महाराष्ट्र MAHARASHTRA ◐ 2019 ◐ AV 660802

अनु.क्र. 303 दि. 9/6/2020 मु.शु.रक्कम 500/-

दस्ताचा प्रकार करारनामा

दस्त नोंदणी करणार आहेत का? होय/नाही

मिळकतीचे वर्णन

मुद्रांक विकत घेणाऱ्याचे नांव Codex Solutions Pvt. Ltd.

पत्ता

दुसऱ्या पक्षकाराचे नांव Hope Foundation's International Institute of Information Technology (I²IT)

हस्ते व्यवहाराचे नांव व पत्ता फेब्रुवारी रवाना

सौ.अंजली दिपक दिवेकर
परवाना क्र. २२०१९६
गांधीपेठ पेंचवड, पुणे

मुद्रांक विकत घेणाऱ्याची सही

वरिष्ठ कोषागार अधिकारी
पुणे
03 JUN 2020
प्रथम मुद्रांक विक्रीचा
कोषागार पुणे करिता

Services Agreement
by and between

Codex Solutions Pvt. Ltd.

and

Hope Foundation's

International Institute of Information Technology (I²IT), Pune

This Services Agreement ("SA") is made and entered into as of March 06, 2020, ("Effective Date") by and between

CODEX SOLUTIONS PVT LTD, a company incorporated under the laws of India bearing CIN U52599PN2016PTC158527, having its registered office at Building No. 13, Pasaydan Co-op. Hsg. Society Ltd., Lokmanya Nagar, Pune 411030 ("CODEX").

and

Hope Foundation's International Institute of Information Technology (I²IT), an educational and research institution accredited by the National Assessment and Accreditation Council (NAAC), New Delhi and offering 4 years full-time Undergraduate Engineering Courses approved by the All India Council for Technical Education (AICTE), New Delhi and affiliated to the Savitribai Phule Pune University (represented by its Principal Dr. Vaishali V. Patil) having its campus situated at Plot No. P-14, Rajiv Gandhi Infotech Park, MIDC, Hinjawadi – Phase I, Pune – 411 057, Maharashtra, India ("I²IT").

WHEREAS, Codex desires to engage I²IT to perform certain Services for Codex, and I²IT desires to perform such Services for Codex, all upon the Terms and Conditions set forth in this SA.

NOW THEREFORE, for good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, I²IT and Codex intending to be legally bound thereby agree as follows:

1. SERVICES

1.1. **Scope of Services**. This SA represents the terms and conditions under which I²IT shall provide certain services to Codex pursuant to Statements of Work ("SOWs") developed in accordance with the terms set forth in this Section (each a "Service"). Each Service will be implemented in accordance with a SOW. Additionally, all SOWs shall include the items referenced in Section 1.2.

1.2. **Contents of SOWs**. Each SOW shall include: (a) an incorporation by reference of the terms of this SA; (b) the start date of the Service; (c) a description of the Service to be performed by I²IT; (d) fees for the Service and expenses to be reimbursed by Codex ; (e) the names of key Service personnel; (f) billing information; (g) shall be executed by I²IT and Codex ; and (h) such other information as may be pertinent to the Services to be performed by I²IT or as may be mutually agreed to by the parties. It is expressly agreed that Codex shall not be liable for any fees or obligations contained in any SOW, unless and until Codex signs each SOW prior to I²IT performing said work therein. This SA, and any SOWs that may be entered into by the parties (collectively, the "Agreement"), set forth the sole and exclusive duties and obligations of I²IT.

1.3. **Codex's Responsibilities**. Codex shall, in connection with this SA and each SOW, be responsible for the following.

1.3.1. Designating the Service Executive, as provided in Section 4.1 hereof.

1.3.2. Providing sufficient, qualified personnel who are capable of performing Codex 's duties, tasks, and obligations under this SA and any SOWs in a timely, competent, professional, and workmanlike manner.

1.3.3. Providing Codex with use of such support services (including network IDs and passwords, e-mail, and assistance in configuring such services) as Codex may reasonably request for use in the performance of the Services under this SA. I²IT shall at all times comply with all applicable employee privacy laws in effect and applicable during the course of this SA and shall take affirmative measure to protect the privacy of Codex's employees.

1.3.4. Performing such other duties and tasks as may be reasonably required to permit I²IT to perform its duties, tasks, and obligations under any SOW.

1.4. **I²IT Responsibilities**: In addition to the duties and obligations set forth in each SOW, I²IT shall, in connection with this SA, be responsible for the following:

1.4.1. Designating the Service Executive, as provided in Section 4.1 hereof.

1.4.2. Employ sufficient, qualified personnel who are capable of performing I²IT duties, tasks, and obligations under this SA and any SOWs in a timely, competent, professional, and workmanlike manner.

1.4.3. Protecting all Codex data, employee privacy and all other Confidential Information of Codex.

1.4.4. Performing such other duties and tasks as may be reasonably required to permit Codex to perform its duties, tasks, and obligations under any SOW.

1.5. **Relationship of Parties**. The parties acknowledge and agree that I²IT is an independent partner / associate of Codex , and that the personnel used by I²IT in connection with any Services performed by I²IT pursuant to this SA are not employees of Codex and shall not be entitled to any benefits provided to, or rights afforded by, Codex or its affiliates to its employees, whether by operation of law or otherwise. Codex shall make no deductions from fees paid to I²IT for any state, central, or local taxes as applicable for the financial transactions processed in India including, but not limited to, deductions for income tax withholdings and taxes if applicable. I²IT shall be responsible for the income tax withholdings and other payments related to its own personnel.

1.5.1 **Partners / Associates.** Codex acknowledges and agrees that I²IT may retain the services of independent Consultants ("Project Engineers") from time to time to perform, or assist I²IT in performing, Services under this SA and any SOW. I²IT agrees to request and obtain written consent, which shall not be unreasonably withheld, from Codex for Project Engineers retained by I²IT in support of Codex. All Project Engineers shall perform such Services under I²IT direction and control. I²IT agrees that the use of any such Project Engineers shall not relieve I²IT of any of its duties, responsibilities or obligations under this SA and shall not create a contractual relationship or a third party beneficiary relationship of any kind between Codex and such Project Engineer/s.

1.6. **I²IT Personnel**. I²IT shall have exclusive authority to make staffing decisions with respect to its personnel and the provision of Services under this SA. I²IT reserves the right to reassign any of its personnel upon written notice to Codex; provided, however, that in the event of any such reassignment, the Services shall continue to be provided in accordance with the terms of this SA and the applicable

SOW. I²IT shall provide Codex a list of names of all personnel that will be performing work for Codex, prior to the performance of said work.

1.7. **Codex 's Policies and Procedures**. I²IT shall, in connection with its performance of Services under this SA and any SOWs, adhere to the policies and procedures of Codex that have been communicated to I²IT in writing in order to minimize any disruption to Codex 's personnel, customers, and general working environment.

2. SERVICE FEES AND PAYMENT

2.1. **Service Fees**. Codex shall pay to I²IT the Service Fees. Such costs shall include salaries and salary related costs, as well as all communication, administration, infrastructure and other costs incurred for providing services including depreciation.

2.2 **Invoice Frequency**. I²IT will invoice Codex on the first day of each month for the Total Monthly Charges, as set forth on the SOW for the month immediately preceding.

2.3 **Payment of Invoices**. Payments are due thirty (30) days after the invoice date. Each invoice shall contain a detailed statement of the work completed pursuant to each invoice. I²IT may immediately suspend all Services if any amount is more than fifteen (15) days past due and may continue to suspend the service until all due and unpaid amounts are paid in full. All fees and prices are set forth-in Indian Rupee excludes any taxes, duties, fees, and/or other governmental charges of any kind which are imposed by or under the authority of any government or political subdivision thereof. Any and all such taxes, duties, fees, and/or other governmental charges which I²IT may be required to pay on account of its performance under the Agreement shall be borne by Codex, and shall be considered an integral part of such invoice for the Services due to I²IT by Codex.

Goods & Service Tax would be charged by I²IT wherever applicable as per applicable rates on the services rendered. Any other present or future taxes/levies including but not limited to GST that may be levied (whether the same operates retrospectively or prospectively) and becomes applicable on the kind of Services rendered by I²IT to Codex and the same shall be payable by Codex.

2.4. **Disputed Amounts**. In the event that Codex has a good faith dispute with regard to any portion of an invoice, Codex will make timely payment of the undisputed portion as provided herein, and Codex will provide I²IT with written notice within fifteen (15) calendar days setting forth Codex 's position with respect to the disputed amount. All disputed, unpaid amounts will be paid in accordance with the agreed resolution of such dispute pursuant to Section 4.3, and Codex shall not pay any interest on any amount ultimately determined to be due.

2.5. **Out-of-Pocket Expenses**. In connection with any SOW, Codex shall reimburse I²IT for reasonable travel, meals and lodging expenses. Such expenses shall be pre-approved in writing by Codex and shall not exceed an agreed upon per diem rate. Codex shall not be liable for any such expenses if I²IT fails to obtain such required approval.

3. TERM AND TERMINATION

3.1 **Term**. The Agreement shall be initially under pilot phase in full force and effect for Three (3) months (the "Initial Term"). Upon the expiration of the Initial Term,

the Agreement shall automatically renew for one or more additional terms of One Year each (each, a "Renewal Term"), unless and until either party hereto notifies the other party in writing of its intent to terminate at least Thirty (30) days prior to the expiration of the then-current Initial Term or Renewal Term. The Initial Term, together with any and all Renewal Terms, is collectively referred to as the "Term."

3.2 **Termination for Default**. Either party hereto may terminate the Agreement in the event that the other party materially defaults in performing any obligation under the Agreement and such default continues unsolved for a period of thirty (30) days following written notice of such default. Notwithstanding the foregoing, if Codex terminates the Agreement due to I²IT 's breach of its obligations and failure to resolve such breach with respect to the Service Level Agreement(s), Codex's sole remedy shall be its election to terminate the Agreement without further liability to either party (except for Codex's obligation to pay all accrued and unpaid fees outstanding as of the date of such termination).

3.3 During the first ninety (90) days after the Effective Date, Codex may terminate the Agreement without paying a cancellation fee by providing I²IT with thirty (30) day written notice of such termination and agreeing to pay all unpaid fees accrued as of the effective date of the termination. At any time during the Term after the first ninety (90) days after the Effective Date, Codex may terminate the Agreement by providing I²IT with Thirty (30) days written notice of termination and agreeing to pay all unpaid fees accrued as of the effective date of the termination.

3.4 At any time after the first ninety (90) days after the Effective Date, Codex may terminate the Agreement and purchase equivalent services from another provider ("Alternative Provider") without paying a cancellation fee by providing I²IT with Thirty (30) days written notice of termination and agreeing to pay all unpaid fees accrued as of the effective date of termination.

