



भारतीय प्रौद्योगिकी संस्थान गुवाहाटी
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IIT Guwahati students selected for Prime Minister's Research Fellows Scheme

Students of the Indian Institute of Technology Guwahati have been selected for the Prime Minister's Research Fellows (PMRF) Scheme that has been announced recently. A total of 14 students have been selected for the scheme through the channel of Lateral Entry.

The PhD students selected for the PMRF fellowship this year are pursuing research in interdisciplinary and forefront areas at various departments and centres such as Departments of Design, Mechanical Engineering, Electronics and Electrical Engineering, Physics, Chemistry, and the Centres for Nanotechnology, Rural Technology, Energy and Environment.

Speaking about the PMRF scheme, Prof. T. G. Sitharam, Director, IIT Guwahati, said, "This initiative by the Government of India will attract the best talent from the country for pursuing high-end research at IIT Guwahati and realise the vision of the Hon'ble Prime Minister of high-end multidisciplinary technology development and self-sustenance (Atmanirbhar) through innovation. IIT Guwahati and its faculty

members are ready to help the selected PMRF recipients realise their full potential and guide them, so that these awardees can achieve their long-term career goals and contribute to the growth of the country".

The students who have been selected for the PMRF scheme 2020 are:

Name of the PhD student	Department/Centre
Neelarnab Dutta	Department of Design
Rupresha Deb	Department of Mechanical Engineering
Jegyasu	Department of Electronics and Electrical Engineering
Rajnandan Das	Department of Physics
Samik Mitra	Department of Physics
Sampreet Kalita	Department of Physics
Subhankar Biswas	Department of Chemistry
Tripti Paul	Department of Chemistry
Kumudhini Akasapu	Centre for Rural Technology
Souradeep Dey	Centre for Nanotechnology
Ankit Chowdhury	Centre for Nanotechnology
Kakali Borah	Centre for Energy
Himadree Das	Centre for Environment
Aniket Banerjee	Centre for Environment

According to the PMRF scheme, each fellow will be eligible to get a monthly fellowship of Rs. 70,000 for the first two years, Rs. 75,000 for the 3rd year, and Rs. 80,000 in the 4th and 5th year. In addition to this, each fellow would be eligible for a research grant of Rs. 2 lakh per year (a total of Rs 10 lakh for five years).

After the selection, every fellow will be given deliverables to be achieved each year. The deliverables will be decided by the assigned guide. The deliverables will be designed while keeping in view the research topic selected by the fellows and are also likely to be reviewed annually for the progress of their research objectives.

The Prime Minister's Research Fellows (PMRF) scheme was announced in the 2018-2019 Budget and has been designed for improving the quality of research along with providing unparalleled research opportunities in various higher educational

institutions in the country. The scheme is administered by the Ministry of Education and aims to propel and promote the growth of engineers and scientists through constant annual reviews and weightage recorded in accordance to the publication in reputed journals and conferences.

The Government of India has amended the Prime Minister's Research Fellowship (PMRF) scheme by allowing lateral entry and also modifying the minimum score required to be eligible for the scholarship. As per the revised scheme, the minimum score in the Graduate Aptitude Test in Engineering (GATE), has been reduced from 750 to 650. In addition to the direct entry, provision for lateral entry has also been made permitting ongoing PhD students who have already been enrolled for 12 or 24 months to avail this fellowship. This has allowed more and more students to benefit from this prestigious fellowship.



IIT Guwahati students' start-up, Sahara, develops mobile application for offline to online business services

Sahara, a hyperlocal-tech startup of the students of the Indian Institute of Technology Guwahati, have developed a mobile application that lets offline business owners create synergy with customers and potential business partners on a global platform with the power of digitalisation. The members of this strategic vision are Mr. Sai Vara Prasad, Co-Founder and COO; Mr. Sai Praneeth, Co-Founder and CEO; Mr. Rahul Nagurtha, Technical Advisor; Mr. Praveen Kumar, Business Advisor; and Mr. Shiv Kumar, Operations Advisor.

Inspired by the 'Atma Nirbhar Bharat' initiative, this entrepreneurial endeavour is determined to deliver 'Made in India' solutions by providing the best services to the people and encouraging existing offline businesses to convert to online business to have diverse opportunities. With the idea of one-stop solution for everything that people require, from food to shelter, the aim is to provide services that stand up to international quality standards at fairly low costs. The features on this app will also guarantee accurate navigating experience, especially to travellers, in the form of local language translation service, security for travellers by providing assistance in establishing contact with respective traveller's embassy in case of emergency, emergency and SOS service especially for women etc.

