



**Smartare
Elektroniksystem**
ELECTRONIC COMPONENTS & SYSTEMS

Granted Projects 2021

**Smarter
Electronic Systems**

ELECTRONIC COMPONENTS & SYSTEMS

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

Granted Projects 2021

In the call for research and innovation projects that closed on March 11 2021, 10 of the total of 35 applications submitted were approved. In total, the 35 projects applied for just under SEK 98 million and the 10 approved projects can share in SEK 30.7 million.

The projects have started July 1 - September 1 and are then expected to be completed within 24 months.

Multifunctional cooling an electrical interposer for RF wireless systems based on Additive Manufacturing

Project budget 6 560 000 kronor, granted funding 3 280 000 kronor

Partners in project: Chalmers, Ericsson AB, Saab AB, RISE IVF AB

Objectives for project: To develop a multi-functional interposer allowing lateral fluid cooling and high density vertical electrical interconnects for future millimetre-wave communication and sensing infrastructure.

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

Sparse linearization and hardware for 5G and beyond

Project budget 6 242 000 kronor, granted funding 3 117 000 kronor

Partners in project: Chalmers, Ericsson AB, Bluetest AB

Objective: To make large steps in energy-efficient communication for 5G and beyond, through optimization of both transmitter hardware and linearization algorithms. We will achieve this by exploiting the extremely sparse nature of the signals, in time, frequency and space.

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

D-band LNA for 5G/6G Xhaul in Nanowire Transistor Technology

Project budget 7 485 000 kronor, granted funding 3 741 000 kronor

Partners in project: NordAmps AB, Lund University, Ericsson AB, Cadence Design Systems, Lomma Analog & RF Consulting

Objectives for project: Design and evaluation of a low noise amplifier with nanowire transistors for the D-band (130-174.8 GHz) plus further development of a model for circuit simulators.

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

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Low power infrared imaging sensors

Project budget 7 453 000 kronor, granted funding 3 654 000 kronor

Partners in project: IRnova AB, KTH, Noxant, Trakka Systems, Saab Dynamics, FOI

Objective: The objective is to demonstrate high performance Ga-free T2SL detectors at operating temperatures of at least 130 K, as this will enable production of small, high-resolution imaging sensors with very low power consumption.

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

ENERGETIC – Energy efficient beamforming antenna-IC integration solutions for future 100+GHz telecommunication systems

Project budget 7 481 000 kronor, granted funding 3 739 000 kronor

Partners in project: Chalmers, Ericsson AB, Gotmic AB

Objective: To develop Antenna-Beamforming-IC integration solutions for frequencies above 100GHz that simultaneously overcome the problems of energy consumption of mm-Wave electronics and physical size constraints of intelligent antennas.

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

Roll-to-roll printed bio-based energy storage for integrated smart applications

Project budget 5 660 000 kronor, granted funding 2 829 000 kronor

Partners in project: Ligna Energy AB, Ynvisible Production AB, Epishine AB, Pollux Innovation AB

Objective: To design, manufacture and test a unique roll-to-roll printed energy storage cell and to build integrated units, also including solar cell and sensor, and to evaluate these units performance, cost and functionality in relevant environment.

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

Low-cost, high efficiency, wideband circular polarized planar array antenna

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

Partners in project: Satcube AB, Chalmers, Gapwaves AB, Forsway Scandinavia AB

Objective: The objective is to develop a high-efficiency, low power wideband circular polarized planar Ka-band antenna array for the next generation low-cost LEO satellite terminals.

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

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Miniaturized LC shutter for backscattering wireless optical communication

Project budget 2 902 000 kronor, beviljat bidrag 1 451 000 kronor

Partners in project: LC-Tec Displays AB, Uppsala Universitet

Objective: When to project is finished there will be a fully functioning component for backscattering wireless optical communication with a miniaturized LC-shutter integrated on a retroreflector.

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

High current switch

Project budget 1 882 000 kronor, granted funding 941 000 kronor

Partners in project: Calix AB, Eskilstuna Elektronikpartner AB

Objective: The project's goal is to develop a High Current Switch from the technology concept created in the feasibility study into fully functional prototypes that have been validated for environmental durability in accordance with the automotive industry's requirements. With a technology platform that can switch at least 24V / mounted in a rough environment condition such as an engine compartment of vehicles.