3.5 The Agreement shall terminate, effective immediately upon delivery of written notice by either party to the other party of (i) the institution of insolvency, receivership, or bankruptcy proceedings or any other proceedings for the settlement of debts of the other party, (ii) the making of an assignment for the benefit of creditors by the other party, or (iii) the dissolution of the other party.

4. GOVERNANCE

4.1. **Service Executive**. For and in each SOW entered into hereunder, I²IT and Codex each will designate a service executive ("Service Executive") in writing, who will have overall responsibility for that Party's performance under such SOW. Each SOW shall identify the specific responsibilities, procedures for communications, and related matters for the Parties' respective Service Executive. Each Party may replace its Service Executive with a comparable replacement by giving the other Party as much advance written notice as possible of such replacement. Each Party will be entitled to rely on all decisions and approvals communicated by the other Party's Service Executive. The general responsibilities of the Service Executive shall be to: (a) establish a formal communication forum between I²IT and Codex with respect to the applicable SOW; (b) monitor the general progress of the performance of such SOW; (c) identify opportunities for improvement in the Services; (d) propose changes to such SOW; and (e) evaluate and manage the Change Order Procedures set forth in Section 4.2 hereof.

4.2. **Change Order Procedures**. Any material change to the scope of Services under a SOW must be in writing and signed by each party. Codex may request a change to the scope of Services by submitting a written change request ("Change Request") to I²IT. I²IT may request a change by submitting to Codex a written Change Request including an explanation of the reason for the Change Request. When the parties agree upon the terms of any Change Request, I²IT will issue a change order to be signed by each party reflecting the agreed upon terms ("Change Order"). The Change Order shall, as applicable, be deemed an amendment to the applicable SOW. Codex shall not be liable to I²IT for any increased price for changes to the work, absent a fully executed change order, prior to I²IT performing said work. Notwithstanding the foregoing, neither party must agree to a change order.

4.3. **DISPUTE RESOLUTION**

4.3.1 **Arbitration**. The parties agree that any and all disputes or controversies of any nature whatsoever, arising from or regarding the interpretation, performance, enforcement or breach of this SA shall be resolved by confidential, final and binding arbitration (rather than court or resolution in some other forum) to the fullest extent permitted by law, and further agree that either party may initiate an arbitration. Any arbitration proceeding pursuant to this Agreement shall be conducted by the sole arbitrator as per the Arbitration and Conciliation Act, 1996 in India. The venue for arbitration shall be Pune (India).

4.3.2. **Confidentiality of Results**. If the Parties agree to proceed with arbitration as provided above, the Parties, their representatives and participants, and the arbitrators shall hold the existence, content, and result of the arbitration in confidence, except to the limited extent necessary to enforce a final settlement SA or to obtain or enforce a judgment on an arbitration decision and award.

4.3.3. **Exceptions**. Disputes relating to non-compliance with Section 5 of this SA, a violation of which could cause irreparable harm for which damages would be inadequate, shall be exempt from the binding arbitration requirement described this Section 4.3. As to disputes described in this Section 4.3.3, the claimant reserves the right to seek relief from an administrative agency or a court of competent jurisdiction, as appropriate.

5. CONFIDENTIALITY

5.1 **Confidentiality**. All information labelled as proprietary or confidential that is disclosed by Codex to I²IT shall remain the sole property of Codex. Except as expressly allowed herein, I²IT will hold in confidence and not disclose, use, modify, copy, reproduce or otherwise divulge any Confidential Information (as hereinafter defined) of Codex and shall similarly bind its employees in writing. I²IT acknowledges and agrees that due to the unique nature of the Confidential Information of Codex, there can be no adequate remedy at law for any breach of its obligations hereunder, that any such breach may allow I²IT to unfairly compete resulting in irreparable harm to Codex whose Confidential Information was divulged, and therefore, upon any such breach or any threat thereof, Codex's Confidential Information was or is threatened to be divulged shall be entitled to appropriate equitable relief (without posting of any bond) in addition to whatever remedies it might have at law.

5.2 **Confidential Information**. "Confidential Information" means any information, technical data, or know-how relating to Codex's business, research, products,

software, services, development, inventions, processes, engineering, marketing, techniques, pricing, internal procedures, business and marketing plans and business opportunities. Notwithstanding the foregoing, Confidential Information does include information, technical data or know-how that (i) Codex can prove through written documentation was in its possession at the time of disclosure, (ii) becomes a part of the public knowledge not as a result of any action or inaction of Codex, (iii) is disclosed to the I²IT by a third party not in violation of any obligation of confidentiality, or (iv) is independently developed by the I²IT without reference to any Confidential Information, which can be proven through written documentation.

5.3. **Non-Disclosure**. During the term of this SA and any applicable SOW accepted hereunder, and for the longer of three (3) years or the longest time permitted by applicable law following the termination of this SA, each of the Parties agrees: (a) that it shall not use, copy, distribute, disclose or transfer any Confidential Information, for the benefit of itself or any facility, division, affiliate, or subsidiary of the party, or any third party, except to use and reproduce the Confidential Information of the other Party only as permitted under this SA and as needed to perform its duties hereunder; (c) not to disclose or otherwise permit access to the Confidential Information of the other Party to any third party without the disclosing Party's prior written consent, and then only to the extent reasonably required to accomplish the intent of this SA; and (d) to ensure that its employees participating in the performance of this SA are advised of the confidential nature of the Confidential Information of the other Party, that they are prohibited from using or copying the Confidential Information of the other Party for any purpose other than performing their obligations under this SA, from revealing the Confidential Information of the other Party for any other purpose whatsoever, and from taking any action prohibited to either Party under this Section 5.

5.4. **Compelled Disclosure**. In the event that either Party or any of its directors, officers, partners, or employees is required by deposition, interrogatory, request for documents, subpoena, civil investigative demand, or similar process to disclose any of the Confidential Information of the other Party, such compelled Party or any such person may disclose only that portion of the Confidential Information of the other Party that such Party or such person is legally required to disclose by a prior court order. If legally permitted, a Party shall first provide notice to the other Party of any such process requiring such disclosure upon receipt thereof in order to provide the other Party with the opportunity to petition the court or administrative body to prevent such disclosure.

5.5. **Exceptions**. Information will not be considered to be Confidential Information if it can be shown by the receiving Party to have been independently developed by such Party without use of or reference to the Confidential Information of the disclosing Party. Furthermore, it is understood that each party shall be free to use ideas, concepts, know-how and techniques related to the scope of its business and practice, provided they contain no specific or identifiable elements unique to the other Party hereto, or its operations, and they otherwise contain no Confidential Information of the other Party.

5.6. **Return of Confidential Information**. Upon termination or completion of this SA or any applicable SOW, the Parties shall promptly return to each other all materials that were delivered to each Party by one another with respect to the SA or applicable SOW, including, but not limited to, all tangible forms of Confidential Information and any copies thereof. Furthermore, upon the return thereof, each party shall cause one of its officers or principals to certify to the other party in writing that that party has complied with this Section 5.6.

5.7. **Injunctive Relief**. The Parties agree that any breach by a Party or any of its directors, officers, partners, employees, agents, or representatives of any provisions of this Section 5 may cause immediate and irreparable injury to the other Party and that, in the event of such breach, the injured Party will be entitled to seek injunctive relief as well as any and all other remedies available at law or in equity..

6. PROPRIETARY MATERIALS

6.1. **Ownership of Proprietary Materials**. Codex shall at all times be and remain the sole and exclusive owner of all right, title, and interest in and to proprietary materials, and all copies thereof, and in and to all of the related trade secrets, copyrights, patents, and all other proprietary rights. I²IT shall not obtain any right or license in and to Codex's proprietary materials pursuant to the terms hereof. Further, "Works for Hire" as used herein means works and/or derivative works of authorship fixed in any tangible medium of expression prepared by or created by I²IT, in the course of performing services pursuant to this SA, including, but not limited to, correspondence, memoranda, records, reports, databases and any and all data or other information which relate to in any way to Codex . I²IT agrees that such works prepared by I²IT within the scope of this SA are "Works for Hire" under the Copyright Act and that the Codex is the sole and exclusive owner of such works. I²IT hereby assigns all right, title and interest in Works for Hire to Codex.

6.2. **Ownership of Inventions**. All Works for Hire identified above, all other discoveries, ideas, concepts, theories, improvements, designs, original works of authorship, formulae, processes, algorithms, inventions, know-how, techniques, compositions of matter, and any other information generated by I²IT under this SA or any SOW, that contain any Confidential Information of Codex , including all intermediate and partial versions thereof, as well as all documentation, program materials, flowcharts, notes, outlines, and the like that are created in connection therewith (collectively, the "Work Product"), and the copyright, patent, trademark, trade secret, and all other proprietary rights in the Work Product, and any derivative works created from the Work Product, shall be the sole and exclusive property of Codex .

6.3. **Codex Data**. As between the Parties, Codex will be the sole and exclusive owner of all data provided to I²IT by Codex ("Codex Data"). I²IT shall utilize the Codex Data solely for purposes of this SA and shall not sell, transfer, lease, or otherwise commercially exploit the Codex Data. Codex Data will be deemed Codex Confidential Information for purposes of Section 5. Unless stated otherwise in a SOW, I²IT is not responsible for the accuracy, completeness, or currency of data provided by Codex.

7. INDEMNIFICATION

7.1. **Intellectual Property**. If either party (the "Indemnitee") promptly notifies the other (the "Indemnitor") in writing of a claim against the Indemnitee that any portion of the Indemnitor's intellectual property used or subject to this SA infringes a presently existing proprietary right of a third party, the Indemnitor shall, with respect to and to the extent of the portion of the claim pertaining to the Indemnitor's intellectual property, at its sole expense, defend, indemnify, and hold harmless the Indemnitee and its affiliates, , directors, officers, shareholders, employees, attorneys, successors and assigns (collectively, the "Indemnified Parties") with respect to such claim and shall pay any costs or damages (including reasonable attorneys' fees) that may be incurred or finally awarded against the

Indemnitee. THIS SECTION SETS FORTH THE COMPLETE LIABILITY OF THE PARTIES WITH RESPECT TO INFRINGEMENT OF INTELLECTUAL PROPERTY RIGHTS.

7.2. **Personal Injury, Property Damage**. Each party shall indemnify, hold harmless, and defend the other party from and against any and all third party suits, actions, damages, costs, losses, or expenses (including reasonable attorneys' fees) to the extent proximately caused by the negligent or wilful acts or omissions of the indemnifying party, its personnel or agents in connection with the performance of Services under this SA.

7.3. **Codex 's Products and Services**. Codex shall indemnify, defend and hold I²IT and its Indemnified Parties harmless from any and all claims, liabilities, obligations, judgments, causes of action, costs and expenses (including reasonable attorneys' fees) asserted against I²IT or its Indemnified Parties arising out of or resulting from any service or obligation performed, or agreed to be performed by Codex, or otherwise provided by Codex, whether or not through the use of any Service provided by I²IT hereunder.

