



**Smarter
Elektroniksystem**

ELECTRONIC COMPONENTS & SYSTEMS

Granted Projects 2020

**Smarter
Electronic Systems**

ELECTRONIC COMPONENTS & SYSTEMS

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

Granted Projects 2020

The call for Research and Innovation projects, which closed on March 12 2020, was granted 9 projects out of a total of 53 as applications received. The 9 projects share SEK 24.1 million in grants.

Battery control in high current CMOS

Project budget 6 166 000 kronor, granted funding 1 990 000 kronor

Partners in project: Linköping University, Jonsson Power Engineering AB, Scania CV AB, SEM AB, Flex Power Modules

Objectives for project: Design and evaluate technologies for integrated converter in CMOS for battery module with voltage 3-16V and current up to 200A.

Read more about the project at [Vinnova web](#) or [the project summary here](#).

Wireless NFC TensionCam sensor with Bridge module

Project budget 1 574 740 kronor, granted funding 778 740 kronor

Partners in project: TensionCam Systems AB, RISE, Alfa Laval AB, Halling Plast AB

Objective: Develop a NFC based Gen 2 sensor along with a NFCW Bridge module enabling wireless remote monitoring for industrial heat exchanger and water pipe flanges.

Read more about the project at [Vinnova web](#) or [the project summary here](#).

[See result from the project here](#)

Automatic Cargo Tracking - ACT

Project budget 8 048 212 kronor, granted funding 3 992 140 kronor

Partners in project: Blue Science Park, Blekinge Tekniska Högskola, Wireless Independent Provider AB, Bilspeditioners Transportförening/ DB Schenker Sverige AB, Smålands Logistik

Objectives for project: To implement a POC together with BTF / Schenker and Småland's logistics where we test our automatic package tracking solution in a real environment

Read more about the project [Vinnova web](#) or [the project summary here](#).

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A multiplex nanoplasmonic battery sensor for improved battery management

Project budget 3 896 800 kronor, granted funding 1 908 800 kronor

Partners in project: Insplorion Sensor Systems AB, RISE, Mid Sweden University

Objective: Develop a prototype of a multiplexed nanoplasmonic battery sensor that enables simultaneous operando measurements of temperature and physico-chemical changes

Read more about the project at [Vinnova web](#) or [the project summary here](#).

DUMLE – Double-sided lung monitoring using extended laser electronics

Project budget 3 178 000 kronor, granted funding 1 589 000 kronor

Partners in project: GPX Medical AB, NEOLund AB

Objective: Development of a new embedded and smart technical platform for tunable diode laser spectroscopy that handles 4 lasers and 4 detectors

Read more about the project at [Vinnova web](#) or [the project summary here](#).

Smart melts part II

Project budget 8 000 000 kronor, granted funding 4 000 000 kronor

Partners in project: RISE, Swerim, Uppsala University, Agellis Group AB, Sandvik Materials Technology, SSAB

Objective: Innovative sensor technology for steel production monitoring for higher quality and reduced consumption of raw materials and energy

Read more about the project at [Vinnova web](#) or [the project summary here](#).

A 5G/6G Analog-to-Digital Converter

Project budget 5 181 941 kronor, granted funding 2 500 000 kronor

Partners in project: Lund University, Ericsson AB

Objective: Design of a CMOS analog-to-digital converter for use in radio base stations for 5G/6G wireless millimeter-wave communication

Read more about the project [Vinnova web](#) or [the project summary here](#).

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Radar-AI for interactive units

Project budget 10 210 000 kronor, beviljat bidrag 4 000 000 kronor

Partners in project: Acconeer AB, Imagimob AB and Flexworks AB

Objective: The project aims at capturing the best of two technology development trends, radar and AI, and establish a road map for an in-ear headphone gesture control offer

Read more about the project [Vinnova web](#) or [the project summary here](#).

First demonstrator announced, [read pressrelease](#) and [watch the video](#) to see how it works.

