

New TwinTrack Probe from RoboDK Simplifies Robot Programming by Demonstration



RoboDK, a leading Canadian-European robot programming software company, has released the [design and assembly instructions](#) of the TwinTrack Probe. Available from September 2023, the cost-effective tool allows users to easily record complex paths in RoboDK with an off-the-shelf HTC VIVE tracker and a simple 3D printed tool.

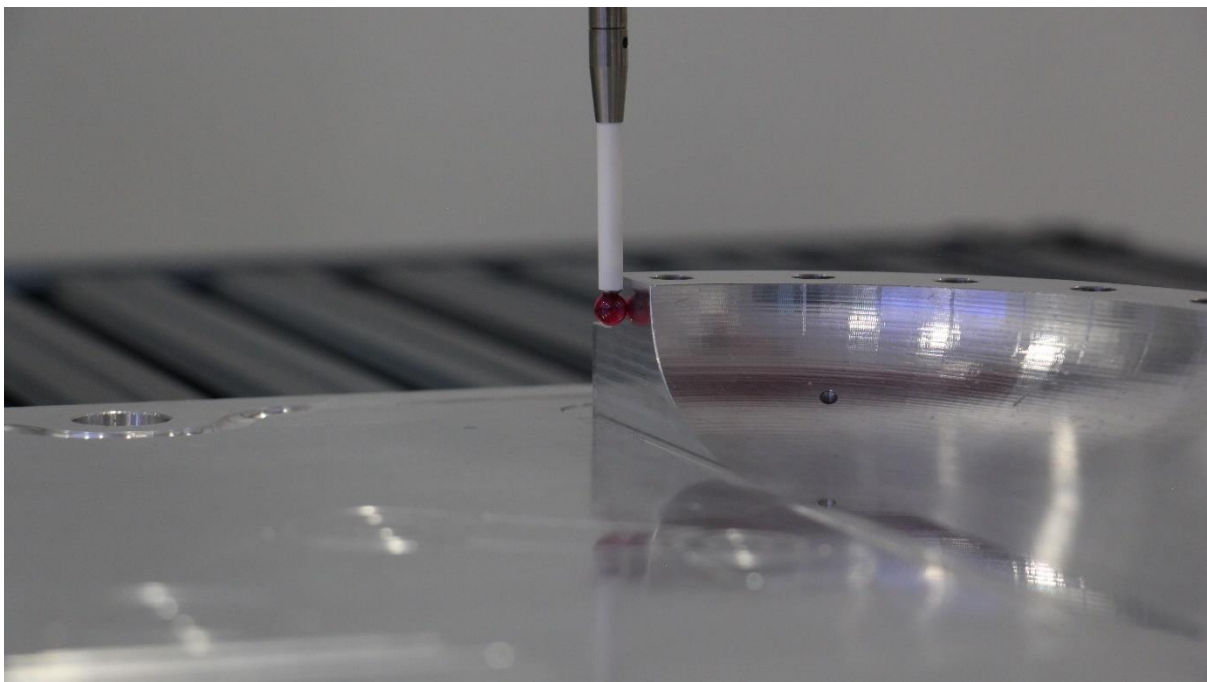
As the robotics market continues to evolve and more businesses are turning to robotic automation, there is a move away from traditional programming methods. Users don't want to have to manually move (or "jog") a robot into position to laboriously program every point, or even model parts in CAD software. They want to record robot trajectories quickly and easily to put the robots into production faster.

With the new TwinTrack Probe, it's now possible to do just that. Users can program their robot simply by moving the probe by hand and recording their complex paths with ease. This allows the robot to mimic the operator skills.

The design and assembly instructions of the probe are made publicly available so it can be customized to better mimic human skills. The device includes 2 buttons to have better control over the teaching process.

The combination of an off-the-shelf tracker and a 3D printed, open-source tool makes the solution incredibly accessible for any business that wants to increase their automation efficiency.