7.4. **Sole Control**. The Indemnitor under any of the indemnities set forth in this Section 7 shall have sole control of the defence of any such claim and all negotiations for settlement. The Indemnitor shall not be obligated to indemnify the Indemnitee under any settlement made without the Indemnitor's consent or in the event the Indemnitee fails to provide reasonable cooperation (at the Indemnitor's expense) in the defense of any such claim.

8. EMPLOYEE SOLICITATION/HIRING

During the period beginning with the Effective Date hereof and ending twelve (12) months after the termination of this SA, neither Party nor its affiliates (collectively, the "Offering Party") will offer employment to or hire any employee of the other Party or its affiliates (collectively, the "Employing Party") without the prior written consent of the Employing Party. During the period beginning with the date of termination or resignation of any employee of the Employing Party and ending the earlier of: (a) six (6) months after the termination of this SA, or (b) six (6) months following the date of such employee's termination or resignation, the Offering Party shall refrain from offering employment to any such former employee of the Employing Party without the prior written consent of the Employing Party. For purposes of the preceding sentence, the terms "employment" and "employee" shall include any form of employment, consulting, contract relationship, or other arrangement pursuant to which such individual will, directly or indirectly, perform services for the Employing Party. Violation of this Section 8 shall subject the Offering Party to liquidated damages equal to the greater of: (a) the first year's compensation promised by the Offering Party to such employee; (b) the first year's compensation actually paid by the Offering Party to such employee; or (c) the last year's compensation paid by the Employing Party to such employee. Compensation for purposes of the preceding sentence shall include the value of any fringe benefits, bonuses, stock, stock options, use of automobiles or other compensation. For the purposes of this SA, the term "affiliates" shall mean any person, company, partnership, trust, or other entity that controls, is controlled by, or is under common control with the applicable Party.

9. REPRESENTATIONS AND WARRANTIES

9.1. **Representations and Warranties of I²IT**. I²IT represents and warrants that it shall perform the Services required under this SA and any SOWs in a workmanlike manner in accordance with industry standards and practices for such services and shall be responsible for the professional and technical accuracy of all of its manpower and services provided under this SA. In the event I²IT fails to perform any Services as provided in this Section 9.1, I²IT shall promptly take such action as may be reasonably necessary to correct the nonconforming error.

9.2. **Representations and Warranties of the Parties**. Each Party warrants to the other Party that: (a) to the best of its knowledge, it has provided the other Party with the information known to it that materially affects such other Party's ability to perform such Party's obligations under this SA; and (b) it has the requisite power, authority, and resources to enter into this SA, to perform its obligations hereunder, and to grant the rights and licenses, if any, granted hereunder.

10. LIMITATION OF LIABILITY.

10.1. **Limitation on Damage Recovery**. In no event shall either parties' aggregate liability for damages to the other arising out of this SA or any SOW entered into hereunder, including, but not limited to, incidental, consequential or direct damages, including, any claim for loss of data, cover, use of deliverables, interruption or unavailability of data, breach of warranty stoppage of other work or impairment of other assets, under any cause of action sounding in contract, tort, negligence, strict liability, or products liability exceed the total amount of the aggregate retail price any and all services or licensable material provided by I²IT to Codex during the term of this agreement. Notwithstanding the foregoing, neither I²IT nor Codex shall be liable for any loss or damage that is speculative or uncertain: neither I²IT nor Codex will be liable for any loss or damage unless such loss or damage is clearly documented, provable, and caused by the actions/omissions of I²IT or Codex as appropriate under this SA.

10.2. **Exclusions**. The limitations set forth in this Section 10 shall not apply to: (a) the Parties' respective indemnification obligations hereunder; (b) damages resulting from the breach by a Party of its confidentiality obligations hereunder; or (c) the payment of amounts due I²IT from Codex hereunder.

11. ADDITIONAL TERMS AND CONDITIONS

The Parties acknowledge that, due to the nature of certain of the Services to be rendered hereunder, terms and conditions in addition to those set forth herein may be required. Such additional terms and conditions, if any, are set forth in one or more schedules which shall be attached hereto or entered into by the parties as needed and incorporated into this SA.

12. GENERAL PROVISIONS

12.1. **Entire SA; Amendments**. This SA, all of its Schedules, and all SOWs entered into hereunder, constitute the entire SA between the Parties with respect to the subject matter hereof and supersede all prior proposals, understandings, and MSAs, whether oral or written between the parties with respect to the subject matter hereof. No modification, amendment or supplement to this SA or to any SOW shall be effective for any purpose unless agreed to in writing and signed by authorized representatives of the Parties.

12.2. **Waiver**. No failure to exercise, and no delay in exercising, on the part of either Party, any right, power or privilege hereunder will operate as a waiver thereof, nor will any Party's exercise of any right, power or privilege hereunder preclude further exercise of the same right or the exercise of any other right hereunder.

12.3. **Enforceability**. If any part of this SA shall be adjudged by any court of competent jurisdiction to be invalid, illegal, or unenforceable, the validity, legality, and enforceability of the remaining provisions shall not be affected or impaired thereby and shall be enforced to the maximum extent permitted by applicable law. If any remedy set forth in this SA is determined to have failed of its essential purpose, then all other provisions of this SA, including the limitations of liability and exclusion of damages, shall remain in full force and effect.

12.4. **Force Majeure**. Either Party shall be excused from performance and shall not be liable for any delay in whole or in part, caused by the occurrence of any contingency beyond the reasonable control either of the excused party or its project engineers or service providers. These contingencies include, but are not limited to, war, sabotage, insurrection, riot or other act of civil disobedience, act of public enemy, failure or delay in transportation, act of any government or any agency or subdivision thereof affecting the terms hereof, accident, fire, explosion, flood, severe weather or other act of God, or shortage of manpower or fuel or raw materials.

12.5. **Notices**. Any notice required or permitted hereunder to the Parties hereto will be deemed to have been duly given only if in writing to the address of the receiving Party as set forth below or such other address as may be specified by such Party in a notice delivered to the other Party in accordance with this Section and delivered by: (a) certified e-mail, return receipt requested, postage prepaid; (b) nationally recognized overnight courier, delivery charges prepaid; or (c) by hand delivery with signed receipt. Any notice shall be deemed delivered: (c) on the fifth (5th) business day following deposit of such notice with the Indian Postal Service if notice is given in accordance with (a), above; (d) on the second (2nd) business day following deposit of such notice with the courier if notice is given in accordance with (b), above; or (e) on the date of actual delivery if notice is given in accordance with (c), above.

To I²IT :

Attn: Dr. V Rajesh Chowdhary

International Institute of Information Technology I²IT www.iequarolt.edu.in Pune

To Codex :

Attn: Mr. Siddhartha Shankar

12.6. **Governing Law, Jurisdiction and Venue**. This SA shall be governed by the laws of India within the Courts of Pune, Maharashtra, India.

12.7. **Headings and Subsections**. Section headings are provided for convenience of reference and do not constitute part of this SA. Any references to a particular section of this SA shall be deemed to include reference to any and all subsections thereof.

12.8. **Interpretation; Order of Precedence**. In the event the terms of any Schedule or SOW conflict or are inconsistent with the terms of this SA, the terms of such Schedule or SOW shall govern as to the subject matter contained therein only to the extent necessary to resolve such conflict or inconsistency. In the event the terms of any SOW conflict or are inconsistent with the terms of any Schedule, the terms of such SOW shall govern as to the subject matter contained therein only to the extent necessary to resolve such conflict or inconsistency.

CODEX SOLUTIONS PRIVATE LIMITED PUNE

12.9. **Severability**. If any provision of this SA is found by any court of competent jurisdiction to be invalid or unenforceable, the invalidity of such provision shall not affect the other provisions of this SA, and all provisions not affected by such invalidity shall remain in full force and effect.

12.10. **Survival of Obligations**. The provisions of Sections that, by their nature or as explicitly stated, are to survive termination of this SA shall survive termination hereof.

12.11. **Non-Exclusive Performance**. Codex agrees that I²IT may perform similar services for third parties and that I²IT may develop and provide materials and services which are similar to those provided under this SA, provided that I²IT shall not use any Confidential Information of Codex in providing such materials or services to such third parties.

12.12. **No Third Party Benefit**. The provisions of this SA are for the sole benefit of the Parties hereto. This SA confers no rights, benefits, or claims upon any person or entity not a Party hereto.

12.13. **Assignment**. In the event of (a) a sale of all or substantially all of the assets of Codex or (b) the sale of a majority of the membership interest in Codex and Codex may assign its rights or delegate its duties and obligations under this SA without the consent of I²IT. Notwithstanding the foregoing, the assignee must agree in writing to be bound by the terms of this SA and assume all of the rights and obligations of the assigning party under this SA. Either party may assign its rights or delegate its duties or responsibilities under this SA to an Affiliate of such party in interest without the consent of the other party if, and only if, the Affiliate agrees in writing to be bound by the terms of this SA and to assume all of the rights and obligations of the assigning party under this SA. Any assignment without the agreement of the assignee to be bound as set forth herein shall be null and void and of no force or effect. No agreement to be bound is necessary in the case of a sale of a majority interest in I²IT or Codex.

12.14. **Publicity**. Codex may agree, in Codex 's sole discretion, that I²IT may issue a mutually acceptable news release regarding Codex 's use of the applicable I²IT services, upon Codex 's prior written consent.

12.15. **Successor**: This SA shall be binding upon and shall inure to and be for the benefit of the parties hereto, their employees, agents, heirs, successors, executors, administrators, legal representatives and assigns.

12.16. **Counterparts**. This SA and any SOW entered into hereunder may be simultaneously executed in several counterparts, each of which shall be an original and all of which shall constitute but one and the same instrument, provided at least one counterpart bears the signatures of a representative of I²IT and a representative of Codex.

International Institute of Information Technology I²IT www.iequarelt.edu.in Pune

CODEX SOLUTIONS PRIVATE LIMITED PUNE

IN WITNESS WHEREOF, the parties hereto have caused this SA to be executed by their duly authorized representatives as of the date first above written.

