

New Jersey-Israel Innovation Partnership Initiative **R&D Collaborative Industry R&D Program** **Request for Proposals**

Request for Proposal Launch

July 8, 2020

Full funding application submission deadline

September 1st, 2020

Focus on: E-mobility and technologies for navigation systems

1. INTRODUCTION

In October 2018, the New Jersey Economic Development Authority (NJEDA) and the National Technological Innovation Authority of the State of Israel (IIA) executed a Memorandum of Understanding (MOU) on cooperation in technological innovation, industrial research and development (R&D).

To implement the MOU, the NJEDA and the IIA have launched the New Jersey-Israel Innovation Partnership Initiative to promote joint R&D projects between New Jersey and Israeli companies.

The goals of the Initiative are multifold:

- Increase the level of R&D in New Jersey and in Israel;
- Support the growth of New Jersey and Israeli businesses by exposing them to new markets and commercial opportunities;
- Provide New Jersey and Israeli companies access to best-in-class technology;
- Encourage high-growth Israeli companies to locate their U.S. operations in New Jersey.

The implementation of this Initiative is a two-stage process as described below:

1. First, the NJEDA issued in New Jersey the Request for Expressions of Interest 2019-RFEI-#89 to identify: (i) Eligible New Jersey companies interested in participating in the Initiative, (ii) Projects/sectors in which these companies were interested in conducting joint research, and (iii) The level of resources these companies expected to invest in the joint R&D project, with a minimum of \$250,000 per project. The eligible New Jersey companies identified by the NJEDA and their project proposals are listed under section 3.
2. Second, the IIA, through this Request for Proposals (RFP), is seeking Israeli partners (Applicants) for the New Jersey companies and projects listed under

section 3 of this RFP. The NJEDA will act as a facilitator and will support the New Jersey companies in their interactions with the IIA. The IIA may provide funding to the approved Applicants as described herein.

2. MODE OF COLLABORATION

Each R&D partnership under the present RFP must be established between the New Jersey companies listed under section 3 and one Israeli for-profit company per proposed project.

Participation by universities or other research institutions as subcontractors for the project implementation is welcome, consistent with the regulations of the IIA.

Applicants are required to comply with the application requirements set forth and program conditions of the IIA. New Jersey companies are required to comply with the Compliance and Indemnification Agreement signed with the NJEDA.

For a collaborative project to be eligible for funding, the application must be submitted by an Israeli company *unrelated* to the New Jersey-based company. For the purposes of this RFP, companies are considered unrelated if they have separate legal identities and do not have a parent/wholly-owned or controlled subsidiary relationship. It is permissible that the Israeli and New Jersey companies have a prior working relationship, but the IIA will not grant funding for the same or a similar R&D project for which the two companies have already executed a collaborative R&D agreement prior to the date of issuance of this RFP.

3. NEW JERSEY COMPANIES AND TECHNOLOGICAL FIELDS FOR JOINT R&D PROJECTS

The NJEDA has identified as eligible the two companies listed in this section. The New Jersey companies meet the requirements set forth in the NJEDA 2019-RFEI-#89, including having an R&D presence or a manufacturing facility in New Jersey. In addition, if a joint R&D project is approved under this Initiative by the IIA, the New Jersey companies will be required to spend the majority of their share of the joint project budget (i.e. greater than 50%) in New Jersey, while the majority of R&D activities (greater than 50% of the total man-hours allocated to the project) must occur either in New Jersey or in Israel (2019-RFEI-#089 is available at: [https://www.njeda.com/pdfs/rfps/RFEI089/089-Specifications-Adnm-11-Due-Date-\(01-09-20\).aspx](https://www.njeda.com/pdfs/rfps/RFEI089/089-Specifications-Adnm-11-Due-Date-(01-09-20).aspx))

A. Greenspot JC LLC - Smart Mobility

Company Profile: Greenspot is an electric transportation start-up that installs and manages an expanding network of electric vehicle (EV) charging stations for both the public and private sectors. Greenspot creates e-Mobility Hubs where electric shared mobility solutions, such as EV car sharing are available

for hourly and daily rental at Greenspot's EV charging stations. For a full company profile please visit: <https://joingreenspot.com/>

Project Title: EV charging station and electric shared mobility solutions for door-to-door data-based e-Mobility Strategy.

Collaboration purpose: The purpose of this collaboration is to create a scalable concept to (1) Facilitate EV adoption; and (2) Reduce the number of cars owned per household by one. The collaboration will aim at identifying mobility needs, spatial stresses, and relevant e-Mobility solutions in both New Jersey and Israel to reduce traffic, reduce transportation caused pollution, and time-related traffic issues.