Accuracy vs. Price



The main challenge with industrial-grade accurate measurement systems is their restrictive price tag. While accuracy can be up to 0.1 mm, using such systems requires extensive knowledge and experience, only available from specific vendors.

Olivier Allard, Software Developer at RoboDK, explains:

" Traditional methods to teach robots by demonstration require very expensive metrology systems, dedicated support, and training. The price tag of this hardware can be over one hundred thousand dollars, which is far more expensive than a robot itself. We wanted to find a cost-effective solution for applications not requiring accuracy to make it more accessible for everyone."

The new TwinTrack probe can be built with less than 2000 EUR, including the measurement hardware required from HTC and Valve. With the new probe, RoboDK aims to bring the benefits of off-the-shelf and affordable measurement technology to its customers, without the

restrictive price tag and allowing to customize the hardware for each manufacturing application.

The benefits of a public design and off-the-shelf tracker

RoboDK specializes in creating solutions that remove the need for costly, vendor-restrictive hardware. The RoboDK programming software already supports over 900 robot models from over 70 brands, and this continues to grow.

The TwinTrack Probe takes advantage of new technology created for Virtual Reality systems, including HTC Vive Trackers and base stations created by Valve such as the Index Base station. The probe itself can be created with any 3D printer, and the company has released the design for all to use.



RoboDK's CEO Albert says:

"We are making the design of our TwinTrack Probe [public](#). This probe is suitable for applications that don't require accuracy. The assembly instructions and 3D models are available on [GrabCAD](#)

and [Thingiverse](#), and the probe relies on the same measurement technology used by VR commercial systems, such as one HTC Vive Tracker and two or more base stations by Valve."

The solution integrates perfectly with RoboDK software, meaning that recorded paths are immediately available for robot simulation and programming. Once the setup is complete, users can see the simulated probe moving in real time in their RoboDK station.

A few examples of the many possible applications

The TwinTrack Probe can achieve an accuracy of 5mm, which is suitable for many robotic tasks.

Examples of excellent applications for the tool include painting, dispensing, and pick and place. By programming the trajectories in the real environment, the tool helps users compensate for any accuracy error between their simulation and the real objects.



Allard says:

"The system allows you to create a complex path on a custom handmade piece without the need of CAD software. This is useful for applications like painting or dispensing. You can also quickly make pick and place application or create a part reference frame that fits the real part position."

Easy curve generation for a more streamlined programming workflow

Robots have long been a solution to increase the efficiency of manufacturing processes and eliminate production bottlenecks. However, as robots are more widely available and affordable, the programming step itself has become a bottleneck.

RoboDK's programming software already helps its many users to program their robots quickly and easily. TwinTrack takes this efficiency one step further by allowing users to program their robot by simply moving the probe through the workspace.

Users can now accurately capture any point or curve in the robot's workspace simply by touching it with the new probe. Probing a point will create a target within the RoboDK software that can be used for the user's programming project.

Complex curves and trajectories are also now easier to program than ever. The user can set a custom target density, then move the probe through the air or on the surface of their object. This enables teaching robots remotely, even without the need of a robot or a computer.

Future plans

Now they have released their probe design, the team at RoboDK hopes to see a variety of innovative use cases and success stories from their highly active and engaged user base.

The team is also working to make the system even easier to adopt by creating comprehensive step-by-step setup guides for users looking to construct their own probes.

These initiatives reflect RoboDK's commitment to empowering users with valuable resources and fostering a culture of innovation and knowledge exchange.

Founded by Albert Nubiola in January 2015, RoboDK is a spin-off company from the highly prestigious [CoRo laboratory](#) at ETS University in Montreal, Canada. RoboDK software is designed to bring powerful robotics simulation and programming capabilities to companies large and small and to coders and non-coders alike. Today, it supports more than 900 robots from over 70 different manufacturers, including ABB, Fanuc, KUKA, Yaskawa/Motoman, Stäubli, Omron, and Universal Robots.

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For all media inquiries, please contact Flore Cachera at flore@robodk.com.