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SITIA Introduces the First Hybrid Robot for Agriculture

TREKTOR helps farmers transition toward an increasingly autonomous future.

As agriculture robotics and other advancing technologies continue to enter the marketplace, many equipment manufacturers are making big promises about what their machines can accomplish. The messaging is bold. In the midst of labor shortages and a global food crisis, new farming tools are here to change the world.

SITIA, an applied technology innovator best known for its test rigs, sees things a little differently. Its hybrid robot, TREKTOR, offers a subtler approach to mass adoption.

"We don't want to change the world; we want to help it," says Fabien Arignon, SITIA's CEO and general manager. "We consider TREKTOR to be a transition machine because we want to give the opportunity to farmers to be able to use their today existing implements, and maybe, if they want, they will be able to use TREKTOR when they are ready for the new practices that are coming (electrical implements or data analysis, for example)."

Enter SITIA's spin on an age-old apparatus. TREKTOR is a highly adaptable robot that can vary its track, height and wheelbase to manage tree crops, market gardens, and vineyards with wide or narrow rows. GNSS RTK vision means the robot is accurate within centimeters, while sensors and bumpers act as additional safety precautions.

Because the autonomous diesel-and-battery-powered machine works with a range of implements and existing tools, TREKTOR can be used like a traditional tractor to all grounds works and more. Often, several tasks can be accomplished at the same time.

"TREKTOR is useful, and it's solving problems," Arignon says, adding that TREKTOR has been designed to help farmers reducing their energy consumption by multitasking. "If we really want to save energy, we need to not spend too much."

SITIA is continually working to improve TREKTOR's capabilities by partnering with universities on research and development and with implement manufacturers on testing. SITIA continued this spirit of collaborative innovation by open sourcing the machine's software and algorithm.

In early 2021, TREKTOR LAB was born from the mindset that good ideas can come from anywhere. TREKTOR LAB is a TREKTOR where the ROS Software is 100 percent open. By providing access to a reliable robot, SITIA is helping universities to work faster and focus on their own research and development. If the university results are interesting, they can quickly be integrated into TREKTOR for farmers to use.



TREKTOR LAB seeks to speed up the timeline from the innovation to the end user even more. Arignon compares TREKTOR to the smartphone: Apple didn't create all the iPhone apps in the iTunes store. They simply gave people the systems and the support they needed to develop them. Technologies materialize quicker when people work together—and in the farming sector, time is of the essence.

"We try to be open because we're in an open world.," Arignon says. "We want to do open agriculture because we feel the responsibility we have on our shoulders. There are a lot of people behind us, and there are so many things to do. We need to work together. We really think one way to do that is to be open."

Right now, Arignon continues, it can be difficult to imagine what solutions will be available in the next few decades. The possibilities are never obvious until they arrive. Then, he says, once they are developed, it was like they were always there.

One thing SITIA is certain about is that agriculture will be the place where these solutions arrive first. Things are moving quickly within the sector.

"We believed in 2014 that agriculture would be the first place of application for autonomous vehicles, but it was not sure," Arignon says. "Now, it is sure, and it is happening much faster than in our automobiles.

"There are so many things that need a different solution now that it's not even a question of whether we need robots to do the job," he continues, citing difficult jobs, a shrinking workforce, and climate change concerns. "The most important thing is to make it easy for the farmer. We need the transition to be easy for all. That's one of the reasons why we call it TREKTOR."

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