise



Streamlined User Interface



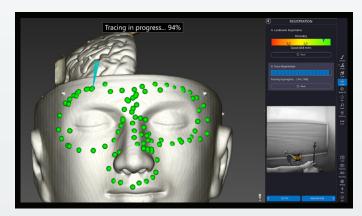
Procedures: Supports ENT, Cranial and Spine procedures



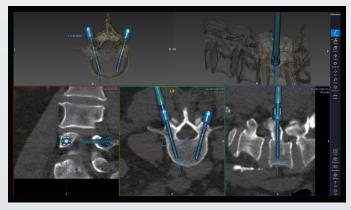
Images: Load images from CD/DVD/USB or PACS, Image fusion



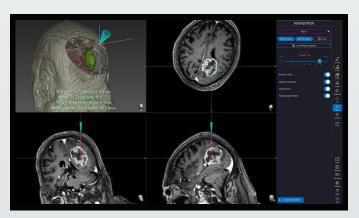
Planning: 3D Modeling, Biopsy trajectory planning, Virtual craniotomy



Registration: Landmarks and Trace based registration



Navigation: Optimized Navigation layout for Spine procedure



Navigation: Optimized Navigation layout for Cranial procedure

General Specifications



Tracking System

- Infrared optical tracking system
- 0.2mm calibration accuracy
- · Live video stream
- Instrument tip accuracy verification
- Permanent markers
- Reusable and sterilizable instruments
- Foldable tracker arm with variable height

All-in-One Computer

- 27" WQHD ultra bright touchscreen monitor
- Ultra-thin Bezel, glass front and stainless steel back
- Light weight, thin and easily detachable
- Adjustable mount Tilt/Swivel/Rotation
- Intel® Core™ i7 quad core processor
- 32GB 3200MHz DDR4 RAM
- 1TB NVMe PCle M.2 SSD Drive
- Nvidia GeForce RTX 3070 graphics

Software

- For Cranial, Spine and ENT procedures
- Loads DICOM images from DVD, USB, PACS
- Image fusion
- Automatic segmentation and 3D modeling
- Virtual craniotomy
- Biopsy trajectory planning and navigation
- Pre-op and Intra-op pedicle screw planning
- · Landmark and Trace registration
- Automatic registration using intra-op CT and *C*-arm
- Anatomical, trajectory and probe eye views
- Video documentation of surgical operation

Cart

- · Light weight: 30kg
- Small footprint: 40cm x 50cm
- Variable Height: 135cm 190cm
- Omni directional wheels with brakes
- 100V 240V, 50-60Hz, 2.2A

Support Program

Installation & Training Program

On-site installation and training is included in your purchase of Navient navigation system. You will be trained until you feel comfortable operating the Navient system

Warranty

2 years warranty is included in your purchase of a Navient system. Extended warranty is available for the system lifetime.

On-line Support

Navient comes with a remote online assistance program. Our technical support staff can log into your Navient system to perform diagnostic and troubleshooting operations.

Software Update

Your Navient software will be automatically updated via our online support program.

Hardware Repair

Our technical support will help you with both on-site and off-site repair.

Preventive Maintenance

Regular on-site and off-site maintenance operations are performed to monitor the performance of your Navient system.

About ClaroNav Kolahi Inc. (CKI)

CKI is a medical device hardware and software company headquartered in Toronto, Canada, and is represented worldwide by authorized distributors.

CKI is deeply committed to product quality and safety, and its Quality Management System is certified as compliant with ISO 13485 MDSAP. CKI is dedicated to innovation and developing state-of-the-art cranial surgical navigation systems to enable surgeons to confidently make more informed decisions for better patient outcomes. For more information, visit www.claronav.com.





Leader in Surgical Navigation



ClaroNav Kolahi Inc. (CKI)

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Email: info@claronav.com Web: www.claronav.com



Emergo Europe Westervoortsedijk 60 6827 AT Arnhem The Netherlands



Navigation System

Simple, Accurate and Affordable



Quick and easy set up

Navient is designed for convenient routine use. There are no cables to connect, no spherical markers to mount, no head straps to wrap, no field generator to place, and no consumables to order.

Fast Registration

Navient uses an innovative registration technology which is accurate, reliable, and fast. The process takes less than a minute to complete.