More efficient wireless performance testing for connected, self-driving vehicles and systems

Project budget 6 956 000 kronor, granted funding 3 376 000 kronor

Partners in project: RanLOS AB, Provinn AB

Objective: To reach a global market with RanLOS's and Provinns's products and services for measurement and test systems for connected, autonomous vehicles and connected devices in the new 5G networks

Read more about the project [Vinnova web](#) or [the project summary here](#).

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In the call for feasibility studies that closed on September 8 2020, 15 of the total of 42 applications submitted were approved. The 15 approved projects share SEK 4,989,000 in grants. In total, the 42 projects applied for just over SEK 11 million in grants.

High-accuracy, GPS-independent Time Synchronization systems for 5G mobile and other critical networks and processes

Project budget 692 000 kronor, granted funding 338 000 kronor

Partners in project: Net Insight AB, KTH, Tele2

Objectives for project: To verify market and product requirements for a high accuracy time synchronization solution for 5G mobile networks. 5G mobile networks has much higher accuracy requirements than 3G/4G networks, and current solutions struggle to provide these requirements without replacing all existing IP core and optical transport equipment. The solution should not be dependent on GPS/GNSS time synchronization since it has inherent weaknesses to jamming and spoofing and is sensitive to weather conditions. The solution should also not require a fork lift upgrade of existing IP core and optical WDM transport networks. This can significantly reduce cost and time for 5G roll-outs in Sweden and globally. Since the solution reuses existing network infrastructure, it is also a more sustainable solution.

Read more about the project at [Vinnova web](#) or [project abstract](#)

A real-time bladder scanner with an alarm for an active daily life

Project budget 408 000 kronor, granted funding 200 000 kronor

Partners in project: Innovation Partners (Europe) AB, BiDirection Consulting AB, RISE

Objective: To verify the method and build a fundamental electronics, sensors and electrodes for estimating fluidity with minimal external interference.

Read more about the project at [Vinnova web](#) or [project abstract](#)

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Realtime surface roughness measurement

Project budget 866 403 kronor, granted funding 399 603 kronor

Partners in project: Blekinge Tekniska Högskola, Seco Tools AB

Objectives for project: Validate usability of ultraviolet wavelengths in real-time detection and measurement of surface roughness of components during machining operations, and realization of possibilities as well as limitations of industrialization of such technology for metal cutting applications.

Read more about the project at [Vinnova web](#) or [project abstract](#)

Smarter electronic systems for animal health monitoring with multisensory-assisted ML

Project budget 1 768 367 kronor, granted funding 397 560 kronor

Partners in project: Sony Nordic AB, SLU, RISE, KTH

Objective: Development of a robust easy-to-use system for monitoring animal health, which will ease livestock management and research, improve animal health, and reduce environmental impact.

Read more about the project at [Vinnova web](#) or [project abstract](#)

Digitalisation and fiber optics for sustainable fuel

Project budget 517 100 kronor, granted funding 252 300 kronor

Partners in project: RISE, Proximion

Objective: High-resolution temperature sensors based on fibre optics, connected to a cloud based digitalanalysis tool that makes it possible for Swedish industry to optimise their manufacturing of bio-fuels

Read more about the project at [Vinnova web](#) or [project abstract](#)

Solution to challenges of extremely-high-gain 50dBi+ 70GHz+ Antennas with a new Gapwave feed Technology

Project budget 848 800 kronor, granted funding 400 000 kronor

Partners in project: Gapwaves AB, Ericsson, Chalmers

Objective: Prove the feasibility of the new dual-reflector gapwave feed solution to challenges of more-than-50dBi-gain above-70GHz antenna technology for its full development next year.

Read more about the project at [Vinnova web](#) or [project abstract](#)

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MEMS Sensors for ultrasonic tightening control and monitoring of bolt joints in industrial processes

Project budget 500 000 kronor, granted funding 249 617 kronor

Partners in project: Lund University, Ericsson AB

Objective: Design of a CMOS analog-to-digital converter for use in radio base stations for 5G/6G wireless millimeter-wave communication.

