



**Smarter
Elektroniksystem**

ELECTRONIC COMPONENTS & SYSTEMS

Granted Projects 2019

**Smarter
Electronic Systems**

ELECTRONIC COMPONENTS & SYSTEMS

A strategic innovation program to increase competitiveness and growth in Swedish industry

Granted Projects 2019

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The call for feasibility studies, which closed on September 3rd 2019, gave the following results: A total of 10 applications were granted out of the 34 that were received. The 10 projects shared SEK 3.2 million in grants.

The call for research and innovation projects that closed on 14 March 2019 yielded the following results:

8 projects are granted a total of SEK 24.3 million in grants and have at least as much of their own financing. For the application round, 31 project applications were received and applied together

The call for Feasibility Studies 2019

The 2019 call for prestudies gave the following result;

In total, 10 of the 34 submitted applications were granted funding of totally SEK 3.2 million.

Following projects were funded in this call:

Increased functionality in laminated glass products with fiber optic sensors

Project budget 830 000 kronor, granted funding 400 000 kronor

Partners in project: RISE, TMF, GFAB, Linnéuniversitetet

Objectives: Gained knowledge about the applicability of integrating fiber optics for sensorics in laminated glass and how it can generate new applications and market opportunities.

[Project summary from the coordinator here.](#)

Design robustness for mm-wave 5G/6G power amplifier in nanowire transistor technology

Project budget 780 000 kronor, granted funding 389 000 kronor

Partners in Project: C2Amps, Lunds universitet

Objectives: Feasibility study regarding design robustness before prototype manufacturing of a power amplifier for the Ka-band (26.5-40 GHz) designed with vertical InGaAs nanowire transistors, together with further development of compact device models for circuit simulators

[Project summary from coordinator here.](#)

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High performance packaging technology for 5G and future mobile communication

Project budget 700 000 kronor, granted funding 300 000 kronor

Partners in Project: Chalmers, Ericsson AB, SHT Smart High Tech AB, RISE IVF AB, Multi-Teknik Mönsterkört AB

Objectives: The aim of this work is to introduce an innovated copper-graphene composite material to enable new building practises to conduct heat away from an integrated electronic system.

[Project summary from coordinator here.](#)

Current sensor based on graphene Hall device

Project budget 497 000 kronor, granted funding 248 500 kronor

Partners in Project: Graphensic, Chalmers

Objectives: Demonstrate a current sensor based on a graphene Hall sensor, suitable for the industrial and automotive temperature ranges, $-55\text{ }^{\circ}\text{C}$ to $125\text{ }^{\circ}\text{C}$.

[Project summary from coordinator here.](#)

Graphene Waveguide Integrated Switch for High-frequency applications (G-WISH)

Project budget 800 000 kronor, granted funding 400 000 kronor

Partners in Project: Chalmers, Gapwaves, RISE

Objectives: The project has 3 primary objectives to be completed over a 6 month period.

The objectives are:

- Assess the feasibility of graphene as a switching material for the waveguide including a literature survey and simulation of device components.
- Establish a process suitable for development of a graphene-based waveguide switch. Waveguide fabrication (or key parts of the fabrication depending on the available funding) will be attempted and, in the case of a no-go scenario, outline challenges.
- Develop component performance requirements, constraints and packaging solutions for implementation in Gapwaves devices

[Project summary from coordinator here.](#)

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Monitoring water quality in real-time using UV fluorescence

Project budget 312 000 kronoor, granted funding 156 000 kronor

Partners in Project: RISE, Watersprint AB, Orbital Systems AB

Objectives: This feasibility study will investigate the possibility to build a compact, low-cost system for water quality analysis in real-time. The system is based on excitation and measurement of UV fluorescence from micro-organisms in water. A lab-scale test system will be developed and used to analyze water from different test environments and with different contaminants to evaluate the sensitivity and validity of the measurements. This evaluation will be used as a basis for design and specification of a low-cost UV fluorescence water analysis system to be implemented in a future, larger R&D project.

[Project summary from coordinator here.](#)

Radar-AI platform

Project budget 783 000 kronoor, granted funding 391 500 kronor

Partners in Project: Acconeer AB, Imagimob AB

Objectives: The project aims at capturing the best of two technology development trends, radar and AI, and establish a radar-AI proof-of-concept platform to pave way for a continued Research and Innovation project, where the Radar-AI concept can be further researched to solve challenges in applications ranging from gesture control to smart building monitoring.

[Project summary from coordinator here.](#)

UWB Transparent Antennas for Autonomous Vehicles by New Bowtie Antenna and Nano Mesh Technologies

Project budget 807 920 kronoor, granted funding 400 000 kronor

Partners in Project: Gapwaves AB, Chalmers

Objectives: Develop UWB transparent antennas integrated in vehicle glass, by combining our patented Bowtie antenna, gap waveguide technology and Nano mesh film technology, with a feature of UWB performance, high radiation efficiency and high transparency.