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

FRIEND: Full realization of extremely high gain mmW 50dBi+ 70GHz+ Gregorian antenna with a new gapwave feed

Project budget 8 000 000 kronor, granted funding 3 940 000 kronor

Partners in project: Ericsson AB, Gapwaves AB, Chalmers

Objective: Develop an ultra-high gain millimeter wave (mmW) Gapwave fed reflector antenna with self-tracking function at low cost for 5G mmW backhauling systems.

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

Granted Projects 2021

In the call for feasibility studies that closed on September 3 2021, 11 of the total of 32 applications submitted were granted. In total, the 32 projects applied for SEK 10.5 million in grants and the 11 approved projects may share in SEK 3,995,000.

The projects start in November and will be completed within eight months.

Virtual Fences for grazing cattle

Project budget 350 000 kronor, granted funding 175 000 kronor

Partners in project: C Security Systems, RISE

Objectives for project:

To design and manufacture a prototype to verify that the concept virtual fencing can be used with the technical platform that we have developed. We shall also investigate if two soft solar cells will be sufficient to generate enough power so that the unit never has to be manually charged during a complete grazing season in Sweden.

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

Sensors for detection of smelling and toxic sulphur gases

Project budget 600 000 kronor, granted funding 300 000 kronor

Partners in project: Mid Sweden University, Senseair

Objective: To verify the sulfur sensor, analyze the market and develop the value chain and project proposal for planned and innovation projects.

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

PEER – Power Electronic Edge resilience

Project budget 800 000 kronor, granted funding 400 000 kronor

Partners in project: Bombardier, RISE

Objectives for project

1. Define application cases for data driven analysis and control of power electronic propulsion systems
2. Describe and specify a resilient edge-architecture
3. Determine potential for smart sensor fusion and ML / AI
4. Proposals for follow-up innovation and demonstration projects

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

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Environmentally Friendly Control Electronics for Bio-based Energy Modules

Project budget 800 000 kronor, granted funding 400 000 kronor

Partners in project: RISE, Ligna Energy, Epishine

Objective: To investigate the possibility to develop environmentally friendly control electronics for bio-based energy modules such as organic battery cells and hybrid battery/solar cells

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

Advanced Medical Diagnosis Instrument for Measuring of Metabolic Activity (AdMET)

Granted funding 400 000 kronor

Partners in project: GattyInstruments

Objective:

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

Back-scattered Field Overmoded Waveguide Measurement Chamber for Integrated Antennas at 100+GHz (BACSCAD)

Project budget 800 000 kronor, granted funding 400 000 kronor

Partners in project: Chalmers, Ericsson

Objective: To develop a new mm-wave overmoded-waveguide measurement chamber for characterizing highly integrated antennas, such as antennas on-chip and in-package, at 100+ GHz.

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

PARAD - Introduction of PAssive RADar in multisensor systems for drone

Project budget 800 000 kronor, granted funding 400 000 kronor

Partners in project: Skysense, LFV, KTH

Objective: Description of end-user threats and user requirements, as well as determination of appropriate system architectures for the introduction of passive radar in a multisensor system 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](#)

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Printed Sensors for Transformer Reliability

Granted funding 400 000 kronor

Partners in project: ABB Power Grids Sweden AB

Objective:

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

FLASH cancer therapy detector

Project budget 820 000 kronor, granted funding 400 000 kronor

Partners in project: ScandiDos, RISE

Objective: Specification of the required modification of an existing prototype diode detector so that it can detect cancer treatment using FLASH technology as well as in today's technology

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

TINA Tactile Identification, Navigation & Articulating

Granted funding 320 000 kronor

Partners in project: Region Örebro

Objective:

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

New fiber optic sensor technology for continuous flow measurements for hydro power applications and other high flows

Project budget 848 000 kronor, granted funding 400 000 kronor

Partners in project: RISE, Vattenfall, Habia Cable, Geosigma

Objective: To investigate the feasibility, and added value of an innovative flow measurement technology, its need for further development and a plan for further work in an R & D project

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