Hope Foundation's International Institute of Information Technology (I²IT)	**CODEX SOLUTIONS PVT. LTD.**
Name (Signature)	Name (Signature)
Name Dr. Vaishali V Patil	Name: Mr. Vinay S Chutake
Title: Principal	Title: CEO
Date: 06 March 2020	Date: 06 March 2020

WITNESS:

1. Prof. Bailappa Bhovi
2. Prof. Sameer P. Mamadapure

WITNESS:

1. Mr. Rohan Panse
2. Mr. Sachin Bhate

Tax Invoice

Hope Foundation's International Institute of Information Technology P-14, Rajiv Gandhi Infotech Park, Phase-I, Hinjawadi, Pune – 411057 State Name: Maharashtra, Code : 27 GSTIN/UIN: 27AAATH0698B1ZU E-Mail : accounts@isquareit.edu.in	Invoice no. **7**	Dated **09-Jul-2019**
	Delivery Note	Mode/Terms of Payment **30 Days**
	Supplier's Ref. **Purchase Order No.: 1932000406** **Purchase Order Date: 01-July-2019** **Line Reference: 00010**	
Buyer **Tom Tom India Private Ltd** 7th Floor – Binarius, Deepak Complex Shastri Nagar, Yerwada Pune – 411006 State Name: Maharashtra, Code : 27 GSTIN/UIN: 27AABCK3025B1Z6	Shipping Address: **76964393**	Shipping Date **15-July-2019**
	Dispatch Document No.	Dated
	Dispatch Through	Destination

Sr. No	Particulars	HSN/SAC	Quantity	Unit of Purchase	Price/ Unit	per	Amount
1	I2IT-Prod services June 2019	998399	85000	EA	1.00/ 1 EA		85,000.00
	CGST – 9%				9	%	7,650.00
	SGST – 9%				9	%	7,650.00
	Total						**1,00,300.00**

Amount Chargeable (in words): **One Lac Three Hundred Only**

HSN/SAC	Taxable Value	Central Tax		State Tax		**Total Tax Amount**
		Rate	Amt.	Rate	Amt.	
998399	85,000.00	9%	7,650.00	9%	7,650.00	15,300.00
Total	**85,000.00**		**7,650.00**		**7,650.00**	**15,300.00**

Tax Amount (in words): **Fifteen Thousand Three Hundred Rupees only**

Company's PAN:
AAATH0698B

Company's Bank Details
Bank Name: ORIENTAL BANK OF COMMERCE,
Bank A/c Number: 11072191009090
Branch & IFSC Code: Hinjawadi & ORBC0101107
A/c Holder Name: INTERNATIONAL INSTITUTE OF INFORMATION TECHNOLOGY

for Hope Foundation's International Institute of Information Technology

International Institute of Information Technology I²IT www.isquareit.edu.in Pune

Authorised Signatory

TOMTOM

PURCHASE ORDER

TO:

Hope Foundation's International Institut
e of Information Technology (I2IT)
P-14, Rajiv Gandhi Infotech Park, MIDC, Hinjawad
411057 PUNE
INDIA

Purchase Order #	1932000406
Date	01-Jul-2019
Purchasing department	purchasing@tomtom.com
Invoice queries	Els.Ponnet@tomtom.com +912046922399
TomTom contact E-mail address	Els.Ponnet@tomtom.com
Vendor number	133982
Vendor GST registration	27AAATH0698B1ZU
INCO terms	
Prices incl. GST	No
Currency	INR
Payment term	Within 30 days without deduction

Line ref.	TomTom part number	Description	Vendor part number	Quantity	Unit of purchase	Price/Unit	Tax code	Total price	Shipping date	Shipping Address
00010		I2IT-Prod services June 2019		85000	EA	1,00 / 1 EA		85.000,00	15-Jul-2019	76964393
				Total INR	excl. Tax			85.000,00		
				Total INR	incl. Tax			85.000,00		

Billing Address on Invoice:

TomTom India Private Ltd.
7th Floor - Binarius, Deepak Complex
411006 SHASTRI NAGAR, YERWADA, PUNE
INDIA

Tax Registration nr.
27AABCK3025B1Z6

Shipping Address: 76964393

TomTom India Private Ltd
7th Floor - Binarius, Deepak Complex
411006 SHASTRI NAGAR, YERWADA, PUNE
INDIA

IMPORTANT - Where to mail your invoice

It is mandatory to courier the original hard copy to:

TomTom India Private Ltd.
7th Floor - Binarius, Deepak Complex
411006 SHASTRI NAGAR, YERWADA, PUNE
INDIA

Tax Invoice

Hope Foundation's International Institute of Information Technology P-14, Rajiv Gandhi Infotech Park, Phase-I, Hinjawadi, Pune – 411057 State Name: Maharashtra, Code : 27 GSTIN/UIN: 27AAATH0698B1ZU E-Mail : acco5unts@isquareit.edu.in	Invoice no. **8**	Dated **09-Jul-2019**
	Delivery Note	Mode/Terms of Payment **30 Days**
	Supplier's Ref. **Purchase Order No.: 1932000358** **Purchase Order Date: 03-June-2019** **Line Reference: 00010**	
Buyer **Tom Tom India Private Ltd** 7th Floor – Binarius, Deepak Complex Shastri Nagar, Yerwada Pune – 411006 State Name: Maharashtra, Code : 27 GSTIN/UIN: 27AABCK3025B1Z6	Shipping Address: **76374900**	Shipping Date **30-June-2019**
	Dispatch Document No.	Dated
	Dispatch Through	Destination

Sr. No	Description	HSN/SAC	Quantity	Unit of Purchase	Price/ Unit	per	Amount
1	I2IT-Prod serv/Feature Prod Q2 2019	998399	7000	EA	1.00/ 1 EA		7,000.00
	CGST – 9%				9	%	630.00
	SGST – 9%				9	%	630.00
	Total						**8,260.00** ₹

Amount Chargeable (in words) **Eight Thousand Two Hundred and Sixty Only**

HSN/SAC	Taxable Value	Central Tax		State Tax		Total Tax Amount
		Rate	Amt.	Rate	Amt.	
998399	7,000.00	9%	630.00	9%	630.00	1,260.00
Total	**7000.00**		**630.00**		**630.00**	**1,260.00**

Tax Amount (in words): **One Thousand Two Hundred and Sixty Rupees only**

Company's PAN:
AAATH0698B

Company's Bank Details
Bank Name: ORIENTAL BANK OF COMMERCE,
Bank A/c Number: 11072191009090
Branch & IFSC Code: Hinjawadi & ORBC0101107
A/c Holder Name: INTERNATIONAL INSTITUTE OF INFORMATION TECHNOLOGY

for Hope Foundation's International Institute of Information Technology

Authorised Signator

TOMTOM

PURCHASE ORDER

TO:

Hope Foundation's International Institut
e of Information Technology (I2IT)
P-14, Rajiv Gandhi Infotech Park, MIDC, Hinjawad
411057 PUNE
INDIA

Purchase Order #	1932000358	
Date	03-Jun-2019	
Purchasing department	purchasing@tomtom.com	
Invoice queries	Els.Ponnet@tomtom.com	+912046922399
TomTom contact E-mail address	Els.Ponnet@tomtom.com	
Vendor number	133982	
Vendor GST registration	27AAATH0698B1ZU	
INCO terms		
Prices incl. GST	No	
Currency	INR	
Payment term	Within 30 days without deduction	

Line ref.	TomTom part number	Description	Vendor part number	Quantity	Unit of purchase	Price/Unit	Tax code	Total price	Shipping date	Shipping Address
00010		I2IT-Prod serv/Feature Prod Q2 2019		7000	EA	1,00 / 1 EA		7.000,00	30-Jun-2019	76374900
	Comment									
	Scope: 10000 tasks									
				Total INR	excl. Tax			7.000,00		
				Total INR	incl. Tax			7.000,00		

Billing Address on Invoice:

TomTom India Private Ltd.
7th Floor - Binarius, Deepak Complex
411006 SHASTRI NAGAR, YERWADA, PUNE
INDIA

Tax Registration nr.
27AABCK3025B1Z6

Shipping Address: 76374900

TomTom India Private Ltd
7th Floor - Binarius, Deepak Complex
411006 SHASTRI NAGAR, YERWADA, PUNE
INDIA

IMPORTANT - Where to mail your invoice

It is mandatory to courier the original hard copy to:

TomTom India Private Ltd.
7th Floor - Binarius, Deepak Complex
411006 SHASTRI NAGAR, YERWADA, PUNE
INDIA

INTERNATIONAL INSTITUTE OF INFORMATION TECHNOLOGY

Innovation & Leadership

P-14, Rajiv Gandhi Info Tech Park, Phase – 1,
Hinjawadi, Pune – 411057, India

Department of Electronics and Telecommunication

Grants Received File

INTERNATIONAL INSTITUTE OF INFORMATION TECHNOLOGY

Innovation & Leadership

P-14, Rajiv Gandhi Info Tech Park, Phase – 1,
Hinjawadi, Pune – 411057

Department of Electronics and Telecommunication

Academic Year 2019 – 2020

Grants Received

Hope Foundation's

International Institute of Information Technology (I^2IT)

P-14, Rajiv Gandhi Infotech Park, Phase – 1, Hinjawadi, Pune – 411057

Grants for research projects sponsored by the government/non-government sources such as industry, corporate houses, international bodies, endowments, Chairs in the institution during the academic year 2019-20

Name of the Project/ Endowments, Chairs	Name of the Principal Investigator/Co-investivator	Department of Principal Investigator	Month & Year of Award	Amount Sanctioned	Duration of the project	Amount Utilized in current Academic Year	Name of the Funding Agency	Type (Government/non-Government)
Development of near real time regional TEC mapping at low-latitude Asean region using GNSS stations	Dr. V Rajesh Chowdhary	Electronics & Telecommunication	2019	Rs.3027816	2 year	Rs. 504595	ASEAN- India Collaborative R&D scheme.(Science & Engineering Research Board (SERB), Department of Science and Technology, , Government of India,)	Government
Service Oriented Participatory Platform for Local SDI : Smart Civic Services for Second Tier Cities in Thailand and India	Dr. V Rajesh Chowdhary	Electronics & Telecommunication	2019	Rs.1095000	3 years		Indo-Thai project (department of science & technology, Government of India)	Government
Opensource WEBGIS platforms	Dr. Risil Chhatrala	Electronics & Telecommunication	10/01/2020	Rs. 117500	2 days	Rs. 117500	Savitribai Phule Pune University	

IQAC Coordinator

Head of Department

Principal

FILE NO. IMRC/AISTDF/CRD/2018/000037
AISTDF Secretariat
Science & Engineering Research Board (SERB)

5 & 5A, Lower Ground Floor
Vasant Square Mall
Plot No. A, Community Centre
Sector-B, Pocket-5, Vasant Kunj
New Delhi-110070

Dated: 20-May-2019

No. IMRC/AISTDF/R&D/P-1/2017

ORDER

Approval of the Chairman AISTDF (Secretary DST) is hereby accorded for implementation of the ASEAN-India Collaborative research project entitled **"Development of near real time regional TEC mapping at low-latitude Asean region using GNSS stations"** for a period of 2 years from the date of release of Ist installment of fund.