[Project summary from coordinator here.](#)

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ACT – Automatic Cargo Tracking

Project budget 531 152 kronoor, granted funding 256 652 kronor

Partners in Project: Blue Science Park, Blekinge Institute of Technology, Wireless Independent Provider AB (WIP)

Objectives:

- Collaboration partners identified and ready to collaborate in an implementation project performing a POC
- Identified appropriate material for the ID-Tag to be applied inside packages and onto products
- Identified appropriate electronic components, algorithms and frequency to be used for the central unit
- Implementation project application agreed between all parties and ready to be send

[Project summary from coordinator here.](#)

Glass Coated Optical Fibers for Sensors in Extreme Environments

Project budget 600 000 kronoor, granted funding 300 000 kronor

Partners in Project: RISE Fibre Optics, BB Metallurgy, Sandvik Materials Technology, RISE Glas

Objectives: A basis for planning an R&I-project for developing a glass coated optical fiber. It shall include an assessment of the technical feasibility and the business potential

[Project summary from coordinator](#)

The call Research and innovation project 2019

In the call, which closed on March 14, 2019, 8 projects are granted that share a total of SEK 24.3 million in grants.

Components for Quantum Computers

Project budget 5 640 000 kronor, grants 2 830 000 kronor.

Partners in project: Chalmers, Low Noise Factory AB

Objective: To develop a C-band hybrid amplifier module with 40 dB gain, average noise temperature of 0.5 K (<0.01 dB) and a dc power dissipation less than 0.1 mW.

[Read more about the project here.](#)

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Antenna systems for smart wells

Project budget 7 200 000 kronor, grants 3 600 000 kronor

Partners in project: Mid sweden University, AquaDuctus, Sweco, MittSverige Vatten och avfall, Tierp Järnbruk, Shortlink

Objective: To design a system that is reliable, imply minimal maintenance and are possible integrate in well production. The project will develop a demonstrator that will be evaluated in the operative environments in the wells

[Read more about the project here.](#)

Linearization for wireless access in 5G and beyond

Project budget 8 930 000 kronor, grants 4 000 000 kronor

Partners in project: Chalmers, Ericsson, Bluetest

Objectives: Development of power amplifier linearization schemes, operating at extreme bandwidth in massive multi-antenna 5G, and beyond, systems

Specific sub-objectives to reach the main objective:

- » Reduce the complexity of wideband linearization by one order of magnitude compared to contemporary techniques.
- » Reduce the complexity of multi-antenna linearization by one order of magnitude compared to contemporary techniques.
- » Combine wideband and multi-antenna linearization, reducing complexity by up to two orders of magnitude.
- » Implement and demonstrate wideband multi-antenna linearization in a testbed, operating in a realistic environment.

[Read more about the project here.](#)

Highly-efficient integrated millimetre band antennas (High-Int)

Project budget 5 196 040 kronor, grants 2 499 560 kronor

Partners in project: KTH, Ericsson AB

Objective: The main goal of High-Int is to investigate the new possibilities of fully-metallic configurations for implementing highly efficient antennas in the millimetre band.

[Read more about the project here.](#)

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Array antennas for SatCom applications on mobile platforms

Project budget 7 829 600 kronor, grants 3 914 800 kronor

Partners in project: ReQuTech AB, Linköping University, Forsway Scandinavia AB

Objectives:

- » To improve broadband coverage and mobility to areas where no cellular network infrastructure is available, the solution is to use flexible antennas on moving platforms for Satellite Communication (SatCom).
- » To develop a low-cost, low profile antenna for services with High Throughput Satellite (HTS).

[Read more about the project here.](#)

News and results: Pressrelease

[Artikel i Elektroniktidningen 5 okt 2020](#)

Cloud-Based Indoor Climate Station Embedded in Active Plant Screen

Project budget 5 000 000 kronor, grants 2 500 000 kronor

Partners in project: Vertical Plants System Sweden AB, Angland Electronics AB, Apptek Teknik Applikationer AB, Akademiska Hus AB, J2 Holding AB, Linköping University

Objective: A cloud-based indoor climate station with multiple sensors and actuators, including a new type of VOC (volatile organic compounds) sensor system originating from a recently closed EU project, SENSIndoor

[Read more about the project here.](#)

Fibre-optic Pressure Sensor for Machine Integration and Harsh Environments

Project budget 4 200 000 kronor, grants 2 100 000 kronor

Partners in project: RISE, SKF, Proximion, Svensk Kärnbränslehantering

Objectives:

- » To have pressure sensor prototypes validated for machine monitoring at SKF and evaluated for bore-hole monitoring at SKB
- » To have a plan for commercialization

[Read more about the project here.](#)

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Non-invasive medical imaging system with optical contrast and ultrasonic resolution

Project budget 5 924 173 kronor, grants 2 894 160 kronor

Partners in the project: Lund University, SpectraCure

Objectives:

- » Upgrade UOT system to operate with wavelengths in the tissue transparent window.
- » Map potential customer base and develop business plan.
- » Validate the upgraded system

[Read more about the project here.](#)