

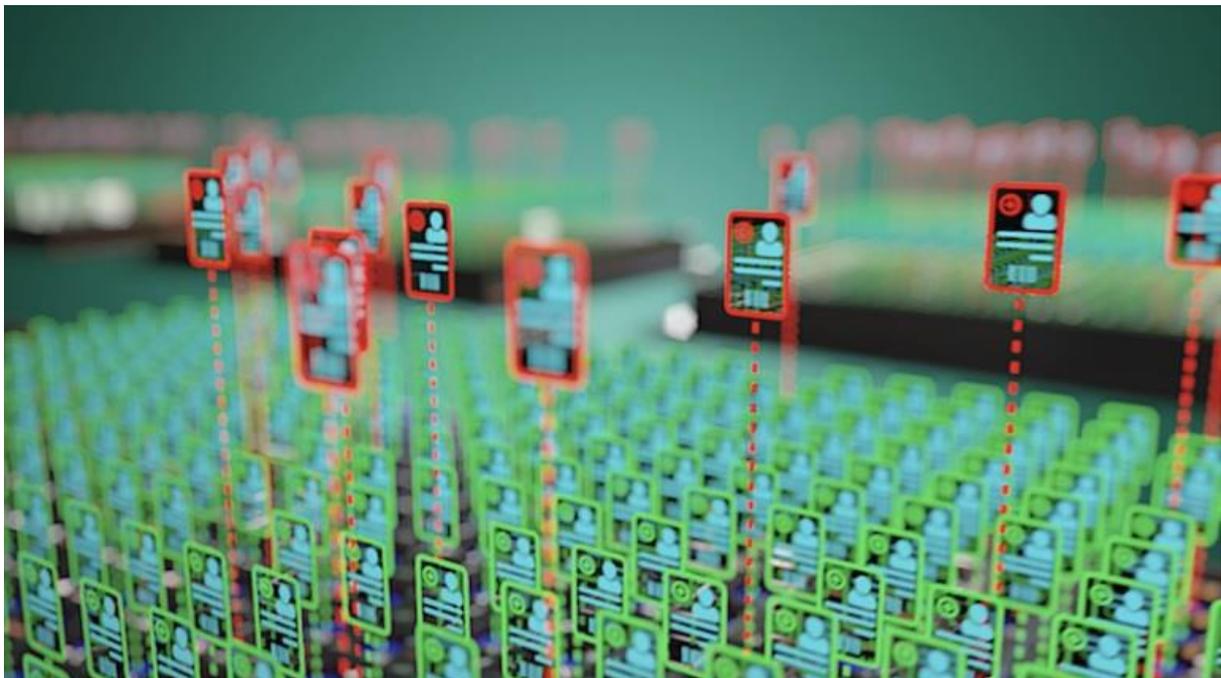


Robotic System for Ultra-High Throughput SARS-CoV-2 Testing

Ziath reports how it has worked with the Hubrecht Institute (Utrecht, Netherlands) which has developed a pioneering automated test robot, called STRIP-1, which can process up to 20,000 samples for SARS-CoV-2 testing in just 24 hours.

This makes it much faster

than all other automated SARS-CoV-2 testing systems used to date. In addition, all samples can be tracked precisely because they have a 2D-barcode on the bottom of each tube that is scanned multiple times throughout the process. This also enables an automatic online return of test results to the tested persons, which will relieve the burden on laboratory personnel who were severely overloaded during the first wave of COVID-19 in the spring of 2020.



Wouter de Laat and Marvin Tanenbaum,

group leaders at the Hubrecht Institute, worked closely with Martijn Bosch, automation specialist at local instrument manufacturer Genmab to develop STRIP-1. This team decided to adopt 2D-barcoding of the sample tubes throughout the robotic workflow. This was achieved by integrating a Ziath Mirage camera-based 2D barcode reader into the automation platform. The high-speed of reading and decoding offered by the Mirage, around 1 second for a full 96 position rack used in STRIP-1, was a key factor in the choice of Ziath, allowing the robot to reach its maximum potential of 20,000 samples per day.