Projected financial commitment: Approximately \$500,000, depending on the project scope. If deemed necessary and based on the project Greenspot may be willing to invest more than \$500,000.

Contact information: Rose Lenoff, Director of Business Development. 571-748-8160. Rose@joingreenspot.com

B. Kearfott Corporation

Company Profile:

William Dunham Kearfott founded Kearfott Corporation in 1918. Kearfott's Inertial Reference Units (IRUs), Inertial Measurement Units (IMUs), and Inertial Navigation Systems (INSSs) guide spacecraft, navigate autonomous land and sea vehicles, and provide critical flight control functionality for commercial and military manned and unmanned aircraft. Kearfott's Ring Laser Gyros (RLGs) have the highest accuracy to volume ratio in the industry. Kearfott has developed a system that combines its RLG based Inertial Measurement Unit (IMU) with GPS signals (Embedded GPS/INS or "EGI"), providing a highly accurate system for guiding air, land, and sea vehicles. For a full company profile please visit: <https://www.kearfott.com/>

Project Title and collaboration purpose (3 projects)

1. Inertial Measurement Unit (IMU) with increased resistance to GPS jamming/spoofing

The age of Urban Air Mobility has arrived. Uber currently forecasts inter-modal passenger service to begin as early as 2023, and Amazon is already delivering packages in beta-test locations. These airborne platforms will operate in urban centers, where safety and reliability will be critical. Each of these platforms will rely on GPS for some degree of position awareness. An accurate inertial navigation system will be required to compensate for intermittent GPS signals that nearly every driver has experienced in "urban canyons" where the GPS signal is weak or non-existent. A secondary threat is detecting and compensating for instances when the GPS signal is

compromised intentionally. GPS jammers are illegal, but they are inexpensive and commonly available on the internet, and one of these jammers unintentionally disrupted a GPS based aircraft landing system at Newark Liberty International Airport in 2013. A truly malicious attacker could go further and has been demonstrated, could spoof the GPS signal to trick the system into thinking it was in a different location. GPS signal synchronization is accomplished by atomic clocks embedded in each satellite. These clocks are key to computing the position of the reference vehicle but are too large to design into a vehicle navigation system. Incorporation of a *miniature atomic clock* in the vehicle navigation system will provide both an alert of a spoofing attempt, and mitigation of the disruption. Kearfott is seeking a partner to develop a miniature atomic clock and to participate in testing/validating the EGI performance gains that result from this resilience to GPS jamming and spoofing. The expected result is a new generation of high-accuracy inertial navigation systems that cannot be jammed or spoofed.

2. Inertial Navigation System that uses Fiber Optic Gyro (FOG) based on Inertial Measurement Unit (IMU) for sea and land navigation & guidance applications

There is an emerging demand for unmanned land and sea-based vehicles for applications such as harbor security inspections, inspection of remote infrastructure (oilrigs, pipelines, tunnels, bridges, etc.), and autonomous cargo transport. These vehicles require precise navigation solutions to operate both above and below the surface. Kearfott has served this market for decades with Ring Laser Gyro (RLG) based navigation systems, but Fiber Optic Gyro (FOG) based systems that are smaller, lighter, and less expensive are displacing RLG based systems. FOG technology is more suitable for many applications, due to longer life and no required maintenance. The prime contractors that integrate and build these systems typically require a US based source for navigation systems due to potential export restrictions imposed by the US and foreign governments. In order to serve this growing market, Kearfott is seeking an Israeli source of FOG navigation technology that can achieve performance equivalent to what an RLG based system provides today. Kearfott will work with the FOG manufacturer to integrate their sensors with its accelerometers and navigation processing algorithms to develop new high-performance navigation systems for land and sea-based vehicles.

3. Production transition for Fiber Optic Inertial Measurement Unit (IMU)

Kearfott is seeking an Israel based source of Fiber Optic Gyro (FOG) technology to improve its competitiveness in the commercial inertial navigation market. This market is growing due to the emergence of autonomous land, sea, and air vehicles for applications that include passenger transport (ex. Urban Air Mobility) and autonomous cargo transport (ex. Amazon parcel delivery). This project seeks innovative manufacturing production processes, facilities, equipment, and training

that can reduce production cost, production cycle time, and product variation. An additional goal is to develop processes that enable configuration flexibility at minimal cost. Kearfott and the selected partner will jointly develop these processes, validate at the partner's facility, and develop a transition plan. The transition will be incremental, starting with Kearfott building systems from high-level kits provided by the Israel partner, transitioning to Kearfott manufacturing lower level subassemblies and purchasing components from domestic sources. The desired result is for Kearfott to offer the high-performance FOG based inertial systems at the lowest possible cost and lead-time.

