



Artec Space Spider helps give dental implant patients their perfect smiles

Summary: A dental implant specialty practice needed to find a way to digitally align patients' teeth with their faces, quickly and precisely, for designing implants that look natural and feel great.

The Goal: To use a professional handheld color 3D scanner for digitally capturing patients' faces, then to combine these scans with intraoral scans for creating impeccable implants and beautiful smiles.

Tool Used: Artec Space Spider



Today, more than 3 million Americans have dental implants, and that number is climbing by 500,000+ every year. In excess of 35 million Americans are missing all their teeth in one of both of their jaws, and the need for dental implants has never been greater, especially for the baby boomer generation.



Unlike dentures and crowns, dental implants are built to last a lifetime. They're nearly as strong as your natural teeth, they don't get cavities, and they look so real that no one will ever know the difference. But in order to function as they're intended, implants need to be designed and fitted with the utmost care and precision. Otherwise there can be a significant risk of complications, including misalignment.

One dental implant practice, the Center for Implant Dentistry, has embraced 3D scanning as part of its synergistic, high-tech process for delivering perfectly aligned implants to their patients. In the past, they were using 2D photography combined with a Trios intraoral scanner, yet they found that the results were, at best, inaccurate and required too much time to work with both before and after sending to the lab.

They then tried out an inexpensive 3D face scanner, and that was when they realized that although they were headed in the right direction, the low quality of the scans was creating more problems than it was solving.

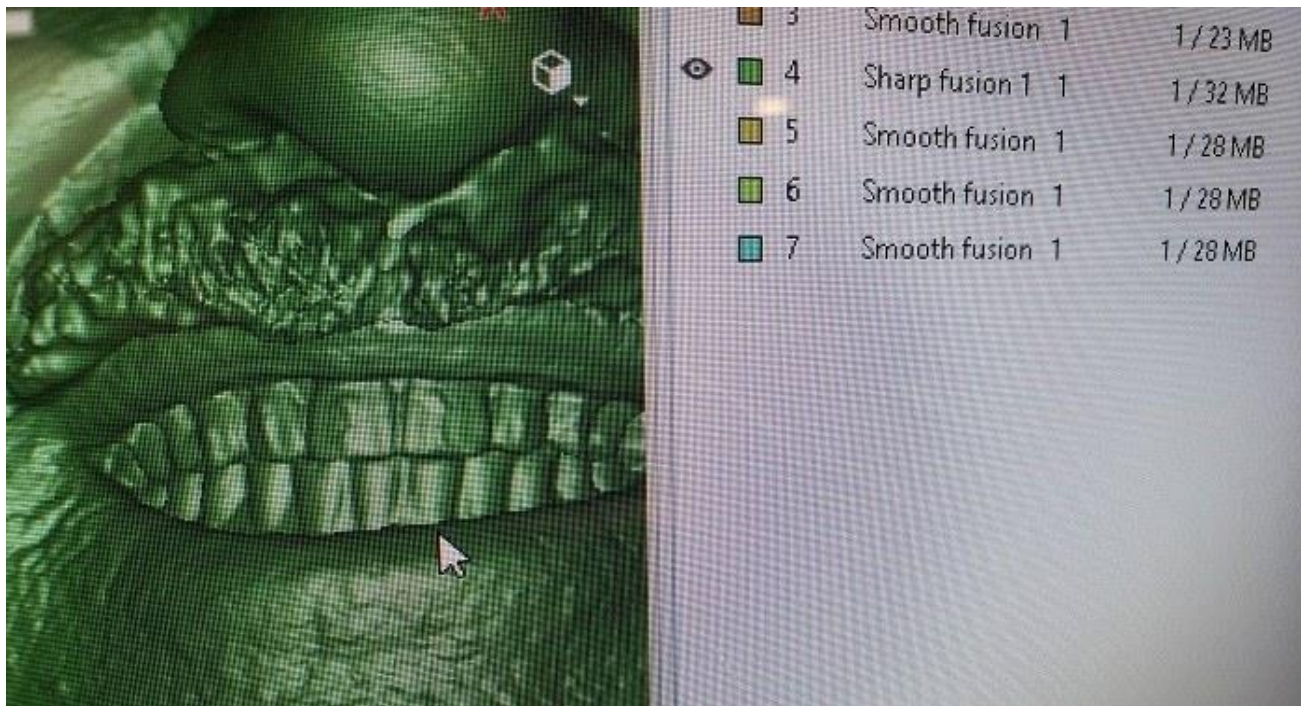
Dr. Jain and the Center for Implant Dentistry found their solution, with the help of Fernando Polanco, CDT, who researched many handheld and dental scanners and finally settled upon Artec for its unique 3D Space Spider scanner, which very easily and reliably facilitates the workflow of his AllOnX Tx procedure, making this complex process both faster and simple at the same time.