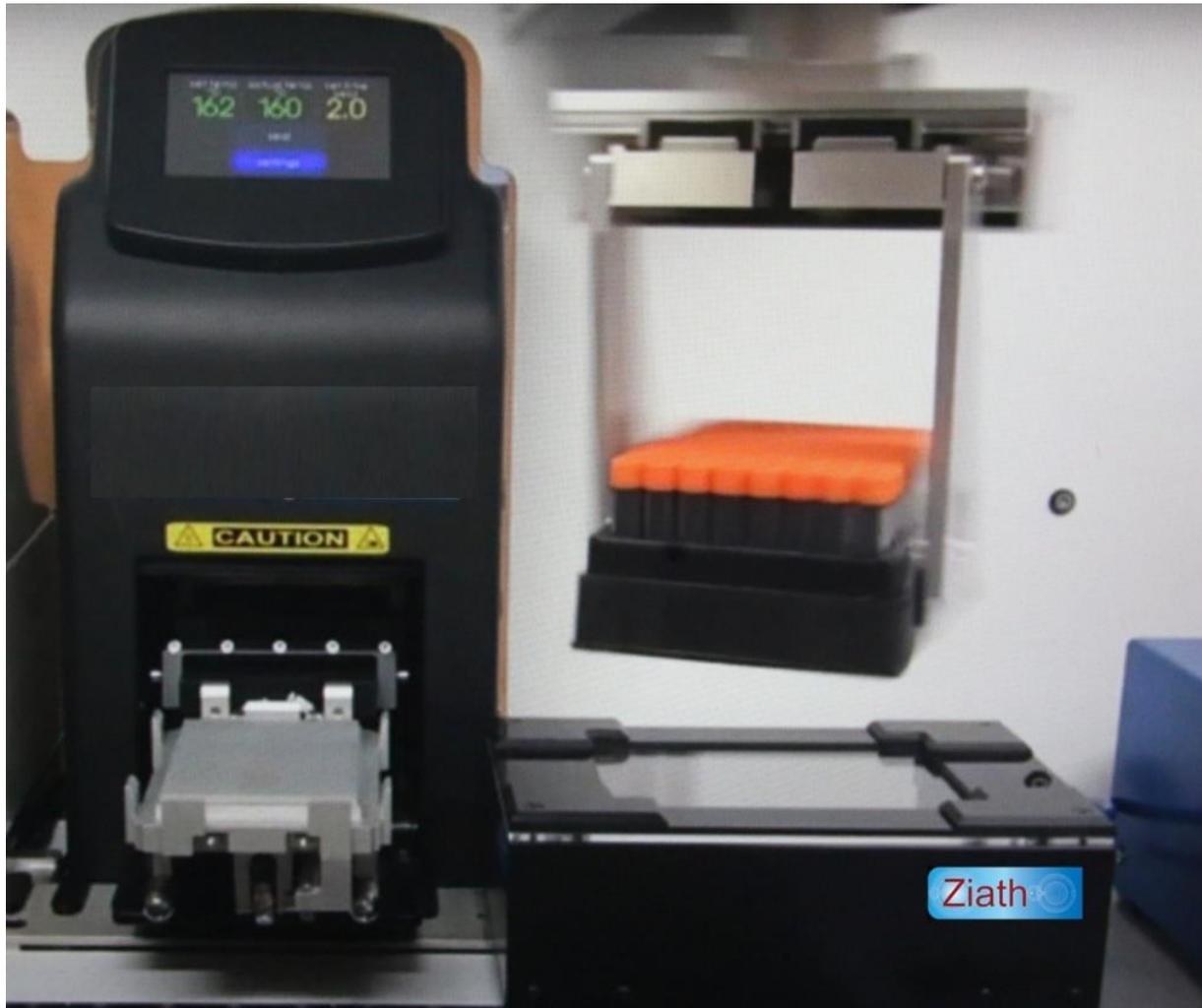
Why robots

"We hoped that we could organize everything in a faster and more intelligent way by using robots, so that became our focus almost immediately," said Wouter De Laat. The STRIP-1 robot was designed by Martijn Bosch according to optimisation of our SARS-CoV-2 test requirements. Bosch commented: "Not just the new robot system, but also the whole chain of events posed a challenge. From sample collection, registration, the logistics and the tracking of samples to the test itself and reporting the results, basically the entire chain of events from patient to test and back, that was the big challenge." The Ziath Mirage ensures correct registration, tracking and reporting of the patient samples as they arrive in the lab and are re-formatted into 384-well PCR plates to increase throughput whilst conserving valuable and currently scarce PCR reagents.



The robot

was ordered from Swiss automation company TECAN, who delivered and installed it just before Christmas 2020 at PAMM medical microbiology laboratory in Veldhoven, Netherlands. On January 27th 2021, Hugo de Jonge from the Dutch Ministry of Health, Welfare and Sport, visited the robot at the PAMM laboratory, as the Dutch government plans to order five more STRIP-1 systems in the future, if the validation procedure delivers the expected results. Together, these robots will be able to process more than 100,000 samples per 24 hours.



To see the STRIP-1 in action

please visit <https://youtu.be/ZHCFJDblZs>. For further information on the Ziath Mirage camera-based 2D barcode reader please visit <https://ziath.com/index.php/products/barcode-scanning/datapaq-mirage> or contact Ziath on +44-1223-855021 / +1 858-880-6920 / info@ziath.com.



Ziath Ltd.

Founded in 2005, Ziath specialises in development of innovative instrumentation control and information management products using 2D DataMatrix bar-coded tubes to simplify automation processes in life science organisations, from academia, to the biotech and pharma industries.

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