Talking about the features of the application, Mr. Sai Vara Prasad, said, "The only aim of Sahara is to provide you best services whenever you go. It'll be the best app for the whole travel industry, where travellers can indulge in local cultures easily, travel enthusiasts can take their blogging to a whole new level, as they can post media, and can also share to other social media platforms, which will be visible to anyone who visits or search for that place. For the safety of travellers, we have added many features".

Speaking about the idea behind the application, Mr. Sai Praneeth, said, "A Nielsen report estimates about 12 million Kirana stores in India, with a humongous 98% share of retail grocery market pumping billions worth monetary transactions into economy. Sadly, 98% of these establishments fall into unorganised sector because they lack access to basic digital

infrastructure secluding them from outreach of potential customers. We are set out to revert this. We will empower them to earn their equity in the booming digital economy. It's a win-win game. Oligopoly is always a better world. See, buying from local does make a difference, and with Sahara, it'll be a Great Experience."

In the present scenario, where the pandemic has pushed the global economy into recession due to the lockdown, Sahara focusses on aiding the businesses by providing safe and extensive network operation from their home. This strategic approach tackles the challenges imposed by the lockdown and extends the boundaries for profitable financial recovery. This approach will further strengthen the local economy of a country.

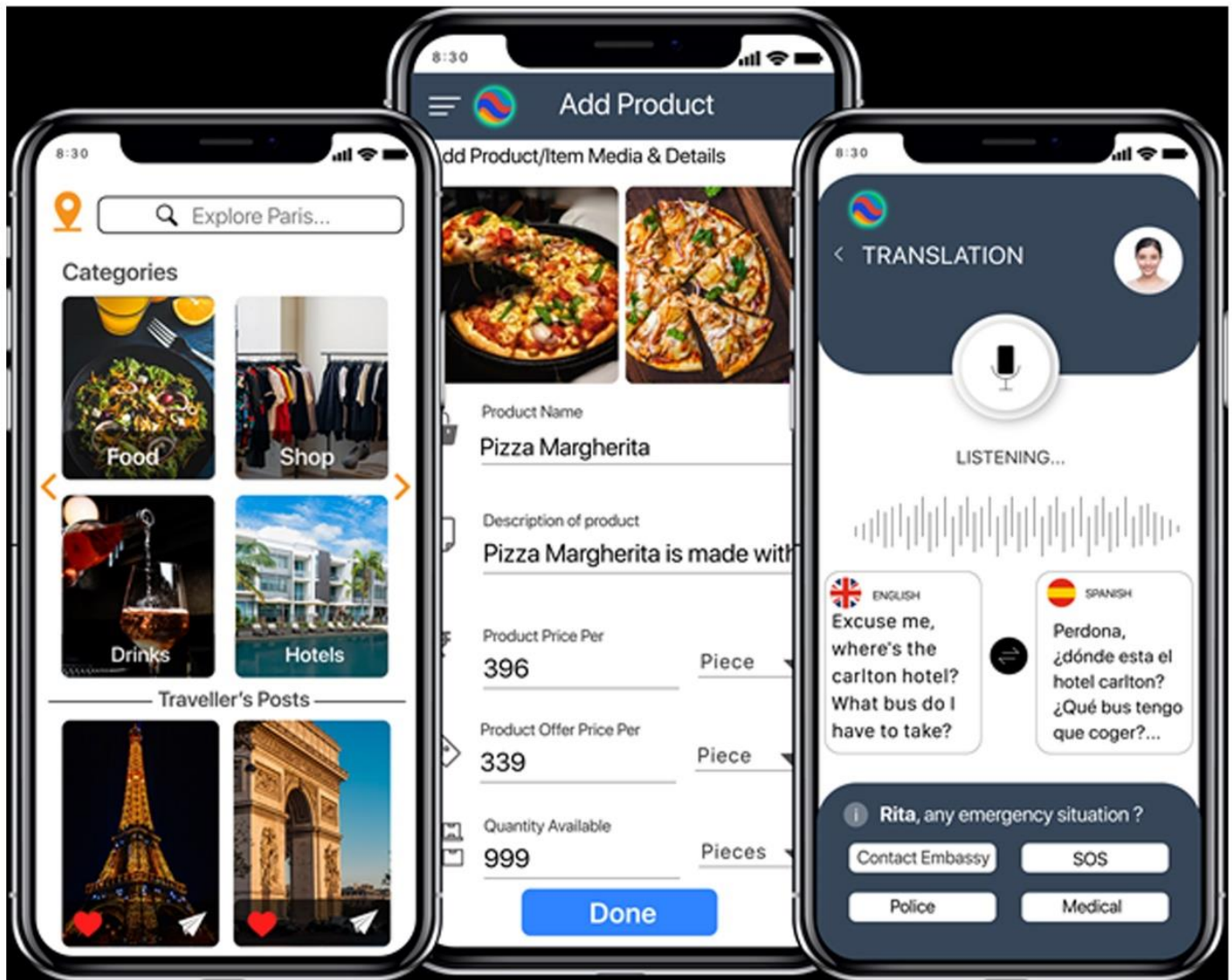
"Our goal is simple and our vision is brilliant just like our Sahara", said, Mr. Shiv Kumar.