Projected financial commitment: \$500,000 for each of the joint R&D project listed above.

Contact information:

1. Daniel Ryan d.ryan@kearfott.com 414/336-6449
2. Michael Gerace m.gerace@kearfott.com 973/785-6062

4. FUNDING ELIGIBILITY

Applicants to this RFP are required to be R&D performing companies registered and operating in Israel. Universities and Research Centers can participate as sub-contractors, in line with IIA applicable rules and procedures.

The projects supported by this RFP should result in the development of a new or significantly improved product, process or service with significant technological innovation and with an industrial application intended for commercialization. The project should lead to market-ready products, processes or services and should have a reasonable potential to generate adequate revenues in the foreseeable future. Abilities of the companies to perform the R&D as well as the synergies between the Israeli and the New Jersey companies will be a necessary requirement . Commercialization expenses are not eligible for IIA's funding.

The New Jersey and Israeli companies are expected to contribute to the joint project budget in equal measure (50%) and in any case, if parity cannot be achieved, each company's contribution cannot be lower than one third of the total joint budget. Each company's contribution may consist of dedicated resources including, but not limited to, direct labor, equipment, expendable materials and supplies, subcontractors, consultants, and travel expenses. The IIA funding may cover up to 50% of the Applicant's share of the joint R&D project budget.

5. SUBMISSION OF FULL PROPOSAL AND AWARD OF FUNDING BY THE IIA

The joint R&D project proposals will be submitted by the Applicant to the IIA for approval under the IIA [track for Bilateral R&D](#).

The New Jersey company will submit to the NJEDA the joint R&D project proposal for information purposes only (hmorgan@njeda.com - subject line “RFEI #2019-RFEI-089 – Joint Project Proposal”).

The IIA will be solely responsible for determining which joint projects are eligible for grants according to its guidelines and regulations and will notify the NJEDA of the approved projects. The NJEDA will inform the New Jersey companies of the IIA’s decision.

The Applicants and their New Jersey partners must develop their own cooperation agreement(s) for IP sharing and terms of commercialization. Should the companies’ proposal be selected for award by the IIA, no funds will be released for execution until the companies have provided documentation of the cooperation agreement(s) that will be in effect for the duration of the project. A template outlining the content expected in the company-to-company cooperation agreement is provided in Appendix A.

COMMON PROJECT REQUIREMENTS AND EVALUATION CRITERIA

Proposals will be evaluated by the IIA based on the following common project requirements and evaluation criteria and in accordance with the IIA's funding requirements.

Technical Merit

- Significance of problem/opportunity
- Degree of innovation (novelty) of technology
- Technical feasibility

Commercial Merit

- Size of potential market
- Extent to which the need for the product or process can be validated
- Potential disruptiveness of the technology to be developed

Ability to carry out proposed research successfully

- Soundness of approach and work plan
- Adequacy of management plan
- Qualifications of key members of research team
- Strength of the partnership and compatibility between the Israeli and NJ company

Ability of project participants to commercialize resulting technology successfully

- Current position in market
- Adequacy of commercialization plan
- Ability to secure needed financing

Project Duration:

- If the proposed length of the project is more than one (1) year, milestones/deliverables will be required to show that significant progress has been made at the end of the first year.

Additional Requirements:

THE ISRAEL INNOVATION AUTHORITY HAS FULL DISCRETION AND AUTHORITY TO DETERMINE (1) WHICH APPLICANTS, IF ANY, RECEIVE GRANTS UNDER THIS PROGRAM, (2) THE AMOUNTS OF SUCH GRANTS, AND (3) WHETHER MATERIAL CHANGES TO THE PROJECT AS DESCRIBED IN THE APPLICATION SUBMITTAL DOCUMENTS ARE CAUSE FOR RESCISSION OF A PORTION OR THE ENTIRE GRANT AWARD. SUBMISSION OF APPLICATION SUBMITTAL REQUIREMENTS DOES NOT GUARANTEE AN AWARD OR RECEIPT OF ANY GRANT UNDER THIS PROGRAM.

New Jersey Economic Development Authority	Israel Innovation Authority
Holly Morgan, Senior Procurement Officer hmorgan@njeda.com (subject line "RFEI #2019-RFEI-089 – Joint Project Proposal") +1 609-858-6882	North American desk NA@innovationisrael.org.il +972-3-5118117

APPENDIX: COOPERATION AGREEMENT SKELETON

DESIGNATION OF THE PARTIES

Identify all the participating parties and their official representatives.

PREAMBLE

- Describe the context of the cooperation, its objectives and scope.
- Define the purposes of the cooperation agreement (i.e. to specify the relationship among the parties, in particular concerning the organization of the work between the parties, the management of the bi-lateral project and the rights and obligations of the parties, liability, intellectual property rights and dispute resolution).

