



# CENTRE FOR SENSORS AND SYSTEM INTEGRATION

As a leading polytechnic, NAIT partners with industry in all that it does. Our new Productivity and Innovation Centre (PIC) is the place where industry comes for solutions and to succeed. PIC will help partners develop applied research solutions for industry challenges, adopt new technologies, develop and test new products, provide workforce training for productivity and improve business practices.

## OVERVIEW

NAIT's Centre for Sensors and System Integration (CSSI) is a research centre funded by the Natural Sciences and Engineering Research Council of Canada (NSERC). Created to partner with small and medium enterprises seeking coordinated innovation development services, the centre is staffed with highly qualified specialists and technologists experienced in providing prototype development solutions.

## WHAT WE DO

We help industry partners develop prototype devices that address sensor based challenges in resource extraction, agriculture, biomedical, and advanced technology enterprises. Working with both established sensor devices, and new or innovative devices, our team uses engineering technology to produce and evaluate prototypes for field trial.

Our expertise and experience focuses on moving sensor innovations along the Technology Readiness Level (TRL) scale. The TRL is a nine-level scale that categorizes the developmental state of an innovation as it moves from concept through to commercialization.

## WORKING WITH INDUSTRY

An important aspect of our service model is that we do not retain any interest in intellectual property (IP) developed in partnership with industry during the course of research or prototyping activities. Possession of IP is retained by the industry partner.

As a recognized polytechnic institute, NAIT is approved to receive and manage research funds from several provincial and federal programs, reducing the cash commitment necessary from industry to engage in applied research projects. NAIT's Office of Research and Innovation,

working with the centre and industry partners, can help determine appropriate funding programs and assist in completing funding application forms.

We work with other innovation service providers in Alberta, giving our industry partners a single point of contact and access to experienced project management that ties into the broader innovation network.

## OUR EXPERTISE

The Centre for Sensors and System Integration works with small and medium enterprises to develop prototypes for a defined application. Our clients benefit from expertise in the following areas:

- **Sensor Integration** – physical integration of sensors with electronics into prototype instruments, or integration of sensors into an existing system. This may involve taking an existing innovation, often a sensor technology, and developing the electronic or mechanical interface that allows outside communication and interaction with the sensor
- **Embedded Systems Integration** – circuit design, schematic layout, board layout, fabrication, assembly, and test of electronics that integrate microcontrollers with sensors and communication systems. Development of code for data acquisition, data communication, and graphical user interfaces
- **Optics and Photonics Integration** – design, fabrication, and alignment of optical and photonic systems including fabrication of custom lens mounts
- **Electronic and Optics Test and Characterization** – parametric characterization of system performance across environmental or system defined variables. Systems under development can be stressed to find failure points
- **Advanced Material Characterization** – destructive and non-destructive testing of coatings including metallographic characterization

### FOR MORE INFORMATION:

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