The Sahara start-up app is designed keeping in mind to provide a seamless experience to individuals and retailers who may not have had any prior knowledge of the application. It enables businesses to register through their mobile application in simple and easy steps which includes submission of details related to the consumer/business product, phone-based verification and their respective geolocation.

Considering the operational benefits it can provide and its mission to convert every offline business to online, Sahara app has been launched and is available on the Google Play store.



Screenshot translation and Emergency



Screenshot of the application - Sahara

IIT Guwahati collaborates with Centre for Development of Advanced Computing for Establishing a Supercomputing Facility under the National Supercomputing Mission

Indian Institute of Technology Guwahati signed a Memorandum of Understanding (MoU) with the Centre for Development of Advanced Computing (C-DAC), Pune, today, 12th October 2020, to establish Rs. 17 crore worth of 650TF Supercomputing Facility under the National Supercomputing Mission (NSM). The MoU has been signed for a period of five years. This system will consist of 10 master/service nodes, 107 CPU only compute nodes, 10 GPU nodes and 39 High Memory CPU only compute nodes.

A supercomputer is a computer that has very high speed in its operation and higher memory. This supercomputing system can perform assigned tasks

including multiple tasks at very high speeds than any other normal personal computer (PC) and in many cases are able to operate at speeds that are millions of times faster than ordinary PCs.

The MoU was signed by Prof. T.G. Sitharam, Director, IIT Guwahati, and Dr. Hemant Darbari, Director General, C-DAC, India, during a virtual event in the presence of Sh. Sanjay Dhotre, Hon'ble Union Minister of State for Education, Communications and Electronics & Information Technology, Government of India, and Prof. Ashutosh Sharma, Secretary, Department of Science and Technology, Government of India.

Using the Supercomputing facility, the Institute will focus on quantum turbulence, instabilities and turbulence in thermal convection and MHD, supercooled liquid and glasses; reactivity of high-valent metal intermediates; computational study of polymer-composites, membranes, poly electrolytes, granular flows; NLP, clinical text mining, Machine Learning and its application in computational biology, Deep Learning; and Computational Social Systems areas of research.

The new Supercomputer at IIT Guwahati with 650 TFLOPS is more powerful and a technologically superior facility, which will play an important role in the field of scientific and engineering applications such as quantum mechanics, climate research, oil and gas exploration, molecular modelling, weather forecasting, spacecraft aerodynamics, computational systems biology and detonation simulations including the handling of large databases using Artificial intelligence models.

Speaking about the future plans during the MoU signing ceremony, Prof. T.G. Sitharam, Director, IIT Guwahati, said, "Computer and Communication Centre is already equipped with Param Ishan, the 250 TF supercomputer that the Institute has had for four-years now. The Centre will also house the new

supercomputer. IIT Guwahati plans to turn this Computer and Communication Centre into an Academic Centre. It will amalgamate with the newly planned Department of Data Sciences and Knowledge Engineering. About 80 faculty members and 600 students of IIT Guwahati are active users of Param Ishan and are eagerly waiting for the new system to become available".