ARTICLE 1 - DEFINITIONS

Define the key legal and technical terminology in order to avoid misunderstandings.

ARTICLE 2 - IMPLEMENTATION OF THE BI-LATERAL PROJECT

- Describe the project in general terms and refer to technical annex for details, including work packages, allocation of tasks, milestones and planning of the Bi-lateral project.
- Define the foreseen achievements in terms of deliverables.
- Describe the technical responsibility and contribution (personnel, facilities, equipment, materials, etc.) of each party in the implementation of the Bi-lateral project.
- Indicate how much and what kind of assistance parties are obliged to give to each other in order to secure the proper execution of the Bi-lateral project.
- Determine reports (financial, technical...) to be submitted and timetable.

ARTICLE 3 - PROJECT MANAGEMENT

- Define the roles and responsibilities of each party from an administrative, legal, financial and technical point of view. Specify the additional duties of the leading party.

- Define the internal organization of the consortium (e.g. management bodies, committees and/or working groups; communication between the parties, prior notification, etc.).
- Describe the different bodies: role and internal rules (i.e. how are the members appointed? how decisions are taken? how many and when meetings will be organized?)
- Define the procedures set up to monitor and follow up the Bi-lateral project from a scientific, technical and financial point of view.
- Describe procedures in case of additional tasks or review of the initial work plan.
- Determine conditions under which existing parties may withdraw from the Bi-lateral project or reduce or increase their contribution.
- Indicate to which extent subcontracting is possible.
- Define conditions under which additional parties may join the Bi-lateral project.

ARTICLE 4 - FINANCIAL ISSUES

- Indicate the global budget of the Bi-lateral project and the planning of expenses for each participant.
- If the planning is not observed, how and to which extent the schedule and budget may be adjusted?
- Indicate any national requirements (e.g. financial reports).

ARTICLE 5 - INTELLECTUAL PROPERTY RIGHTS

5.1 OWNERSHIP

- Define how the property of the project's results will be allocated between the parties.
- Describe how joint ownership will be managed.
- Define conditions under which property of pre-existing know-how and project results may be transferred between the parties and towards third parties (notably affiliated entities).

5.2 PROTECTION OF THE PRE-EXISTING KNOW-HOW AND PROJECT RESULTS

Indicate how the project's results will be protected (type of protection, duration, etc.).

5.3 ACCESS RIGHTS TO AND EXPLOITATION OF PRE-EXISTING KNOW-HOW AND PROJECT RESULTS

- Determine which and how pre-existing know-how (protected or not) has to be exchanged for the proper execution of the Bi-lateral project.
- Define the access rights (including financial conditions, if any) to be granted to use the pre-existing know-how and project results (protected or not) during the implementation of the Bi-lateral project.
- Define the access rights (including financial conditions, if any) to be granted for exploitation of project's results.

- Determine if and to which extent exclusive license may be granted between the parties and towards third parties.
- May sub-licenses be granted?
- Indicate whether access rights to third parties or affiliates are possible.
- Indicate how the parties will exploit the project results, i.e. jointly or separately.
- Indicate conditions for exploitation by third parties.
- Define potential royalties, or least principles for agreeing on potential royalties.

ARTICLE 6 - CONFIDENTIALITY

- Indicate to what extent information disclosed during the Bi-lateral project has to be considered as confidential.
- Stipulate which type of documents should be stamped and treated as "confidential" and the eventual exceptions.

ARTICLE 7 - PUBLICATIONS

Define to which extent publications of the project results are allowed and under which conditions.

ARTICLE 8 - LIABILITY

- Indicate to what extent a party causing damages or injury to another party or to goods or persons will be held liable.
- Define possible actions and financial penalties in case of damage or injury, including in case of withdrawal, fault or dismiss from the consortium.
- Define actions, solutions, penalties in case of bankruptcy.
- Provide for actions and remedies in case of *force majeure*.

ARTICLE 9 - FINAL CLAUSES

9.1 ENTRY INTO FORCE

Define when the cooperation agreement comes into force and ends. Indicate whether part or all of its provisions are concerned.

9.2 TERMINATION

Determine the termination clauses and the consequences of the withdrawal of one or more parties, particularly in terms of communication, ownership and exploitation of the project's results.

9.3 LANGUAGE

Define the language in which the cooperation agreement is drafted.

9.4 GOVERNING LAW AND COMPETENT COURT

- Provide for a governing law of the cooperation agreement.
- Decide and organize dispute resolution methods in case of internal conflict: competent court or alternative dispute resolution systems, like mediation, conciliation or arbitration.