Read more about the project at [Vinnova web](#) or [project abstract](#)

Smart multi-platform fibre-optic sensors with industry 4.0 capabilities

Project budget 800 000 kronor, beviljat bidrag 400 000 kronor

Partners in project: RISE, SKF

Objective: To assess the technical feasibility and commercial prospects of proposing a digitalized machine monitoring system, composed of several fibre-optic sensors probed using different sensing interrogation techniques, interconnected with a central monitoring system using an industry standard communication protocol.

Read more about the project at [Vinnova web](#) or [project abstract](#)

High resolution infrared imaging sensors with low power consumption

Project budget 847 000 kronor, granted funding 399 000 kronor

Partners in project: IRnova, KTH

Objective: To identify the best detector design and fabrication techniques for high-resolution type-II superlattice (T2SL) infrared imaging sensors that will result in low power consumption and small size of the detector unit.

Read more about the project at [Vinnova web](#) or [project abstract](#)

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Electric-field sensing in high-voltage bushings

Project budget 902 000 kronor, granted funding 398 000 kronor

Partners in project: Hitachi ABB Power Grids, RISEnova, KTH

Objective: Three separate result goals are defined:

- Technical feasibility examined
- Business Case Analyzed
- A Plan for future R&D-project

Read more about the project at [Vinnova web](#) or [project abstract](#)

Realization and Verification of Novel Contactless MetaCoax Integration Technology for 5G UWB mmWave Array Antennas

Project budget 814 000 kronor, granted funding 400 000 kronor

Partners in project: Chalmers, Gapwaves, LEAX Arkivator Telecom

Objective: To design, fabricate and verify a new integration technology – MetaCoax coupling array for 5G UWB mmW Array antennas as a preparation for the full proposal in March 2021.

Read more about the project at [Vinnova web](#) or [project abstract](#)

EVA-messages for improved traffic safety and accessibility

Project budget 801 000 kronor, granted funding 400 000 kronor

Partners in project: H&E Solutions, VTI

Objective: To investigate opportunities to improve the current traffic situation for emergency vehicles using the vehicle-to-vehicle communication system EVAM Transmit. In addition, significant knowledge of the prevailing challenges with traffic-safe emergency vehicles will be created which may give rise to new innovations, products, or processes in the industry. In the long run, there are hopes that the project will lead to fewer deaths in traffic, and a safer environment for people in and around emergency vehicles and thus a significant saving for the blue light authorities.

Read more about the project at [Vinnova web](#) or [project abstract](#)

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Cost efficient dam monitoring with fibre optics

Project budget 800 000 kronor, granted funding 400 000 kronor

Partners in project: Vattenfall, RISE

Objective: To have investigated the feasibility for a new cost-effective technology for dam monitoring and a plan for continued development and involvement of commercial partners to get there

Read more about the project at [Vinnova web](#) or [project abstract](#)

Towards integration of carbon capacitors in industrial wafer fabrication

Project budget 880 000 kronor, granted funding 113 000 kronor

Partners in project: Smoltek

Objective:

At the end of the proposed feasibility study, we expect to:

- Have identified and secured the interest and commitment for the next project application in march 2021 of at least 2 foundries with compatible processes for high volume Manufacturing of CNF-MIM on 200/300mm wafers
- Have identified and secured the interest and commitment for the next project application in march 2021 from at least 2 process tool manufacturing companies for growth of CNFs for High volume Manufacturing of CNF-MIM on 200/300mm wafers
- Have identified and secured the interest and commitment for the next project of at least 2 end-user companies for the design of CNF-MIM demonstrators in the next project
- Determine and benchmark firm technical requirements for several prospective licensees.

The complementarity of the different actors to quite obvious since they represent all the different elements of the value chain for the successful deployment of the CNF-MIM technology in the semiconductor industry and would definitely represent a very credible consortium for the 'Smartare Elektroniksystem' application during the spring of 2021.

Read more about the project at [Vinnova web](#) or [project abstract](#)

Future connectivity, networks and spectrum for industrial radio systems

Project budget 480 000 kronor, granted funding 240 000 kronor

Partners in project: KTH, Åkerströms I Björbo, Boliden, PTS

Objective: To identify and analyze various future challenges and techno-economic-spectrum system solutions for connectivity of industrial radio systems

Read more about the project at [Vinnova web](#) or [project abstract](#)