Optical System

Optical tracking systems are superior and preferred over EM systems for the following reasons:

- Greater accuracy
- Better reliability
- No interference from metals in the OR/OT
- No wire connection to the instruments
- Simpler and more user friendly

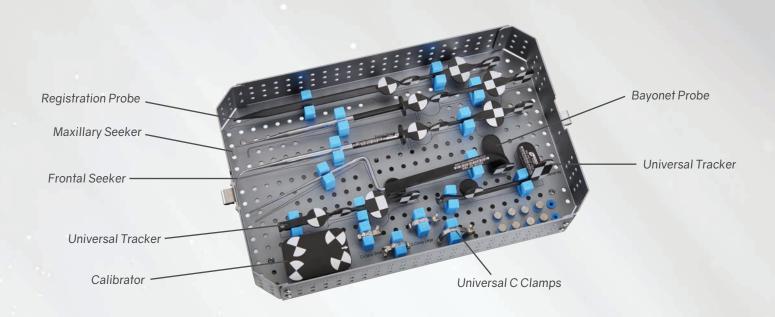


Navient peel & stick Patient Tracker



- For inpatient and outpatient interventions
- Seamless integration with office practices
- Increase your efficiency and reduce stress
- Operate safer and lower harm to patient
- Affordable and no consumables
- Powerful and intuitive software features

Reusable Instruments



Ergonomic Instruments

- Pre-calibrated navigation instruments equipped with permanent markers
- Universal Tracker adaptor clamps easily to any suction tube, debrider or balloon dilation system
- Calibrator instrument calibrates the tips of instruments in a few seconds
- · Verify instrument tip accuracy in the zoom window
- Steam sterilizable navigation instruments
- Reusable peel & stick patient tracker
- No consumables



Zoom window displays accuracy of calibrated tip



Simple, Elegant and Precise



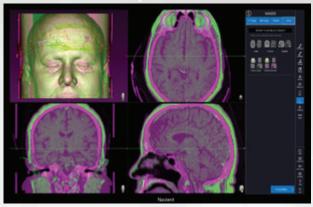
Sleek, Compact and Portable



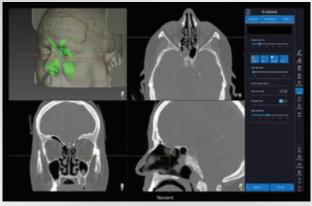
Streamlined User Interface



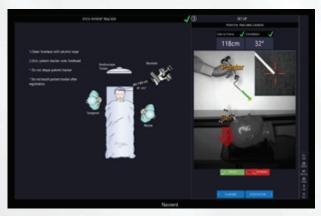
1. Images: Load CT or MRI images from USB, DVD or PACS



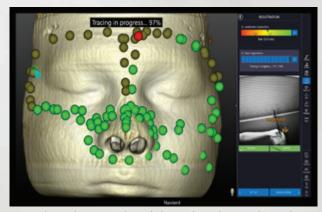
2. Image Fusion: Merge CT and MRI images (Optional)



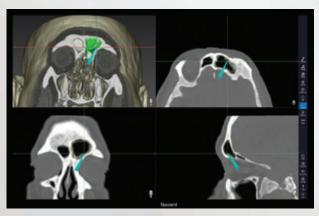
3. Planning: Build 3D model of sinus (Optional)



4. Set up: Position the tracker, calibrate new instruments and check their tip accuracy



5. Registration: Landmark based and trace based



6. Navigation: Navigate in 3D & 2D views, Smart 3D front clip, display 3D sinus model...

General Specifications

Compact size 40 x 45 x 105cm
Omni directional front wheels

120V; 220-240V, 1A, 50Hz AC power supply

Computer Software • Import Dicom images from DVD, USB and 16 inch LED-backlit display Intel core i7 quad core processor 16GB DDR4 RAM • Fast and accurate image fusion 512GB Solid State Drive • 3D sinus modeling and navigation • Trace and Landmarks registration · Additional monitor support Smart 3D automatic front clip • Easy manipulation of 2D and 3D images Video documentation of surgical operation Warnings issued if line of sight interrupted Gesture based user interface control Smart Zoom magnifies navigation area Instrument tip accuracy verification • Remote support and software update **Tracking System** Infrared optical tracking system · Live video stream 16 frames per second 0.2mm calibration accuracy Permanent markers Reusable and sterilizable instruments Cart · Foldable and Portable Lightweight 25kg

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