The composition of the project team(s) is as below:

INDIA

Lead PI

Dr. Rajesh Chowdhary Vattikuti
International Institute Of Information Technology,P-14, Rajiv Gandhi Infotech Park, Phase - I Hinjawadi, Pune ,Maharashtra,Pune-411057 , P-14, rajiv gandhi infotech park, phase - i hinjawadi, pune , Pune, Maharashtra-411057

Other Participant

To Be Appointed Later

ASEAN MS-1

Lead PI
Prof. nitin kumar tripathi
Asian Institute of Technology Asian Institute of Technology Klong Luang Pathumthani 12120 Thailand
Other Praticipant
Dr. Sanit Arunpold
Asian Institute of Technology Information and Communication Technology, School of Engineering & Technology

ASEAN MS-2

Lead PI
Prof. Mardina Abdullah
Universiti Kebangsaan Malaysia Space Science Centre, Level 3, Research Complex Building,Universiti Kebangsaan Malaysia, 43600 UKM Bangi, Selangor, Malaysia
Other Praticipant
Ms. Siti Aminah Bahari
Universiti Kebangsaan Malaysia Space Science Centre (ANGKASA), Institute of Climate Change

The change/ replacement of project participants is not allowed. The participating scientists should be working on the project and affiliated with the Institute/University holding the indicated position at the time of start of the project as well as at the time of exchange visits under the project. The project grant can be utilized only for the approved items /visits of participating scientists, as mentioned above.

The break-up of estimated expenditure is as indicated below-

1. Mobility budget:

Year : 1

Name	Source Country	Destination Country	No. of Days	Airfare, Visa Fee etc	Accomodation, per-diem etc	Total Amount
Dr. Sanit Arunpold	Thailand	India	5	50000	30000	80000
Prof. nitin kumar tripathi	Thailand	India	5	50000	30000	80000
To Be Appointed Later	India	Thailand	30	50000	150000	200000
To Be Appointed Later	India	Malaysia	14	50000	70000	120000
Dr. Rajesh Chowdhary Vattikuti	India	Thailand	14	50000	84000	134000
Dr. Rajesh Chowdhary Vattikuti	India	Malaysia	5	50000	30000	80000
Prof. Mardina Abdullah	Malaysia	India	5	50000	30000	80000
Ms. Siti Aminah Bahari	Malaysia	India	5	50000	30000	80000

Year : 2

Name	Source Country	Destination Country	No. of Days	Airfare, Visa Fee etc	Accomodation, per-diem etc	Total Amount
To Be Appointed Later	India	Malaysia	14	50000	70000	120000
To Be Appointed Later	India	Thailand	14	50000	70000	120000
Dr. Sanit Arunpold	Thailand	India	5	50000	30000	80000
Prof. Mardina Abdullah	Malaysia	India	5	50000	30000	80000
Ms. Siti Aminah Bahari	Malaysia	India	5	50000	30000	80000
Prof. nitin kumar tripathi	Thailand	India	5	50000	30000	80000
Dr. Rajesh Chowdhary Vattikuti	India	Thailand	14	50000	84000	134000
Dr. Rajesh Chowdhary Vattikuti	India	Malaysia	5	50000	30000	80000

2. Research Grant:

S. No	Head	Year-I	Year-II	Total Budget Sanctioned (in INR)
A	**Non-recurring (Capital Items)**			
1	Equipment	0	0	0
	Total - Non - recurring grant			*0*
B	**Recurring Items**			
1	Manpower	461280	461280	922560
2	Consumables	200000	150000	350000
3	Contingencies	0	0	0
4	Other Cost	0	0	0
	Total (Manpower, Consumables, Contingencies, Other Cost)			1272560
C	**Overhead Expenses (5% of Non-travel expenses)**	66128	61128	127256
	Total cost of the project (Without Travel)	727408	672408	1399816

3. Overall Budget:

S. No	Head	Year-I	Year-II	Total Budget Sanctioned (in INR)
A	**Non-recurring (Capital Items)**			
1	Equipment	0	0	0
	Total - Non- recurring grant			*0*
B	**Recurring Items**			
1	Manpower	461280	461280	922560
2	Consumables	200000	150000	350000
3	Travel (Domestic and International)	854000	774000	1628000
4	Contingencies	0	0	0
5	Other Cost	0	0	0
	Total-I (Travel - Domestic and International)			1628000

	Total-II (Manpower, Consumables, Contingencies, Other Cost)			1272560
	Overhead Expenses (5% of Non-travel expenses)	66128	61128	127256
	Total cost of the project	1581408	1446408	3027816

Sanction of the Chairman-AISTDF is also accorded for the sanction of **Rs. 3027816/- (Rs.** Thirty Lakh Twenty Seven Thousand Eight Hundred and Sixteen **Only)** with break-up of **Rs. 0/- under Capital (Non-recurring) head** and **Rs.3027816/- under General (Recurring) head** for a duration of 24 months. The items of expenditure for which the total allocation of **Rs. 3027816/-** has been approved.

The release of this grant is subject to:-

1. No re-appropriation of funds from one sub-head to another is allowed.
2. Obtaining prior approval of the AISTDF Secretariat for all project related visits to be undertaken by the scientist(s) from the either side in connection with the implementation with of this project, separately through online system (aistic.gov.in), at-least 4 weeks in advance before incurring any expenditure for this purpose.
3. Submission of Utilization Certificate (UC) and a Statement of Expenditure (SE) along with up-to-date progress report at the end of each financial year for the grants already received under the project and seeking specific approval of this Department for carry forward of unspent funds to the next financial year for utilization under the project
4. The international / domestic air-travel pertaining to visits under this project is to be performed by lowest economy class by shortest route.
5. The grantee Institute/University shall maintain separate audited accounts for the project and the amount of grant will be kept in a bank account earning interest. The Interest earned should be reported to AISTDF Secretariat while submitting the SE/UC. The Interest thus earned will be treated as a credit to the institute to be adjusted towards further instalment of grant.
6. The accounts of the grantee institution shall be open to inspection by the sanctioning authority /audit whenever the institution is called upon to do so, as laid down under Rule 211 of General Financial Rules.

The expenditure involved is to be debited "Grant-in-Aid" sub-head of the ASEAN-India Science & Technology Development Fund (AISTDF) during the current financial year 2019-20

The Sanction has been issued to International Institute Of Information Technology, P-14, Rajiv Gandhi Infotech Park, Phase - I Hinjawadi, Pune with the approval of the competent authority under delegated powers on **06 May, 2019** and vide Diary No. **SERB/F/409/2019-2020** dated **09 May, 2019**

The release amount of **Rs. 1581408/-** (Rupees Fifteen Lakh Eighty One Thousand Four Hundred and Eight only) will be drawn by the Under Secretary of the SERB and will be disbursed by means of RTGS transaction as per their Bank details given below:

Account Name	**INTL INSTITUTE OF INFORMATION TECHNOLOGY**
Account Number	**00071450000112**
Bank Name & Branch	**HDFC BANK LTD LAUKIK APARTMENTS, GROUND FLOOR, PLOT NO. 3, CTS NO. 870, BHANDARKAR ROAD, PUNE 411004, MAHARASHTRA, INDIA**
IFSC/RTGS Code	**HDFC0000007**
Email id of A/C Holder	**principal@isquareit.edu.in**
Email id of PI	**vrajeshc@isquareit.edu.in**

(Raj Kumar Sharma)
Member Secretary(AISTDF)

To,
Under Secretary
SERB, New Delhi
Copy forwarded for information and necessary action to: -

1. The Principal Director of Audit, A.G.C.R.Building, IIIrd Floor I.P. Estate, Delhi-110002

2. Sanction Folder, SERB , New Delhi.

3. File Copy

4. **Dr. Rajesh Chowdhary Vattikuti**
Electronics & Telecommunication Engineering
International Institute Of Information Technology,P-14, Rajiv Gandhi Infotech Park, Phase - I Hinjawadi, Pune ,Maharashtra,Pune-411057 , P-14, rajiv gandhi infotech park, phase - i hinjawadi, pune , Pune, Maharashtra-411057
Email: vrajeshc@isquareit.edu.in
Mobile: 918459557727

5. **International Institute Of Information Technology, P-14, Rajiv Gandhi Infotech Park, Phase - I Hinjawadi, Pune**

(Receipt of Grant may be intimated by name to the undersigned)

(Raj Kumar Sharma)
Member Secretary(AISTDF)

Close | Send Sanction Letter to DDO | Print

DST/INT/Thai/P-17/2019
Government of India
Ministry of Science and Technology
Department of Science & Technology
(International Bilateral Cooperation Division)

Technology Bhavan, New Mehraulli Road
New Delhi-110016
Date: 15-06-2019

ORDER

Subject: Implementation of Indo- Thai Joint project entitled: "Service Oriented Participatory Platform for Local SDI : Smart Civic Services for Second Tier Cities in Thailand and India" coordinated by Dr. Surya Durbha, Centre of Studies in Resources Engineering, Indian Institute of Technology Bombay with the Thai partner Dr. Sittichai Choosumrong, Department of Natural Resources & Environment, Faculty of Agriculture Natural Resources and Environment, Naresuan University - regarding.

Sanction of the President is hereby accorded for incurring an expenditure not exceeding **Rs. 10,95,000/-** (Rupees Ten lakh ninety five thousand only) for implementation of the Indo-Thai joint project entitled **"Service Oriented Participatory Platform for Local SDI : Smart Civic Services for Second Tier Cities in Thailand and India"** coordinated by **Dr. Surya Durbha, Centre of Studies in Resources Engineering, Indian Institute of Technology Bombay** in collaboration with Dr. Sittichai Choosumrong, Department of Natural Resources & Environment, Faculty of Agriculture Natural Resources and Environment, Naresuan University, Thailand for a total duration of three years from the date of issue of the sanction order. The detailed breakup of the grant for General as well as Capital Components are given below:-

General Component	:	**Rs. 10,95,000/-**
Capital Component	:	NIL

2. As per the terms and conditions, agreed by both side, under the project the sending side will bear the cost related to the International air travel, medical insurance and visa charges whereas the receiving side shall bear the cost of accommodation, hospitality and local travels of the visiting scientist. The break-up of approved expenditure is as indicated below :

Item of expenditure	1st Year	2nd Year	3rd Year	Total
(i) Consumable	Rs. 1,00,000/-	Rs. 1,00,000/-	Rs. 1,00,000/-	Rs. 3,00,000/-
(ii) Contingency	Rs. 50,000/-	Rs. 50,000/-	Rs. 50,000/-	Rs. 1,50,000/-
Sub-Total of A	**Rs. 1,50,000/-**	**Rs. 1,50,000/-**	**Rs. 1,50,000/-**	**Rs. 4,50,000/-**
Indian Scientists to Thai (2 visits per year)	Rs. 70,000/- (2 visits)	Rs. 70,000/- (2 visits)	Rs. 70,000/- (2 visits)	Rs. 2,10,000/- (6 visits)
Thai Scientists to India (2 visits per year)	Rs. 1,35,000/- (2 visits)	Rs. 1,35,000/- (2 visits)	Rs. 1,35,000/- (2 visits)	Rs. 4,05,000/- (6 visits)
Sub-Total of B	**Rs. 2,05,000/-**	**Rs. 2,05,000/-**	**Rs. 2,05,000/-**	**Rs. 6,15,000/-**
C. Institutional Overhead (10% on Component A (i)	Rs. 10,000/-	Rs. 10,000/-	Rs. 10,000/-	Rs. 30,000/-
Total (A+B+C)	**Rs. 3,65,000/-**	**Rs. 3,65,000/-**	**Rs. 3,65,000/-**	**Rs. 10,95,000/-**