IIT Guwahati will organize training courses to popularise the use and applications of supercomputers in the northeastern region and other major missions of the Government of India. IIT Guwahati is also planning to link this facility with our new interdisciplinary master programme on data sciences jointly initiated by the Departments of Electronics & Electrical Engineering, Computer Science & Engineering and Mathematics

C-DAC, Pune, will install the Supercomputing facility using the building approach of NSM in IIT Guwahati, which will provide necessary Data Centre space, power with back up, cooling, etc. for the facility. This new hybrid Supercomputing system will not only boost the HPC usages and research environment in the Institute but also enhance the research capability of the Northeast Region.



Prof. T.G. Sitharam, Director, IIT Guwahati, during the virtual event for signing the MoU with C-DAC, Pune

IIT Guwahati forges ahead with industry and academia partnerships to bolster research activities

Indian Institute of Technology Guwahati recently entered into various agreements with academia and industry to foster academic and research activities and to enhance its global outreach and strengthen its existing international collaborations.

The onset of the COVID-19 pandemic has resulted in many academic and research activities being disturbed worldwide. However, despite the pandemic, the Institute continued to connect with academia and industry to promote collaborations ranging from student and faculty exchange, joint research projects, and student internships. The Institute also continued to connect with its existing global partner institutions to ensure continued collaborations and strengthen relations with existing international partners.

Speaking about the initiatives behind these collaborations, Prof. T. G. Sitharam, Director, IIT Guwahati, said, "IIT Guwahati actively engages in collaborations with international and national academics, research institutes/organisations and industry. IIT Guwahati has already initiated international collaborations with countries such as Japan, Philippines, Malaysia, Australia, USA, Canada, Taiwan, South Korea, Bhutan, Iceland and several European countries. Such collaborations will create new opportunities for the faculty and students for enhancement of knowledge, performing cutting edge research and development, internships, joint programmes, invite visiting faculty and students, enhancing professional skills and networking opportunities".

IIT Guwahati signed an agreement with the National Institute for Material Sciences (NIMS), Japan, on 24th July 2020. The agreement is on an International Cooperative Graduate Programme which will provide joint doctoral research guidance to PhD students of IIT Guwahati at NIMS, Japan. The programme will provide excellent exposure to the students of IIT Guwahati for the duration of 6 months to 12 months and provide them access to the laboratories and facilities at NIMS, Japan. The agreement was signed by Prof. T. G. Sitharam, Director, IIT Guwahati, and Kazuhito Hashimoto, President of NIMS, Japan.

Another important collaborative agreement IIT Guwahati had undertaken is the signing of the Strategic

Collaboration Agreement with NXP India Private Limited to facilitate the proliferation of VLSI Design & Embedded Systems knowledge in IIT Guwahati and NXP by undertaking research projects with the involvement of the faculty and students from the Institute along with NXP employees. The agreement also encourages jointly guided doctoral research with part of the work done using NXP eco-system. In addition, enabling IIT Guwahati M.Tech/B.Tech students to get exposure to practical R&D scenario in semiconductor industry through collaborative M.Tech/B.Tech projects guided jointly by IIT Guwahati faculty and NXP personnel. The agreement was signed between Prof. T. G. Sitharam, Director, IIT Guwahati, and Mr. Sanjay Gupta, Vice President & India Country Manager, NXP Semiconductors on 31st August 2020 for a period of 5 years.

Furthermore, IIT Guwahati also entered into agreements with the following international education institutions for a period of 5 years:

1. Mariano Marcos State University, Philippines
2. Tripartite agreement with Nova University Lisbon and NOVA.ID.FCT
3. UiT, The Arctic University of Norway
4. Edith Cowan University, Australia

The agreements focus on collaborative research activities, exchange and internship programmes for undergraduate and graduate students and academic staff. The agreements have been signed on behalf of IIT Guwahati by Prof. T. G. Sitharam as the Director, Prof. Rakhi Chaturvedi as Institutional Coordinator and by the concerned Faculty Coordinators.

IIT Guwahati also signed an Erasmus+ Agreement with the University of Iceland, Reykjavik, Iceland. Erasmus+ is the European Union programme for education, training, youth and sports with partner institutions. It encourages the mobility of students, staff, youth workers, and young people. Organisations can arrange to send or receive students and staff to or from participating countries, as well as organise teaching, training, learning activities. Under Erasmus+ programme, partners aim to modernise education, training and youth work across Europe. It is open to education, training, youth and sport organisations across all sectors of lifelong learning, including school education, further and higher education, adult education and the youth sector. Prof. T. G. Sitharam, Director, IIT Guwahati, and Nanna Teitsdottir, Erasmus + Coordinator, Project Manager, on 18th August 2020 for a period of 3 years.

