



Tracking the Path to SUCCESS

Quebec's Soucy Track leverages Creaform 3D scanning technology to boost accuracy of the company's custom-built farming machinery rubber track systems.

Founded in 1967, Soucy International Inc. is a Quebec company that has developed state-of-the-art expertise in designing and manufacturing parts and accessories for the agricultural, industrial, military and recreational markets. Its "Soucy Track" line of products is a world leader when it comes to rubber track systems for farming machinery. These tracks are meant to replace wheels on tractors and any other kind of vehicle, to improve their traction and flotation, as well as make the ride more comfortable for the driver.

When coming up with Soucy Track, the company's first intention was to create a system that could easily be fitted on the vehicles, without having to modify them, an idea that is still the key driver of the design process. To maintain the integrity of the vehicle, and to find a perfect fit, Soucy created a manufacturing process where the track system seamlessly adapts to the axles of a vehicle.

In straightforward terms, this means Soucy doesn't work with digital files or 2D plans of the agricultural machinery. Instead, Soucy scans the vehicle "as built" to make sure the tracks comply with it. Most vehicles are measured in the factory, but the company doesn't hesitate to go to a dealership or even to travel overseas to scan vehicles that are not distributed in

North America. Its measurement technologies therefore need to be portable and, more specifically, easily transportable.

Arm Wrestle

Until 2010, Soucy used a FARO measuring arm. This probing arm produced measurements that were accurate enough. However, the device was time consuming and required many resources. As a result, the company would only measure the parts of the tractor where the track system needed to be secured. Furthermore, technicians needed to make so many manual measurements, that they often forgot to keep track of important data. In short, these limitations were causing problems when the track system was mounted.

To solve this situation, Soucy Track's Director of Engineering, André Léger, started looking for a 3D technology that could replace the probing measurements. The company was looking for a solution that could also measure the axles as well as all the nearby components of the machinery, without forgetting any other part that could potentially interfere or be used to attach the track system. In 2010, Mr. Léger discovered Creaform, another Québécois company, and got interested in the potential of its HandySCAN 3D contactless 3D scanning technology.

3D scanning

When compared to a conventional measuring arm, the handheld, self-positioned Handyscan 3D offers several benefits. Foremost, the scanner records 25,000 measurements every second, with an accuracy of up to 40 microns, which enables users to work considerably faster, with an increased precision and a much higher volume of data. Moreover, the HandySCAN 3D doesn't require any kind of specific setup, making the measurement process even simpler.

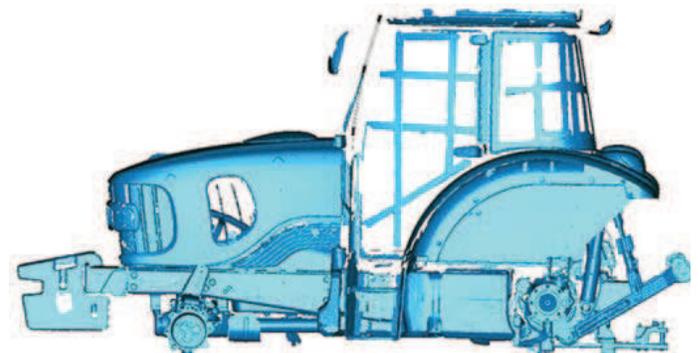
Its ease-of-use also influenced Soucy. The technology would be simple to integrate within its existing manufacturing process, by simply providing a short training session to its employees without the need to hire a specialist. Another of the HandySCAN 3D's strong point was its mobility, permitting the technician to measure every corner of the axle and its components, even the sections that would have been impossible to reach with the measuring arm.

Soucy decided to purchase a HandySCAN 3D scanner to replace its measuring arm, which obviously led to some changes in the measuring process. With the FARO arm, the digital model was built directly into Solid Edge, with a point cloud. By using the HandySCAN 3D, Soucy added an additional step, since the data must be post-treated with the Rapidform XOR software before being used.

"It's difficult to really establish the benefits of the scanner when comparing to the measuring arm, because it's like comparing apples with oranges," Léger says. "Since we've been using our HandySCAN 3D, we collect a lot more data, and we've significantly increased our level of exactness. Even if this technology pays for itself in the long term, we must not only consider that aspect... In fact, this technology brings us to a whole new level, and enables us to go further in our designs."

To tell the truth, the process is now taking three to four times longer than it did before. An inconvenience? Quite the opposite, the company says, which has only seen positive results. The high data accuracy of the STL files generated by the hand-held scanner resulted in such a superior level of quality that its 3D models are now truly world-class, perfectly reproducing the vehicle's structure. This had been impossible to achieve with a probing arm. Thanks to Creaform's technology, Soucy has solved the interference problems between the machinery and the track system directly into the design phase.

"The technology is very impressive," says Léger. "Since we've been using the Creaform scanner, our early-stage process may take longer, mainly because now we collect a lot more information on the tractor structure than we did with the FARO arm. But now, we work with complete models, which prevents mistakes later on and thus reduces our development schedule while allow-



Above: Creaform's HandySCAN 3D scanner allows Quebec-based Soucy Track to create detailed models of not only wheel mount assembly (**middle**) but also the entire tractor (**bottom**) to provide a precise fit for the company's custom-built rubber track systems.

ing us to optimize our designs."

"Like any other new process or technology, it's important to provide plenty of training, and to be persistent," he concludes. "But we can now confidently say that the scanner is 100% integrated to our company."

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