

Application Guidelines for the 4th Technova Award (Grant for Innovative Technologies)

1. Purpose of the research grant

Technova Inc. is a think tank whose mission is to research and promote advanced technologies, and as part of our mission, we provide research grants for promising fundamental research.

As the population is declining and aging, advanced mechanization, automatization and robotization are being promoted in various situations to enhance people's lives. The more increased the relationship between machines and humans, the greater the risk of technical failures for both the user and the manufacturer. However, there is a concern that even if a failure or its precursor appears, one may not notice and miss it. Therefore, "failure prediction" technologies to monitor the deterioration tendency of components in real time to ensure their maintenance before failure will be important in the future.

To make this vision come true. Technova wants to support pioneering research and those with innovative ideas in the fields of advanced sensor, signal processing and machine learning technologies whose learnings may be applied to improve Prognostics and Health Management (PHM) systems.

2. Scope of the research grant

Failure prediction technology: sensors, signal processing, machine learning

3. Research areas and basic information

We are looking for mid- and long-term innovative research in any of the three fields described below.

Please suggest a research plan (one year) on your chosen field. If multi-year efforts are required to produce the research results, please propose a multi-year research plan. This grant period is for one year, but the grant may be extended depending on the evaluation of the results. We may also ask for joint research with Aisin Seiki Co., Ltd. that the support company for this project.

① Sensor technology

New sensor technology to detect the deterioration of internal parts in mechanical systems (on-board / off-board). For example, sensor technologies that can measure new indicators that are not covered by conventional indicators of deterioration (vibrations, sound, and temperature changes), sensor technology that can detect a deterioration state by combining multiple sensors.

② Signal processing technology

New sensor signal processing technology. For example, technologies that is able to analyze and isolate the information of specific components, even in noisy environments (where multiple components and sensors interact with each other) in order to monitor the status of multiple components independently and in real time.

③ Machine learning technology

For example, Machine learning technologies that can predict the failure of parts in machines even when it is in movement and when the operating conditions are irregular.

4. Grant details

- Up to 1.5 million yen per project.
- Selection of the grantees: Early January 2020
- Provision of the grant: Late April 2020 (Planned)
- Grant period: April 1, 2020 to March 31, 2021

5. Number of grants awarded

Up to 3 projects

6. Eligibility

Researchers attached to a university or research institution or independent researchers

7. Application period

September 2 to December 23, 2019

8. Application method

- Please fill in the specified application forms and send them by post or by email.
The subject of the e-mail should be “4th Technova Award Application Document (name)”.
- Please do not provide any confidential information belonging to the applicant or a third party in the application forms.
- Please note that application forms submitted to us will not be returned.

9. Selection method and notification of results

- The selection committee composed of academic experts and the Technova Award secretariat will select the Award winners.
- Applicants may be requested to provide additional information or undergo an interview by the selection committee.
- Selection results will be announced to applicants in writing in early January 2020.

10. Members of the selection committee

Chairman: Hiroyuki Morikawa (Professor, Tokyo University)

Members: Norihisa Miki (Professor, Keio University)

Takehisa Yairi (Professor, Tokyo University)

Aisin Seiki Co., Ltd.

Technova Inc. (Award secretariat)

11. Conditions and obligations for grantees

- Grantees (Award winners) will be requested to attend the award ceremony which will be held at a venue in Tokyo from 3:00 p.m. on Friday, February 21, 2020.
- Grantees are required to submit a letter of acceptance in the specified format.
- Grantees also need to submit a research progress report and a detailed statement of expenses pertaining

to the research activities by the end of the grant period. Grantees may also be asked to provide detailed explanations about the progress of the research or about the research progress report.

- Grantees must ensure the appropriate use and accounting of the grant funding, giving due consideration to its economical and efficient use. We may ask a grantee to submit invoices or receipts of purchases made with the grant funds to confirm the proper use of the grant. In the event that the Award secretariat deems that the funding was misappropriated, the grantee will be requested to return the total amount of the funds granted.
- Technova is willing to provide its support when a grantee aspires for an industrial application of his/her research achievement.
- A grantee may be asked to indicate the fact that the research was conducted using grant funding received from Technova Inc. at the time of publication of the research results.

12. Restriction on the usage of the grant funding

- The grant funding shall be used to pay the necessary costs of conducting the research and implementing its action plan, including related fees, travel expenses, the cost of equipment and supplies, printing costs, communication costs and others, but excluding personnel expenses for those engaged in the research and related activities.
- The grant shall be used according to the submitted budget plan in principle. In the event the grantee wants to change the usage of the grant funds or change in a substantial way the focus of the research for which the grant was given, the grantee shall promptly inform the Award secretariat. The grantee may be asked to submit a written request for approval of the change and supplemental information as required.
- The grant funding must be expensed by the grantee within the grant period. A grantee may be asked to return the entirety or part of the funds not used by the final day of the grant period.

13. Rights to the research results

The rights to the research results shall belong to the respective applicants for the research grant.

14. Treatment of personal information

Personal information provided in the documents submitted by applicants for the Award will be appropriately managed in line with the Japanese Act on the Protection of Personal Information.

15. Contacts for inquiries, and submitting the application forms

Representatives: Okamoto, Ito, Igarashi, and Matsuda

Technova Inc.

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Phone: 81-3-3508-2280 Email address: funding@technova.co.jp

Website: <http://www.technova.co.jp>

16. Associated partner

Aisin Seiki Co., Ltd.

[Profile of Technova Inc.]

Technova is a technology-oriented think tank established by the late Professor Emeritus Keiichi Oshima of the University of Tokyo in 1978 with the aim to contribute to the creation and development of new technologies.

- Business content: conduct surveys, research and provides consulting services upon request from customers in the fields of energy, transportation, and advanced technologies
- Capital: 160 million yen
- Number of staff: 30as of November 2019
- Major shareholders: Aisin Seiki Co., Ltd., Aisin AW Co., Ltd., Toyota Motor Corporation
- Major customers: Companies related to the automobile industry, other companies in the private sector, and national and local governments