2.1 Break up for proposed expenditure on each exchange visit is calculated broadly as below:

<u>For Indian Scientist visiting Thailand</u> (for an average duration of two weeks)

A. International travel (India to Thailand by lowest available economy class)	Rs. 30,000/-
B. Medical insurance (Silver class) and visa fee)	Rs. 5,000/-
Total	**Rs. 35,000/-**

For Thailand Scientist visiting India (For an average duration of two weeks)

A	Per diem @ Rs. 2,500/- per day x 15 days	Rs. 37,500/-
B	Accommodation @ Rs. 2,000/- per day x 15 days	Rs. 30,000/-
	Total	**Rs. 67,500/-**

3. Sanction of the President is hereby accorded for release of 1st instalment amounting of **Rs. 3,65,000/-** (Rupees Three lakh sixty five thousand only) to Indian Institute of Technology Bombay. The amount of grant will drawn by the Drawing and Disbursing Officer, DST and will be disbursed to Indian Institute of Technology Bombay. The bank details for electronic transfer of funds through RTGS are given below:-

Account Holders name/ designation	Indian Institute of Technology Bombay
Name of Bank	State Bank of India
Bank Account Number	10725729173
IFSC Code	SBIN0001109
E-Mail	

Condition for placing of grant amount :

4. The grantee organisation will maintain separate audited account for the project and the entire amount of grant will be kept in an interest bearing account. For Grants released during F.Y. 2017-18 and onwards, all interest or other earnings against Grant shall be remitted to the Consolidated Fund of India (through Non-Tax Receipt Portal (NTRP), i.e. www.bharatkosh.gov.in), immediately after finalization of the accounts, as it shall not be allowed to be adjusted against future releases of grant. **A certificate to this effect shall have to be submitted along with Statement of Expenditure / Utilisation Certificate for considering subsequent release of Grant/ closure of Project accounts.**

Conditions for submission of SE/UC and Progress report:

5. (i) The grantee organisation will furnish to the Department of Science & Technology, financial year wise Utilization Certificate (UC) in the proforma prescribed as per GFR 2017 and audited statement of expenditure (SE) along with up to date progress report at the end of each financial year duly reflecting the interest earned / accrued on the grants received under the project. This is also subject to the condition of submission of the final statement of expenditure, utilization certificate and project completion report within one year from the scheduled date of completion of the project.

(ii) While submitting Utilisation Certificate/Statement of Expenditure, the organisation has to ensur submission of supporting documentary evidences with regard to purchase of equipment/capita assets as per the provisions of GFR 2017. Subsequent release of grants under the project shall be considered only on receipt of the said documents.

(iii) A transparent procurement procedure in line with the Provisions of General Financial Rules 2017 will be followed by the Institute/ Organisation under the appropriate rules of the grantee organisation while procuring capital assets sanctioned for the above mentioned project and a certificate to this effect will be submitted by the Grantee organisation immediately on receipt of the grant;

6. The grantee organisation will have to enter & upload the Utilization Certificate in the PFMS portal besides sending it in physical form to this Division. The subsequent/final instalment will be released only after confirmation of the acceptance of the UC by the Division and entry of previous Utilization Certificate in the PFMS.

7. In the event grant has been released under capital head through separate sanction order under the same project for purchase of equipment(s), separate SE/UC has to be furnished for the released Capital head grant.

Conditions of Assets (if any) :

8. DST reserves sole rights on the assets created out of grants. Assets acquired wholly or substantially out of government grants (except those declared as obsolete and unserviceable or condemned in accordance with the procedure laid down in GFR 2017), shall not be disposed of without obtaining the prior approval of DST.

Conditions for International Visits :

9. All project related visits to be undertaken by the Scientists from either side in connection with the implementation of the project shall require prior approval from this Department separately on a case to case basis before any expenditure is incurred in this regard.

10. As per MoF instructions, it has been decided that in all cases of air travel, both domestic and international, where the Government of India bears the cost of air passage, the officials concerned may travel only by Air India. For travel to stations not connected by Air India, the officials may travel by Air India to the hub/point closest to their eventual destination, beyond which they may utilize the services of another airline which should also preferable be an alliance partner of Air India.

Other Conditions:

11. The account of the grantee organisation shall be open to inspection by the sanctioning authority and audit (both by C&AG of India and Internal Audit by the Principal Accounts Office of the DST), whenever the organisation is called upon to do so, as laid down under Rule 236(1) of General Financial Rules 2017.

12. Due acknowledgement of technical support / financial assistance resulting from this project grant should mandatorily be highlighted by the grantee organisation in bold letters in all publications / media releases as well as in the opening paragraphs of their Annual Reports during and after the completion of the project.

13. Failure to comply with the terms and conditions of the Bond will entail full refund with interest in terms of Rule 231 (2) of GFR 2017.

14. The expenditure involved is debitable to Demand No.84, Department of Science & Technology for the year 2019-20:

3425	:	Other Scientific Research (Major Head)
60	:	Others
60.798	:	International Cooperation (Minor Head)
14	:	Research and Development
14.00.31	:	Grants-in-aid General for the year 2019-20 (**Previous** : ICD-3425.60.798.12.00.31)

15. This sanction order being 1st instalment for implementation of this project, no SE/UC is due from the grantee institution against this project.

16. This issues with the concurrence of IFD vide their concurrence Dy. No. **C/935/IFD 2019-20 dated 11-06-19.**

17. As per Rule 234 of GFR 2017, this sanction has been entered at S. No. 38 in the register of grants maintained in the Division.

(Rajiv Kumar)
Scientist-E

To,

The Pay & Accounts Officer,
Department of Science & Technology,
New Delhi-110016

Copy to:

1. Office of the Principal Director of Audit, AGCR Bldg., IP Estate, New Delhi-110002
2. Cash Section (3 copies), DST
3. I.F. Division/Accounts Section, DST
4. Dr. Surya Durbha, Centre of Studies in Resources Engineering, Indian Institute of Technology Bombay-400076
5. Director, Indian Institute of Technology Bombay-400076
6. Accounts officer, Indian Institute of Technology Bombay-400076
7. Sanction Folder
8. Project File.

(Rajiv Kumar)
Scientist-E

From: Surya Durbha <sdurbha@iitb.ac.in>
Date: 27 February 2019 at 1:52:37 PM IST
To: sittichai choosumrong <sittichaic@nu.ac.th>, rajesh vattikuti <rajesh.vattikuti@gmail.com>, Phaisarn Jeefoo <p.jeefoo@gmail.com>, Gérald Fenoy <gerald.fenoy@geolabs.fr>, Venkatesh Raghavan <raghavan@media.osaka-cu.ac.jp>
Subject: Fwd: Joint selection of Indo-Thai proposal

FYI please.

--

Dr. Surya Durbha
Professor
CSRE, IIT Bombay
Powai, Mumbai-400076
Ph: 022-25767679
URL:http://www.geosysiot.in/faculty/
Geocomputational Systems and IoT Group: http://www.geosysiot.in/
IoT Product: http://www.agsense4water.com/

Life is either a daring adventure, or nothing. Security is mostly a superstition. It does not exist in nature. -Helen Keller

---------- Forwarded message ---------
From: **Rajiv Kumar** <rajivarc@nic.in>
Date: Wed, Feb 27, 2019 at 12:30 PM
Subject: Joint selection of Indo-Thai proposal
To: <sdurbha@iitb.ac.in>

Dear Dr. Durbha
I am pleased to inform you that your proposal submitted against last India-Thailand joint call has been recommended for support. To obtain the administrative and financial approval, we need security / sensitivity check list and Bank details of your institute (format attached). You also need to submit quantified list of consumables with price implications for each item and justifications.
Accordingly you are requested to submit these additional documents to enable us to secure the formal administrative as well as financial approval to support this project.
With best regards

Dr. Rajiv Kumar, Ph.D.
Scientist 'E', International Division,
Department of Science & Technology
विज्ञान एवं प्रौद्योगिकी विभाग
Ministry of Science & Technology, GOI
विज्ञान एवं प्रौद्योगिकी मंत्रालय, भारत सरकार
Technology Bhawan, New Mehrauli Road
New Delhi - 110016
Tel: +91-11-26590454 / 26862503
Fax: +911126862418
E-mail: rajivarc@nic.in

Temporary Registration No. : TPN / 20789

Project Proposal On

Service Oriented Participatory Platform for Local SDI Smart Civic Services for Second Tier Cities in Thailand and India

Submitted to:

Division :International Cooperation (Bilateral)

Programme or Scheme :Thailand

Submitted By

Project Investigator:

Prof. Surya S Durbha

INDIAN INSTITUTE OF TECHNOLOGY BOMBAY-Powai

Part 1 : General Information

General Information:

1.Name of the Institute/University/Organisation submitting the Project Proposal :

INDIAN INSTITUTE OF TECHNOLOGY BOMBAY

2. State	Maharashtra
3. Principal Investigrator Name:	Prof. Surya S Durbha
4. Category:	General
5. Type of the Institue :	Academic Institutions(Government)
6. Project Title :	Service Oriented Participatory Platform for Local SDI Smart Civic Services for Second Tier Cities in Thailand and India
7. Division :	International Cooperation (Bilateral)
8. Programme Or Scheme :	Thailand
9. Academic Area :	
10. Application Area :	
11. Goverment National Initiative :	Swasth Bharat, Swachh Bharat, Smart Cities,
12. Is the Proposal Submitted Under Specific Call for Proposal:	Yes
13. Project Duration :	3 Years and 0 Months

14. Project Keywords:

Smart Civic Amenities, Geospatial Web Services, GIS, Open source, Cloud Platform, Crowdsourcing

15. Project Summary (Not to exceed one page. Please use separate sheet).

The maturing of geospatial technologies and penetration of Internet and GPS enabled mobile devices offers tremendous possibilities in deploy Societal GIS applications and services in improve access to civic amenities in both urban and rural areas. In developed economies Civic Tech, Crowdsourcing and Participatory GIS approaches have proven to be both cost-effective and sustainable means to deliver and redress civic services effectively. The recent advances in Open Source Software, availability of Open Data and maturing of Open Geospatial Standards affords a distinct possibility for deploying robust and scalable solutions even in second tire towns and cities in developing economies such as Thailand and India. This project seeks to leverage Free and Open Geospatial Solutions for Geoinformatics FOSS4G to deploy a Geospatial platform for civic services focussing on crucial issues such as waste collection, maintenance of rural roads and optimizing emergency medical services.

