

5 (ENCQOR) Technology Development Challenge – Virtual Indoor Locationing

Challenge Launch Date	<ul style="list-style-type: none"> October 3, 2019
Challenge Deadline	<ul style="list-style-type: none"> October 31, 2019
Challenge Statement	Ericsson is interested in working with Ontario based College/ University teams to conceptualize, investigate, prototype and verify advanced planning solutions for high performance indoor virtual locationing.
Project Partner	<ul style="list-style-type: none"> Ericsson Canada Inc. 349 Terry Fox Drive, Kanata, Ontario.
Timeline	<ul style="list-style-type: none"> 2 years
Available funding	<ul style="list-style-type: none"> \$150 000 Maximum \$136 364 for project costs Maximum \$13 636 for Institutional Overhead (10% of project costs) Ericsson will provide computer equipment and software licenses for RF simulations.
Applicant Type	<ul style="list-style-type: none"> Ontario based College/University
Location	<ul style="list-style-type: none"> It is expected that the students/supervisor will perform some of their work on site at Ericsson’s Terry Fox location in Kanata to enable access to software tools and engineer expertise
Project Details	<p>This is a pre-development prototype project in which the applicant – supervisor and students will work with Ericsson to conceptualize the virtual locationing planning concepts and algorithms, and then develop working prototypes for performance assessment and demonstration.</p> <p>The applicant will use simulations and measurements to assess performance of different algorithms and is responsible for all work.</p> <p>This project leverages Ericsson IPR, which the applicant will consider their planning concepts. The applicant will be given access to Ericsson Internal Research papers to enable them to rapidly assess performance trade-offs as they move towards a conceptualized and performance verified prototypes.</p> <p>The virtual locationing planner project assumes measurements are made from 5G and 4G Internet of Things devices.</p>

	<p>The solution will involve working with Ericsson mobility teams in Canada, USA, Sweden, China, Hungary, and Germany.</p> <p>This is a two-year project with multiple phases:</p> <ul style="list-style-type: none"> • Ramping up on concepts including understanding of 5G core network architecture and capabilities for mobility positioning, including observable parameters for power and time of arrival based multi-iteration algorithms. • On site use of Ericsson RF planning tools which may be leveraged for indoor virtual locationing assessment. • Using Ericsson RF simulation tools and algorithm engines to investigate automatic techniques for optimized indoor virtual positioning, including testing the algorithms on multiple venues. • Completion with a formal report and technical papers describing proposals, innovations, and performance of planning solutions for indoor virtual locationing.
<p>Project Goals/ Outcomes</p>	<ul style="list-style-type: none"> • The project goals/outcomes are: • The applicant will provide monthly progress updates at Ericsson site meetings. • The applicant will develop presentations on proposed architecture and algorithms for virtual locationing planning, expected CPU Processing and RF performance, error budget analysis, and solution accuracy. • The applicant will demonstrate, through simulations, the ability to perform virtual locationing planning. • The applicant will assess and confirm algorithm performance by using an Ericsson facility to perform OTA measurements. to.
<p>Applicant Capabilities</p>	<ul style="list-style-type: none"> • The applicant shall have expertise in locationing concepts. • The applicant shall have simulation tools and capabilities. • The applicant shall have software design expertise. • The applicant shall have RF expertise in indoor propagation and any test equipment which may help in the analysis. • The applicant shall present resume(s) for all staff. • The applicant shall be able to operate without supervision. • The applicant shall have a good understanding of indoor radio.
<p>Additional Information</p>	<ul style="list-style-type: none"> • The applicant will be required to sign an Ericsson NDA.

	<ul style="list-style-type: none">• This project will have access and should leverage Ericsson IPR and expertise in virtual locationing planning.• The solution will involve working with Ericsson mobility teams in Canada, USA, Sweden, China, Hungary, and Germany.
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Launched in 2018, the [ENCQOR 5G Academic Technology Development Program](#) partners Ontario based Researchers with ENCQOR 5G Anchor Firms on 5G technology development projects. Areas of research interest are defined by Challenge Statements submitted to OCE by the [ENCQOR 5G Anchor Firms](#) and posted to the [OCE website on a rolling basis](#).

If you are interested in developing an expression of interest, please visit the [program guidelines](#) for information on next steps.

For any questions about new Challenge Statements or the ENCQOR 5G Academic Technology Development Program please contact Jennifer Moles at Jennifer.Moles@oce-ontario.org