Polanco worked with 3D scanning expert Bo Helmrich at Artec Gold Certified Reseller Digitize Designs to purchase the Space Spider.

"No scanner on the market can match the combination of speed, flexibility, and accuracy that the Space Spider can for face and teeth scanning," said Bo Helmrich.



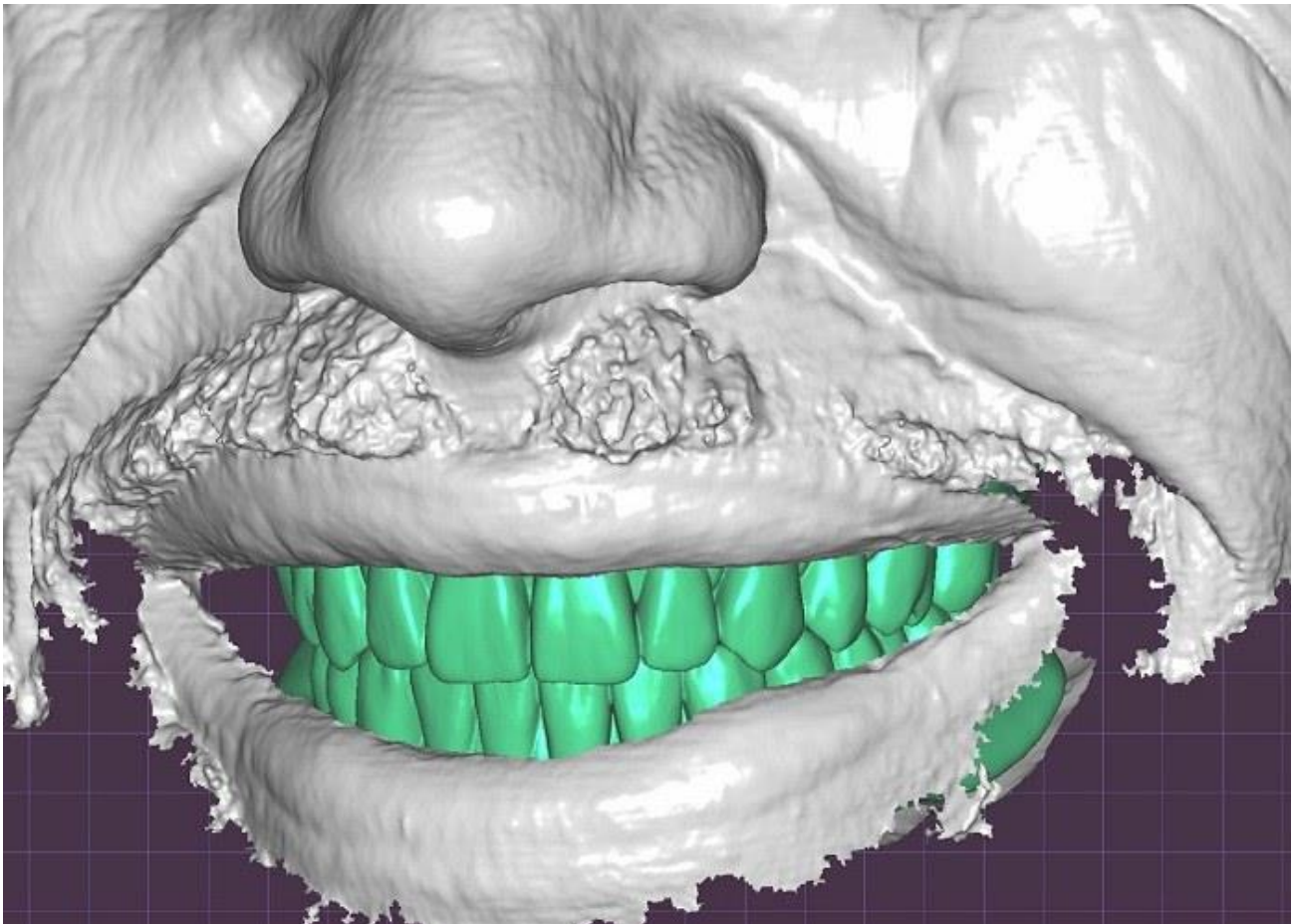
This was the missing piece of the puzzle. A high-precision, handheld color 3D structured light scanner, Space Spider scans quickly, and is easy to learn and use. Scanning takes place directly within the industry-acclaimed Artec Studio software, where you see your scan appearing on the screen in real time. "It takes about 10 seconds for the patient to have their entire face scanned, and less than 3 seconds to scan the rest of their smile, since all faces need to be aligned to the upper teeth to make the alignment accurate. Then just another 4-5 minutes for post processing," said Polanco.



