COVID-19 challenge – Low-cost sensor system for COVID-19 patient monitoring

Sponsor

National Research Council of Canada (NRC)

Program

COVID-19 challenge – Low-cost sensor system for COVID-19 patient monitoring

For More Information

For additional information please visit the COVID-19 Challenge website [1].

Description

Please note - The primary applicant for this program must be a for-profit small business meeting Innovative Solutions Canada's eligibility criteria. [2]Award recipients may sub-contract a portion of the R&D work to an academic partner. Applicants/Bidders must perform at least two-thirds (2/3) of the research and development (R&D) work in Phase 1 and a half (1/2) of the work for Phase 2. The remaining R&D can be sub-contracted to other organizations or individuals.

Innovative Solutions Canada has dedicated funding to help combat current and future outbreaks of the novel coronavirus (COVID-19) and other similar threats. This program will help support the Government of Canada's fight against COVID-19 by funding R&D and testing prototypes in real-life settings that can help protect Canadians.

NRC is seeking a low cost system (unit cost <$25) that can continuously measure temperature, peripheral capillary oxygen saturation (SpO2), blood pressure (BP), pulse and respiration rates, and transmit this information wirelessly to a base station for COVID-19 patient monitoring in locales including ERs, general wards, communities and homes.

Temperature, SpO2, BP, pulse respiration rate are used to assess a patient's health. With some exceptions (e.g. in an ICU), these are not measured continuously in a healthcare facility nor at home. This has consequences: sudden changes that signify rapid deterioration may not be caught in time; subtle trends indicating health changes may not be found until an egregious impact occurs.

This is especially relevant to the COVID-19 pandemic, where rapidly increasing numbers of patients and long hospitalization durations are imposing an extreme workload on the healthcare system. While some sufferers do require hospitalization, most do not. To support those at home, accurate data is vital. Such data offers individual and collective benefits. Individually, it will allow home-bound patients and their caregivers to make better decisions as to whether care should be escalated while offering reassurance to those whose condition is stable. Collectively, accurate information will allow public health authorities to determine the characteristics of the disease's progression that will in turn inform deployment of scarce resources and guide development of better treatment.

To be truly effective during the COVID-19 pandemic, monitoring equipment needs to be widely available. Thus low cost is of utmost importance. Advances in materials science and micro-printed electronics have resulted in devices capable of unobtrusively measuring the five parameters. While impressive individually, a low cost integrated solution that allows patients to remain at home while still being monitored is yet to be developed.

A detailed list of desired outcomes can be found on the Innovative Solutions Canada website. [1]

Eligibility

Solution proposals can only be submitted by a small business that meets all of the following criteria:

- for profit
- incorporated in Canada (federally or provincially)
- 499 or fewer full-time equivalent (FTE) employees
- research and development activities that take place in Canada
- 50% or more of its annual wages, salaries and fees are currently paid to employees and contractors who spend the majority of their time working in Canada
- 50% or more of its FTE employees have Canada as their ordinary place of work
- 50% or more of its senior executives (Vice President and above) have Canada as their principal residence

Applicants/bidders are allowed to use sub-contractors to perform the anticipated work in Phases 1 and 2. Sub-contractor(s) may be academic, industrial or not-for-profit. Applicants/Bidders must perform at least two-thirds (2/3) of the research and development (R&D) work in Phase 1 and a half (1/2) of the work for Phase 2. The remaining R&D can be sub-contracted to other organizations or individuals.

Funding Availability

- The maximum funding available for any Phase 1 Grant resulting from this Challenge is $300,000.00 CAD for up to 3 months.
    - Estimated number of Phase 1 grants: 2

- The maximum funding available for any Phase 2 Grant resulting from this Challenge is $2,000,000.00 CAD for up to 12 months. Only eligible businesses that have completed Phase 1 could be considered for Phase 2.
    - Estimated number of Phase 2 grants: 1

Maximum Project Value

Please see 'Funding Availability' for details

Indirect Costs

15%

Project Duration

- Phase 1 projects have a maximum duration of 3 months.
- Phase 2 projects have a maximum duration of 12 months

Special Notes

Phase 1: Proof of Feasibility

The objective of Phase 1 is for selected applicants to conduct R&D on their proposed solutions and deliver a proof of feasibility to Canada.

Applicants are encouraged to progress their solution as far as possible on the Technology Readiness Level (TRL) scale, but note that Canada will only fund R&D through an ISC grant up to the end of TRL 6 under Phase 1.

Applicants that demonstrate successful completion of Phase 1 will be invited to submit a proposal for Phase 2.

Phase 2: Prototype Development

The objective of Phase 2 is to continue the R&D efforts of the proposed solution with the goal of developing a prototype ready for commercialization up to the end of TRL 9. Applicants are encouraged to progress their solution as far as possible on the TRL scale during this phase.

Entry into Phase 2 is solely limited to small businesses who have demonstrated successful completion of Phase 1 and who still meet the eligibility criteria. Small businesses that demonstrate successful completion of Phase 1 will receive an invitation from Canada to submit a proposal. The Phase 2 proposal will be evaluated against criteria that are the same or similar to those in Attachment 1 of this document. Participation in Phase 2 is not guaranteed. It is at the sole discretion of Canada to proceed with Phase 2.

Once Phase 2 is completed, no follow-on funding will be available for the solution from the ISC program.

Please refer to the Office of Research COVID 19 web-page [3] for directives related to research activities at the University of Guelph.

Deadlines

If College-level review is required, your College will communicate its earlier internal deadlines.

Type	Date	Notes
Internal Deadline	Saturday, April 11, 2020 - 5:00pm	Please submit all application documents, along with an OR-5 Form, to research.services@uoguelph.ca. [4]
External Deadline	Monday, April 20, 2020 - 2:00pm	Eligible Companies are required to submit their application through the Innovative Solutions Canada Website [1] prior to 2:00pm EDT on April 20th, 2020.

How to Apply

Eligible companies are required to submit their application through the Innovative Solutions Canada Website. [1]
For Questions, please contact
All incoming questions regarding this specific challenge should be addressed to solutions@canada.ca [5].

All enquiries must be submitted in writing no later than ten calendar days before the Challenge Notice closing date. Enquiries received after that time may not be answered.

You can also consult the Frequently asked questions [6] about the Innovative Solutions Canada Program.

Office of Research

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Alert Classifications**Category:**
Funding Opportunities and Sponsor News

Disciplines:
Health and Life Sciences
Information and Communications Technology
Physical Sciences and Engineering

Source URL:https://www.uoguelph.ca/research/alerts/content/covid-19-challenge-%E2%80%93-low-cost-sensor-system-covid-19-patient-monitoring

Links
[1] https://www.ic.gc.ca/eic/site/101.nsf/eng/00078.html
[2] http://www.ic.gc.ca/eic/site/101.nsf/eng/00002.html#eligibility
[3] https://www.uoguelph.ca/research/article/2019-novel-coronavirus-information
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