The core objectives of the project are as follows

-To analyse the town-specific citizen amenities requirements for the townships of Navi Mumbai and Lavasa in India and Phitsanulok and Phayao in Thailand

-To design and develop a holistic, extensible and scalable crowd-sourced geospatial framework facilitating citizen amenities such as

1.Waste disposal Management Service

2.Emergency Service Ambulance Routing

3.Road Condition Monitoring Service

-To design and develop mobile and desktop enabled Location Based Applications for various citizen amenities implementing the proposed framework

The expected outcome of this project is to enable more efficient access to civic amenities for the citizens in Tier 2 cities. The project will culminate with the deployment of smart GIS services that are bulit upon standardized and open source geospatial software. These smart civic amenities services would be accessible to both the citizens and authorities via different platforms such as desktop computers and mobile phones. The system integrates participatory approach in the form of crowdsourcing to allow citizens to identify and tag events that are essential for enhancing the civic amenities services. The GIS platform is capable of facilitating the discovery and querying of resources related to the amenities, and also integrate various ancillary information. The proposed system is designed keeping in mind the diverse services that can be integrated in the future, so scalability of the proposed solution is given high importance, and is capable of integrating a variety of information sources using the Cloud-based Open GIS platform.

Part 2: Particulars of Investigators

Principal Investigator:

1. Name:	Prof. Surya S Durbha
Designation :	Associate Professor
Department:	CSRE
Institute/University:	INDIAN INSTITUTE OF TECHNOLOGY BOMBAY
State:	Maharashtra
District:	Mumbai City
City/Place:	Powai
Date of Birth:	16/08/1973
Gender:	Male
Address:	Address: IIT Bombay, Powai, Mumbai 400 076, Maharashtra, India
Pin:	400076
Communication Email:	sdurbha@csre.iitb.ac.in
Alternate Email:	surya.durbha@gmail.com
Mobile:	8369258956
Phone:	02225767679
Fax:	
Category:	General

Co-Investigator:

1. Name:	Dr. V Rajesh Chowdhary
Designation :	Associate Professor
Department:	Electronics Telecommunications Engineering
Institute/University:	INTERNATIONAL INSTITUTE OF INFORMATION TECHNOLOGY, PUNE
State:	Maharashtra
District:	Pune
City/Place:	Hinjawadi
Date of Birth:	12/03/1988
Gender:	Male
Address:	P-14, Hinjewadi Rajiv Gandhi Infotech Park, Hinjawadi, Pune, Maharashtra
Pin:	411057
Communication Email:	vrajeshc@isquareit.edu.in
Alternate Email:	
Mobile:	8459557727
Phone:	
Fax:	
Category:	General

Savitribai Phule Pune University

SCW191911002

Planning & Development
Ganeshkhind, Pune-7

Application for getting financial assistance for organization of State/ National and International level Seminar/Conference/Workshop during the financial year 2019-2020

1.(a)	**Name of the College/ Institute**	:	Hope Foundation and Research Centre (Hope Foundation) International Institute of Information Technology (I²IT) Addr: P - 14 Rajiv Gandhi Infotech Park Phase - I Hinjawadi Pune Tal: Mulashi Dist: Pune, Pincode: 411057	
(b)	**Address in Details**	:	P - 14 Rajiv Gandhi Infotech Park Phase - I Hinjawadi Pune Ta: Mulashi Dist: Pune Pincode: 411057	
(c)	**Telephone No.**	:	020-22933441	
(d)	**Email**	:	principal@isquareit.edu.in	
(e)	**District**	:	PUNE	
2.	**Affiliated to Savitribai Phule Pune University**	:	Yes	**(Please attach Affiliation letter Copy)**
3.	**Course Run by College/Institute**	:	Graduate,	**(Please attach University Course Approval Letter)**
4.	**Name of the Principal/Director**	:	Vaishali Vishwas Patil	
	Mobile No	:	9595459547	
	Principal/Director Approved?	:	Yes-Permanent	**(If Yes, Please attach approval Copy)**
5.	**Whether accredited/reaccredited by NAAC/NBA**	:	NAAC Grade: B++	**(If Yes, Please attach Copy)**
6.	**Whether AISHE DCF-II & M.I.S Information Uploaded ?**		Yes-C-41681-2018-19-2019	**(If Yes,Please Attach Certificate Mention AISHE Ref.No & Year)**
7.	**Annual Report Information Given to University (Pervious Academic Year 2018-19)**	:	Yes	**(If Yes, Please attach Copy of Covering Letter)**
	Ref. No.& Date	:	02/08/2019 I2IT/2019-20/SPPU/Annual Reports/165	
8.	**Last Year Q.I.P. Sanctioned Grant Utilized and settled accounts**	:	Yes	**(If ,'No' Please attach Letter of Clarification)**
9.	**University All types of contribution i.e. Student Welfare Fund,Sports,Admission Section Prorata, Affiliation fee, etc. paid by college/Institutes (2019-2020)**	:	Yes	**(If Yes, Please attach Copy)**
10.	**Is the College/Institute in Tribal Area?**	:	No	**(If 'Yes',Please attach Copy of Tribal area college certificate of concern authority)**
11. (a)	**Title of the Seminar/Conference/Workshop**	:	Opensource WEBGIS platforms	
	Level	:	State	
(b)	**Faculty under which the Seminar is proposed.**	:	Engineering	
12.(a)	**Scope and area to be covered.**	:	Geoinformatics, Remote Sensing, Opensource Softwares	
(b)	**Objectives**	:	To Introduce the MapMint framework that provides quick and easy way to build and manage geospatial web application using opensource, open standards and open dataTo perform hands-on session on Open Data Kit (ODK)	
13.	**Total No. of days of the Programme**			
(a)	**Opening date**	:	10/01/2020	

Savitribai Phule Pune University

SCW191911002

Planning & Development
Ganeshkhind, Pune-7

(b)	**Closing date**	:	11/01/2020
14.	**Number of participants Expected to be enrolled (as per guideline)**		
(a)	**No. of Outstation Participants**	:	10
(b)	**No. of Local Participants**	:	20
15.	**Whether accommodation would be available to participants**	:	Yes
16.	**Name and address of the Coordinator of the Programme**	:	Dr. Risil Chhatrala Department of E&TC International Institute of Information Technology

17. Names with full addresses of the Resource Persons, if any, to be Invited and duration of their visits. (Annex separate sheet, if necessary)

Full Name	Address
Prof. (Dr.) Vanketesh Raghwan	Osaka City University, japan
Prof. Natraj Vaddadi	Aundh Pune
Prof. (Dr.) Nitin K Tripathi	AIT, Thailand

18.	**Whether student participation is involved (expenditure for their participation)**	:	Student Participation Involved-Yes, Number of College Students-20, Cost Per Student-300.00

19.	**Total estimated amount for**			
(a)	**Honorarium and T.A. to resourse persons**	:	**Rs.**	70000.00
(b)	**Research Journal / Article Publication**	:	**Rs.**	13750.00
(c)	**Conference kit, Reading material, Xerox, CD etc.**	:	**Rs.**	27500.00
(d)	**Hospitality , Miscellaneous and Contingencies**	:	**Rs.**	41250.0000
	TOTAL	:	**Rs.**	152500.00
	MINUS			
(e)	**Contribution, if any, from the college/institute and other sources such as registration fees. (income from other sources, please Indicate the source and amount).**	:	**Rs.**	35000.00
(f)	**Net amount required**	:	**Rs.**	117500.00

20.	**Any other information**	:	

Signature & Seal of the
Coordinator of the Programme.

Signature & Seal of
The Principal/Director of the College/Institute.

Note:-

1. Submit sr.no. 1 to 4 documents alongwith application form.
2. Sr.no. 5 to 8 documents submit on or before 30th november 2017 after payment of all dues and submission of documents to the university.

Savitribai Phule Pune University

SCW191911002

Planning & Development
Ganeshkhind, Pune-7

For Office Use Only :	2019-2020
प्राचार्य/ संचालकांचे मान्यतेचे पत्र	
ज्या विषयाचा नॅशनल सेमिनारचा प्रस्ताव असेल त्या विषयाचे P. G. Course मान्यतेचे पत्र	
ज्या विषयाचा इंटरनॅशनल सेमिनारचा प्रस्ताव असेल त्या विषयाचे Ph.D.Research Centre मान्यतेचे पत्र	
NAAC/NBA सर्टिफिकेट	
वार्षिक अहवाल माहिती विध्यापीठाकडे सादर केल्याची पोहोच प्रत (2018-2019)	
संलग्नता/नुतनीकरण शुल्क जमा केल्याची बँकेच्या पावतीची प्रत (ऑक्टोबर 2019)	
विद्यार्थी कल्याण मंडळ, क्रीडा विभाग, शैक्षणिक प्रवेश विभाग येथे जमा केलेल्या शुल्क/निधीचा प्रोरेटा पोहोच प्रत (2019)	
AISHE व MIS Certificate (2019-2020)	

Checked By _____

Part 4: Financial Details

Financial Deatils:

Total Project Cost(In Rs.):	2550000.00
PFMS Unique Code:	IITbombay

Part 5: Current Ongoing Project

Current Ongoing Project:

1. Project Title:	ICT In Water And Pest Disease Management For Yield Improvement In Horticulture
Funding Department:	Ministry of Electronics and Information Technology
Project Duration :	5 Years 0 Months
Total Project Cost (In Rs.) :	10755000.00
Start Date in :	September 2013

List of Uploaded Documents:-

1. Complete Project proposal
2. Biodata
3. Certificate from PI
4. Conflict of interest
5. Endorsement from head of Institute

INDIA-THAILAND PROGRAMME OF COOPERATION

IN SCIENCE & TECHNOLOGY

(Proforma for Application for Joint Research Project)

A. PROJECT IDENTIFICATION

1. Title of the Project: **Service Oriented Participatory Platform for Local SDI: Smart Civic Services for Second Tier Cities in Thailand and India**

2. Duration of the Project in months: 36

Expected date of commencement:November 2018

3. Field of Science & Technology covered by the proposal: Geographic Information Systems, Geospatial Standards, MapMint, Open Data Kit and/or MapMint4ME, GeoReport, Cloud Platform, Crowdsourcing

Key words qualifying the scope of the proposal: Open Source, Open Data, Open Standard, software as a service (SaaS), process optimization

4. Project Investigators (PI) & Collaborating Institutions

	Indian	**Thai**
Name of Principal Investigator:	Dr. Surya Durbha	Dr. Sittichai Choosumrong
Designation:	Associate Professor, Centre of Studies in Resources Engineering	Assistant Professor, Dept. of Natural Resources & Environment
Date of Birth	August 16, 1973	21 September 1981
Institute	Indian Institute of Technology Bombay	Faculty of Agriculture Natural Resources and Environment
Contact Address	211, GeoComputational and IoT Systems Lab, CSRE, Indian Institute of Technology Bombay, Powai, Mumbai 400076	Naresuan University, 65000
Telephone No. : Office	+91 02225767679	+66 55 96 2753
Residence	+91 022 25768679	+66 91 767 2963
Fax No.		
e-mail	sdurbha@iitb.ac.in	sittichaic@nu.ac.th

