



Sensor Intelligence.

TiM\$10K Challenge

September 14th 2020 – March 31st 2021

Summary of the contest:

SICK is a leading global manufacturer of factory, logistics and process automation technology worldwide. With more than 1,000 patents for its products, SICK continues to lead the industry in new product innovations.

SICK Inc., is excited to announce a challenge for universities across the nation to support innovation and student achievement in automation and technology. Twenty teams will be selected to participate in the challenge and the chosen teams will be supplied with a SICK 270° lidar (TiM) and accessories. The teams will be challenged to solve a problem, create a solution and bring a new application that utilizes the SICK scanner in any industry. This can be part of the curriculum for a senior design project or capstone project for students.



The TiM781 is a lidar that electro-sensitively scans the perimeter of its surroundings at a single plane with the aid of laser pulses. It measures the surroundings using 2-D polar coordinates and using a unique HDDM (High Definition Distance Measurement) method, a measured value is formed by the average value for several individual pulses. Using this data, area monitoring of a scanned surface can be performed, including the size and shape of objects within a defined field. This makes the TiM invaluable in a variety of industrial applications, building automation, stationary or mobile applications. The integrated Ethernet interface allows for remote monitoring, measurement and navigation with a ton of creative possibilities!

More information on the TiM is on our website:

<https://www.sick.com/us/en/detection-and-ranging-solutions/2d-lidar-sensors/tim7xx/c/q501853>

You'll find the TiM (and lidar in general) in a variety of industries and applications. From advanced manufacturing to automated vehicles and self-driving cars, engineers are using lidar to change the world as we know it. One of the fastest-growing markets for lidar, however, is in primary, secondary, and end-of-line packaging. As the usability of lidar has increased while the price has decreased, lidar is becoming ever more instrumental in ensuring the quality and efficiency of packaging processes at the world's biggest companies. More information on lidar and packaging can be found below and at The Association for Packaging and Processing Technologies (PMMI) website:

<https://www.sick.com/us/en/industries/packaging/c/q290774>

<https://pmmi.org>

Of course, student teams are encouraged to use their creativity and technical knowledge to incorporate the SICK lidar in any application for any industry. Advisors/Professors are allowed to guide student teams as and when required.

Timeline

1. Register your team at <https://s.sick.com/us-en-TiM10k-2019> prior to Sept 14, 2020, including an abstract of your project proposal



Sensor Intelligence.

2. All registered teams will receive a TiMxxx from SICK. The twenty selected teams will receive the TiM 781 and accessories as a product donation by Sept 30, 2020. The selection of these 20 teams for the 2020-2021 challenge will be based on the winning criteria.
 - a. Other registered teams not selected for the contest, will receive a TiM581, this is in the best interest of students and in keeping with the spirit of the challenge, so projects that are part of the standard school curriculum can proceed as previously planned.
3. Check in #1 with the SICK TiM10K program team during the week of Nov 2, 2020 (Project Update #1)
4. Check in #2 with the SICK TiM10K program team during the week of Feb 1, 2021 (Project Update #2)
5. Final paper and video submission by March 31, 2021 on your folder on box.com
6. Winners Announced the week of April 15, 2021
7. Summer 2021 – Winning team and Advisor travel to SICK Germany, located in Waldkirch

Awards

A panel of judges will adjudicate the final submission outlining the working prototype of the invention in April 2021. The criteria used to award the winners are:

- Creativity and Innovation
- Ability to solve a customer problem
- Commercial potential to productize and market the application
- Entrepreneurship of the team
- Reporting

The 3 winning teams will win a cash award of

- 1st Place - \$10K
- 2nd Place - \$5K
- 3rd place - \$3K

In addition to bragging rights and the cash prize, the 1st place winning team, along with the advising professor, will be offered an all-expenses paid trip to SICK Germany to visit the SICK headquarters and manufacturing facility in May 2021!

Rules of the contest

1. The competition is organized by SICK Inc., 6900 West 110th St, Minneapolis, MN 55348 and supported by PMMI. Contest managed by Joanna Suresh (joanna.suresh@sick.com)
2. The contest will span most of the 2020-21 school year.
3. The contest is aimed at technical students and it is a team contest. 20 teams will be admitted to the contest. The teams may consist of 4 students. Up to 6 students per team may participate as long as the contest manager is notified.

4. Excluded from the challenge are any SICK employees or their relatives, members of the panel of judges, representatives of potential partners or other individuals that are part of the organizing team.
 5. By registering for the challenge, the participants agree and commit to the competition rules.
 6. Participating teams agree to grant permission to SICK for all media (such as drawings, illustrations, pictures, videos and screen shots) to use and publish in both print and digital format, with or without names of the participating students and institutions for any lawful purpose, including purposes such as publicity, illustration, advertising, press releases and web content.
 7. It is mandatory for the entries to be a new application of the SICK TiM lidar scanner. The challenge will accept only ideas that are unique, not yet known, commoditized or placed on the market. The existing laser scanner solutions can be found on the SICK website.
- We recommend that you highlight the objective, benefits, design, uniqueness and operation of your application. Pictures, videos, drawings or any other illustrations are more than welcome!
8. The best teams will be awarded by the panel of judges and results are final and binding. Teams that do not meet the deadline will be considered disqualified. The panel of judges reserve the right to ask for additional information or submit questions to participating teams.
 9. The participating teams are responsible for originality, concept and design of the idea. In addition, it must not be the property of a third party. By registering for the challenge the participants state in to SICK that their entry will not violate any confidentiality clauses or third party intellectual property rights or other associated rights.
 10. SICK will assume intellectual property rights if participating teams fail to identify any IP restrictions in their final submission
 11. The participating teams will agree to be subject to the laws of the city, county and state that they are located and are legal in the United States.
 12. Regarding autonomous (driverless) vehicles: All submissions that use lidar for the control of a moving vehicle must be tested and demonstrated only in controlled off-road environments and not on public roads. Submissions that fail to meet this requirement will be removed from the competition.

Contact information

Technical Questions: techhelp@sick.com
Program Manager: Joanna Suresh, joanna.suresh@sick.com

Links:

SICK, Inc: www.sick.com

Product information of the TiM scanners:
https://cdn.sick.com/media/docs/6/16/516/Product_information_TIM_Series_Incredibly_good_at_detection_absolutely_accurate_at_measuring_en_IM0042516.PDF

Technical information:
https://cdn.sick.com/media/docs/5/05/905/Operating_instructions_TiM781_en_IM0082905.PDF