Polanco created a unique protocol which makes the process both fast and simple. The integration of the Artec Spider scanner with digital dentistry makes the design process easier for the technician, as was explained in this CBCT magazine article by Polanco.

Dr. Sambhav Jain explained how Space Spider takes center stage in the process: “We do the scan right there in the office with the patient in the chair. And patients don’t mind waiting to see their new smile and interacting with such technology, since taking 2D photos was hard for us because our patients had lost their confidence in smiling, because many of them had broken or missing teeth. But by showing them a 3D face instead, the kind we generate with the help of Space Spider, this solves our problems in these complex cases. When they see the results, they are very often quite impressed and positive and trust us.”

Following the procedure described above, these scans are then combined with a scan from an intraoral scanner. After this, a composite of the scans is brought together in 3Shape or ExoCAD dental CAD software, which is where the patient gets to see their new smile coming to life on the screen.





"The 3D model helps us in matching the smile with the patient's overall face. Also, we take the patient's input in designing their smile. Without the face scan, the patient cannot visualize how the final teeth will look until they see them in a lifelike way, integrated with their entire face," said Dr. Jain.

With the patient's help, the doctor designs their new smile. Using libraries of different shapes and sizes of teeth, the doctor modifies the newly created 3D model of the upper and lower arches, while the patient sees exactly how their new smile will look in conjunction with the rest of their face.

At this point is when patients get excited and begin looking forward to their new smiles. The practice has seen a dramatic rise in the immediate approval rate of patients who say yes to the procedure.





Once the patient is happy with what they see on the screen, the final 3D model is sent over to the in-house lab for creating the new implants, and this way, everything will be all set for the day of surgery.

New implants ready for placement



Once the implants are ready, they're surgically placed into the patient's mouth. In the days and weeks to come, the patient will be adapting to their new teeth, occasionally visiting the implant center for check-ups and fine tuning. What the doctors have seen is a substantial difference in the fine tuning needed during these initial visits.

In the past, with the older, traditional method, there were more complications and significantly more adjustments needed. That meant more office visits. But today, by starting out with the most precise 3D scans and models possible, the implants the patients are receiving require little in the way of fine tuning. And patients love how their new smiles look and feel.

New implants perfectly in place



Complications and side effects have been reduced to a bare minimum, and the results for the practice have been immense. Patient satisfaction with the quality of care and the entire procedure has risen dramatically.

On top of that, because the needed number of follow-up visits for (and hours spent with) each patient has dropped, the doctors now have extra time to welcome and treat new patients.