IIT Guwahati has received many applications from international students applying for its Masters and PhD programmes. Amidst this pandemic, IIT Guwahati received and processed 86 international applications through various agencies and institutions, such as the Indian Council for Cultural Relations (ICCR) under Ministry of External Affairs, India; ASEAN Countries; Study in India programme of Ministry of Education; TWAS-DBT; Ministry of Education, Ethiopia; and other self-sponsored applicants for the Master's and PhD programme in various departments. The Institute has issued Admission Offer Letters to 18 foreign students during this period for admission to the 2020 session.

All the agreements are to develop and nurture collaborative academic and research relationships with partner institutions, which enables researchers to access additional, often specific, expertise, gain new perspectives on research and build relationships with others in the field.

IIT Guwahati in association with Berger Paints launches a multi surface protector named "BreatheEasy Safe 24"

Indian Institute of Technology Guwahati in association with Berger Paints has launched a multi surface protector named "BreatheEasy Safe 24". The innovation protects surfaces from germs, bacteria and viruses for a period of 24 hours and prevent its spread. The product can protect desk, car seat, door handle, keys, buttons, bags etc. from the viruses.

The innovation is designed on the Advanced Nanosilver Technology and is a specially formulated alcohol free and environment friendly product. It is developed by Prof. Biman B. Mandal, Professor, Department of Biosciences and Bioengineering, and his research team at IIT Guwahati.

Speaking about the technology and its potential Prof. Biman B. Mandal said, "Safe 24 stays active for extended period of hours on the application surface. Its special formulation forms a protective nano-silver coating which fights bacteria and virus as validated by standard protocols. We feel that this product would make our everyday lives safer in these trying time and beyond."

As the COVID-19 pandemic has spread to almost all corners of the country, the Government wanted the research institutions and corporates to merge ideas

to form innovative solutions to help fight the coronavirus pandemic. Over the course of the past few months, India has led the way by building innovating products and BreatheEasy Safe 24 is a positive step in the journey.

Speaking about the innovation, Prof. T. G. Sitharam, Director, IIT Guwahati, said, "IIT Guwahati has been instrumental in designing several projects in helping the society and the nation fight COVID-19. BreatheEasy Safe 24 is a true outcome of academia-industry collaboration lead by IIT Guwahati".

One can simply use the product by spraying it on the from a distance of 20 to 25 cm and wipe the surface after 30 second of spraying.

Elated on the occasion of the launch of "BreatheEasy Safe 24", Mr. Abhijit Roy, MD and CEO Berger Paints, said, "Berger Paints has always been a front runner in innovating customer centric products. With economic activities gradually picking up, there was an evolving demand for a product that can protect for a longer duration. It was a pleasure to bring IIT Guwahati's technology to the Indian consumer as it catered to a big need gap."

As more and more people are stepping out of their homes, personal hygiene and safety becomes pivotal in restricting the spread of Coronavirus until a vaccine is found. The Institute is keen to join hands with industry partners to explore the wide range of applications the technology promises.





Professor Mihir Kumar Purkait has been awarded the prestigious Abdul Kalam Technology Innovation National Fellowship for his research on green tea. The fellowship will support Prof. Purkait's research in the area of prototype development for antioxidant extraction from tea leaves, that will help produce low-cost antioxidant tablets & capsules.



Prof. Parameswar K. Iyer, Department of Chemistry and Center for Nanotechnology IIT Guwahati has been invited to join the Editorial Advisory Board (EAB) of ACS Sensors for a period of three years from 01 January 2021 in recognition of his notable research in the area of Sensors.



Dr. Uttam Manna, Department of Chemistry and Center for Nanotechnology has been invited by the Royal Society of Chemistry (RSC) to become Fellow of the Royal Society of Chemistry (FRSC) in recognition of his significant contributions to the study of Bio-inspired Polymer Materials, Drug Delivery, Open Microfluidics and Chemical Sensors.



IIT Guwahati alumni Dr. Kushal Sinha has received the prestigious AIChE35 Under 35 Award. The AIChE 35 Under 35 Award honors engineers under the age of 35 who have made significant contributions to the Institute and to the chemical engineering profession.



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