NOTICE INVITING EXPRESSION OF INTEREST

FOR

TRANSFER OF TECHNOLOGY
FOR
"INTEGRATED BIDIRECTIONAL DC-DC CONVERTER"

EOI No.:

इलेक्ट्रॉनिकी एवं
सूचना प्रौद्योगिकी मंत्रालय
MINISTRY OF
ELECTRONICS AND
INFORMATION TECHNOLOGY

सत्यमेव जयते

National Institute of Technology, Uttarakhand

1. Introduction

Convergence, Communications & Broadband Technologies (CC&BT) have been recognized as critical growth and development technologies. R&D in the next generation of Communication and Broadband Technologies has been the engine for economic growth and infrastructure for promoting innovation. Research and Development in cutting-edge technologies ensure that citizens can take full advantage of increasingly pervasive digital services across the plethora of existing and emerging use cases and verticals. Convergence, Communications & Broadband Technologies (CC&BT) is a program launched by the Ministry of Electronics and Information Technology (MeitY), Govt. of India. R&D in Convergence. The Ministry of Electronics and Information Technology (MeitY) has initiated a program for the Indigenous Development of Electric Vehicle Sub-systems.

Under the program mentioned above, NIT Uttarakhand created an indigenous, efficient, integrated bidirectional dc-dc converter for e-Rickshaws.

About Integrated Bidirectional Converter Technology:

The subject of this invention is a solar power integrated bi-directional non-isolated DC-DC converter for use in an e-rickshaw. The bi-directional DC-DC converter integrated with a solar panel can improve the battery's performance in both forward and regenerative operation modes, thereby improving efficiency and extending the driving range in hilly terrain. The integrated converter for solar-powered e-rickshaw with the following key findings: The proposed zeta-sepic bidirectional dc-dc converter will boost the voltage to 60 V, reducing the current vehicle dynamics requirement. In the existing e-rickshaw, the under-voltage lockout condition is fixed at 42 volts (i.e., an output voltage of the battery). This under-voltage lockout condition can be avoided by up to 38 volts of battery voltage using the proposed integrated converter.

Features of Integrated bidirectional converter

- *Operate high power motor up to 1.5kW*
- *Control bidirectional power flow*
- *Rooftop monocrystalline solar panel of rating 320W*
- *Maintain constant dc bus voltage up to 60V under maximum of 2% ripple*
- *Easily fitted and ready to operate with any e-rickshaw*
- *Fulfill torque requirement for hilly terrain*
- *Controller Type: Digital PID and MPPT*
- *Operating Range :40 -60V DC (bidirectional)*
- *Rated Power: 1.5kW*
- *Elevated Angle: 0-7° (IRC:SP:48-1998 and IRC:52-2001)*
- *Provides MPPT Operation with Solar Panel up to 310 Watt*
- *Converter Efficiency > 95%*

- *Solar Power Extraction: Up to15% of battery capacity (4.8kWh)*
- *Up to 150 Wh of more regenerative power extraction in hilly terrain*

2. Application Areas/Scope of Work

This technology will be very much suitable for

- *E-rickshaw and EVs Industry*
- *Electric Vehicles and High-power Applications*
- *Charging Stations*
- *Power Electronics and Drive Applications*

3. Technology Transfer

The technology will be transferred on non-exclusive basis. The technology fee will be finalized at a later stage.

The ToT package contains the following:

3.1 Document(s) for technology know-how and fabrication, schematics of the system

3.2 Bill of Materials of the system

3.3 Support for the Development and function of proper unit testing and validation

3.4 Technical support for a period of 6 months

4.EXPRESSION OF INTEREST

4.1 Institution invites "Expression of Interest in the format given in Annexure-I (which may require customization based on the technology /product/ service /prototype being transferred). The industries will be shortlisted based on the information furnished in Annexure – I and assessment by the TOT committee.

4.2 The submission of the EOI shall include all such documents that are specified herein to prove the authenticity of their offer and any claim made therein. The burden of proving such claims shall lie with the bidder.

4.3 All cost and expenses associated with submission of EOI shall be borne by the bidder while submitting the EOI and Institution shall have no liability, in any manner in this regard, or if it decides to terminate the process of short listing for any reason whatsoever.

5. General terms and conditions

5.1 An expert committee constituted by NIT Uttarakhand will scrutinize the applications for follow-up action.

5.2 The applicants may be called for a presentation regarding their strengths and business proposals.

5.3 All incidental expenditure incurred in preparation/ submission or

presentation of the EoI shall be borne by the participating agency.

5.4 Participation in this EoI does not guarantee any association with NIT Uttarakhand unless notified by NIT Uttarakhand in writing.

5.5 NIT Uttarakhand reserves the right of rejecting any offer without assigning reasons.

5.6 There is neither a business guarantee nor any commitment for funding support from NIT Uttarakhand to the appointed/ empaneled agencies.

5.7 A Committee of experts constituted by NIT Uttarakhand will assess capabilities and strengths of the industry before finalizing the technology partners.

5.8 The industry willing to take technology for commercial production will be required to enter into a ToT agreement with NIT Uttarakhand as per the terms and conditions approved by the competent authority in the NIT Uttarakhand in the prescribed format.

6.Eligibility

Industries with experience in productization of Power Electronics Technology can apply. Professionally managed companies, Corporate and Startups are also welcome to apply for the technology.

7.How to apply

Interested companies/industries may send expression of interest with their details by filling the EoI form as per Annexure – I to the following address.

Dr. Prakash Dwivedi
Associate Professor
Department of Electrical Engineering
National Institute of Technology, Uttarakhand
Srinagar (Garhwal)-246174
Ph: 01346-257-475 (extn)
Email: prakashdwivedi@nituk.ac.in

Annexure-I

Details of Expression of Interest

(To be filled by the organization interested in technology transfer from NIT Uttarakhand)

Sl No.	Description of Items	Details from Organization
1.	Name of the Organization Address of registered office with telephone no. & fax	
2.	Certificate of registration as a manufacturing unit	
3.	Permanent Account Number	
4.	Sales Tax Number/ VAT	
5.	Status of ISO9001/ISO13485 Certification	
6.	Contact Details Name Designation Address for Comm. Email & Phone	
7.	About Organization Website if vailable	
8.	Any Additional Technology development request	
9.	Readiness level to take the technology	
10.	Any other information request	

11.	Feedback on the information shared by NITUK	

Declaration

I/We hereby confirm that I/we are interested in the above technology and would productionize it as per terms and conditions. All the information provided above is genuine and accurate.

Authorized Person's Signature.

Name and Designation:

Date of Signature: