Expression of Interest (EOI) for DST SEED Project No: SEED/WS/2023/643

For Industrial Assistance in the Preparation of a Prototype Model for a Multifunctional Agricultural Robot

Issued by: JSS Academy of Technical Education Noida (JSS University Noida)
Date: 5-12-2024

Introduction

JSS Academy of Technical Education Noida (JSS University Noida) invites Expressions of Interest (EOI) from qualified and experienced industries, or engineering firms for **industrial assistance in the preparation of a prototype multifunctional agricultural robot**. The proposed robot will cater to diverse farming operations, including **seeding, disease detection, plant monitoring, spraying, harvesting, weed removal and plant management.**

The objective is to leverage advanced robotic technology to increase productivity, efficiency, and sustainability in the cultivation of crops such as **garlic, carrot, fennel, and turmeric.**

Scope of Work

The selected partner will assist in the development of a prototype model for the multifunctional robot, focusing on the following:

1. Design and Development of Various Robotic Functions

- **Weeding Tools:** Mechanisms for automated weed removal.
- **Seeding Mechanism:** Precision planting systems suitable for garlic, carrot, fennel, and turmeric crops.
- **Disease Detection Systems:** Integration of AI-enabled sensors and cameras to detect plant diseases in real-time.
- **Plant Monitoring:** Tools to gather data on crop growth, soil health, and environmental factors.
- **Spraying Mechanism:** Development of targeted organic fertilizer/ pesticide spraying systems.
- **Harvesting Tools:** End-effectors designed for efficient crop harvesting.

2. Development of Robotic Vehicle

- Design and fabricate a **mobile robotic platform** capable of navigating diverse field conditions.
- Ensure adaptability for specific tasks related to garlic, carrot, fennel, and turmeric cultivation.
- Integrate autonomous and semi-autonomous capabilities for field operations.

3. Prototype Testing and Optimization

- Conduct field trials to evaluate performance under real-world conditions.
- Optimize the prototype based on test results to ensure reliability and efficiency.

Eligibility Criteria

Interested industries must demonstrate:

- Proven expertise in **robotics, automation, or agricultural engineering.**
- Experience in developing robotic systems for **farming applications.**
- Availability of technical resources, including design and fabrication capabilities.
- Ability to collaborate effectively with researchers and agricultural experts.

Submission Requirements

Interested parties are requested to submit their EOI, including:

1. **Cover Letter**
   - Brief introduction of the organization.
2. **Technical Capability Statement**
   - Relevant experience, past projects, and technical expertise in similar fields.
3. **Team Composition**
   - Details of the proposed team, including qualifications and roles.
4. **Timeline and Milestones**
   - Tentative schedule for prototype development and testing phases.
5. **Cost Estimate**
   - Preliminary budget estimate for the scope of work.

Evaluation and Selection

Submissions will be evaluated based on:

- Technical feasibility of the proposed approach.
- Demonstrated expertise and track record.
- Cost-effectiveness and alignment with project objectives.
- Innovation and adaptability of the proposed solutions.

Submission Deadline

All EOIs must be submitted via email on or before 8-12-2024 by 5:00 PM.

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