Name of the Co-Investigator(s)	Dr. V Rajesh Chowdhary	Dr. Phaisarn Jeefoo
Designation	Associate Professor, Electronics & Telecommunications Engineering	Associate Professor, University of Phayao · GIS FoS
Date of Birth	12 March 1988	21 May 1981
Institute	International Institute of Information Technology	School of Information Communication and Technology (ICT)
Contact Address	P-14, Hinjewadi Rajiv Gandhi Infotech Park, Hinjawadi, Pune, Maharashtra 411057	
Telephone No. : Office Residence	+91 20 22933441 +91 8459557727	+66 5446-6666 Ext. 2312 +66-8-7203-0721
Fax No.	+91 20 22934191 (Fax)	p.jeefoo@gmail.com
e-mail	vrajeshc@isquareit.edu.in	

B. TECHNICAL INFORMATION

1. Objectives of the Project (up to 200 words)

   The core objectives of the project are as follows:

   - To analyse the town-specific citizen amenities requirements for the townships of Navi Mumbai and Lavasa in India and Phitsanulok and Phayao in Thailand
   - To design and develop a holistic, extensible and scalable crowd-sourced geospatial framework facilitating citizen amenities such as:
     - Waste disposal Management Service
     - Emergency Service (Ambulance Routing)
     - Road Condition Monitoring Service
   - To design and develop mobile and desktop enabled Location Based Applications for various citizen amenities implementing the proposed framework

2. Justification for collaboration & brief information about national and international scenario in the proposed area of research (up to 200 words)

The maturing of geospatial technologies and penetration of Internet and GPS enabled mobile devices offers tremendous possibilities in deploy Societal GIS applications and services in improve access to civic amenities in both urban and rural areas. In developed economies Civic Tech, Crowdsourcing and Participatory GIS approaches have proven to be both cost-effective and sustainable means to deliver and redress civic services effectively. The recent advances in Open Source Software, availability of Open Data and maturing of Open Geospatial Standards affords a distinct possibility for deploying robust and scalable solutions even in second tire towns and cities in developing economies such as Thailand and India. This project seeks to leverage Free and Open Geospatial Solutions for Geoinformatics (FOSS4G) to deploy a Geospatial platform for civic services focussing on crucial issues such as waste collection, maintenance of rural roads and optimizing emergency medical services. The PI from India has deep knowledge on geospatial standards and Cloud computing and the Co-PI, besides technical expertise in mobile GIS technologies has a first hand experience about situation in Thailand. The PI from Thailand has vast expertise in deploying Open Source based solutions for various applications such as Emergency Medical Services and has several publication on optimizing routing on road networks. The Co-PI from Thailand is an expert in deploying Web-GIS solutions and has vast experience on GIS applications in public health. The problems to be addressed and the expertise available with the research team offers a strong justification for research collaboration focused on delivering viable geospatial solutions for second tier cities in Asia.

3. Scientific & technical description of the project including methodology (up to 400 words)

The Software as a Service (SaaS) platform proposed in the project is planned to be implemented for 4 locations, 2 in India and 2 in Thailand. The architecture of the proposed platform (Figure 1), comprises of a layered approach and can be described as follows:

1. **Data Layer:** The spatial data required for the platform would be acquired from different sources for different applications.
    a. The waste disposal database would store the data acquired from the Internet of Things (IoT) sensing modules deployed over the waste accumulation regions (IoT nodes) throughout different locations in the town. These IoT modules would be transmitting the structured information about the vacant disposal spots. The users can find the route to the nearest available vacant spot for dumping the wastes.
    b. Emergency services database would encompass the comprehensive road network of the town with the hospitals and medical facilities forming nodal points in the network. The resulting application is intended to be used by Ambulances to reach emergency locations using the fastest route available during the time of emergency.
    c. The Road Condition Monitoring Database would store the locations of road anomalies as point features over the township's road network.

2. **Processing Layer:** The data from the Geospatial databases would be processed by the Processing Layer which comprises of Open-source libraries like MapMint[1] (A Spatial Data Infrastructure used for visualizing and analysing spatial data), pgRouting[2] (A routing library implementing functions for routing over a relational database) and GeoServer[3] (A java-based server capable of editing, processing and sharing geospatial data).

3. **Application Layer:** The Application layer comprises of three applications as services for efficient waste disposal management, emergency routing and road condition monitoring. The road condition monitoring service would be a two-way crowdsourcing encouraged service as it would be useful for authorities as well as commuters.

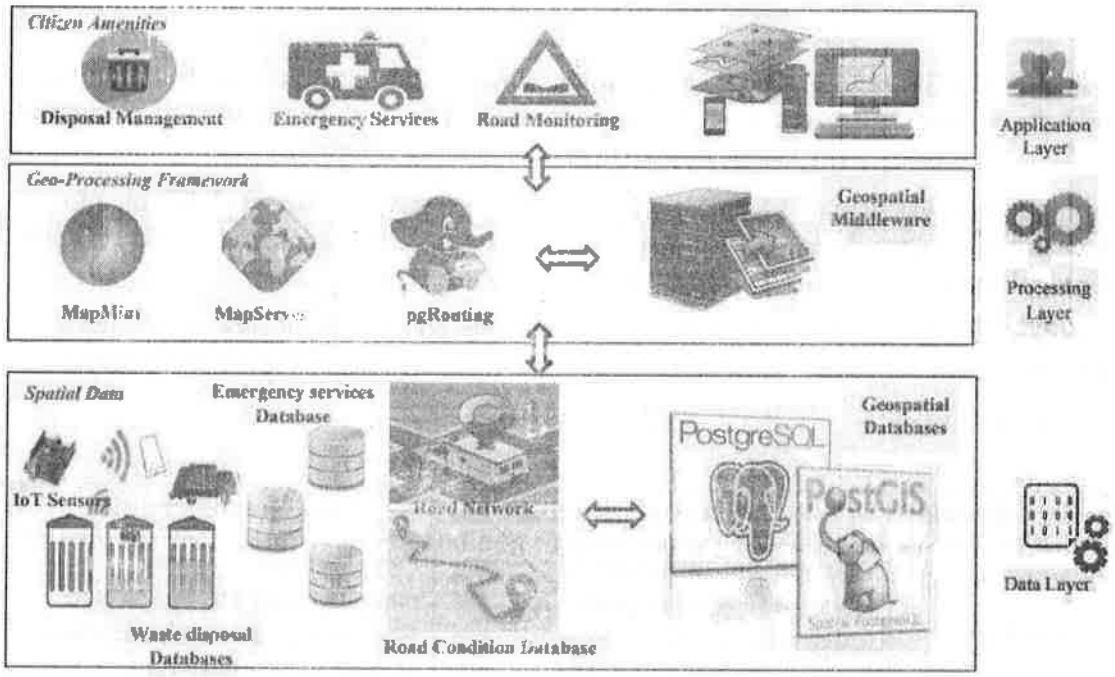
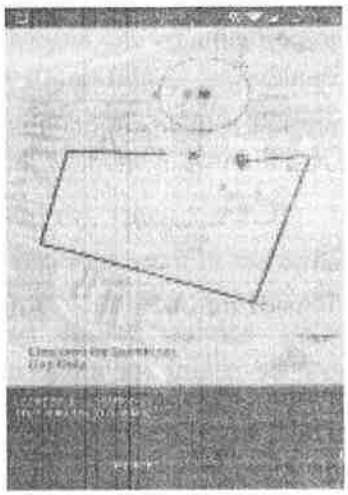


Figure (1): Architecture of the [illegible]posal management, emergency routing and road monitoring services platform

The crowd-sourced application for road condition monitoring is in the process of development. The application can show the route between two locations (source and destination) on the basis of minimum number of potholes. This application is of particular interest to the ambulances and school vans. Figure 2 shows some illustrations of the developed (preliminary) road monitoring application.

[1] MapMint: https://github.com/mapmint/mapmint
[2] pgRouting: https://pgrouting.org/
[3] GeoServer: http://geoserver.org/



(a)

(b)

Figure (2): Illustrations of road monitoring service. (a) depicts the route based on the minimum potholes. The red dots in the image represents the pothole reported by commuters. (b) shows the interface for reporting a pothole

This application has won an ESRI All India competition, **mApp your way**[4]. We plan to integrate it with other citizen amenities application proposed in this project to make it's use more significant.

The project would culminate into a Geospatial platform comprising of services related to amenities, which we believe would be of great use to the citizens of India and Thailand.

4. Plan of work

Time Schedule	Indian Responsibilities	Thai Responsibilities
1st Year	Analyse the town-specific citizen amenities requirements for the townships of Navi Mumbai and Lavasa in India and Phitsanulok and Phayao in Thailand	Development of spatial database for Pithsanulok and Phayao based on existing data as well as ancillary data through field data collection campaigns. Development of mobile GIS for data collection
2nd Year	To design and develop a holistic, extensible and scalable crowd-sourced geospatial framework facilitating civic amenities such as Waste Disposal Management Service, Emergency Services (ambulance routing) and Road Condition Monitoring Service	Deploying of Web-GIS platform to assimilate field data from mobile devices and provide data services for for optimal routing in garbage collection and medical emergency, road condition mapping and reporting. Testing

[4] mApp your way by ESRI: http://www.csre.iitb.ac.in/esriAppChallenge.php

		of Web-GIS platform in real case scenarios
3rd Year	Design and develop mobile and desktop enabled Location Based Applications for various citizen amenities implementing the proposed framework. Test, advertise and publish the developed applications for use by citizens of Navi Mumbai and Lavasa, in India and Phitsanulok and Phayao in Thailand	Validation of workflow and integrated software package for deploying Mobile-Web-GIS framework based on Virtualization Technology (e.g. OSGeo-Live). Testing of the Virtualized solutions on public cloud such as Amazon and Azure. Development of documentation to facilitate adoption in other town and cities in Asia

5. Number of exchange visit required to achieve the Project Objectives (Year wise)

Period	**India to Thailand**		**Thailand to India**	
	Number	**Duration**	**Number**	**Duration**
1st Year	2	15 days	2	15 days
2nd Year	2	15 days	2	15 days
3rd Year	2	30 days	2	30 days

6. Expected results of this cooperation (e.g. joint publications, patents etc.)

Are any of the expected results like to have commercial value? How do you propose to share it? (up to 100 words)

The platform and applications developed as a part of this research have big societal and commercial value in terms of civic issues to be tackled and the savings in software licensing costs due to the adoption of Open Source Software suite. The results would be widely disseminated in the form of research publications, conference presentations and training workshops to encourage adoption in other towns. The software developed will be published on software development platform such as GitHub to facilitate customization/localizations and business use by civic contractors and start-ups. We expect to have at least 4 publications in peer reviewed journal, and also several presentations at national and international seminar and conference to present the research outcomes. The entire software suite to be used and developed during the project will be based on Open Source Software licence and, therefore, will not involve any patents.

7. Bio-data of Indian and Thai investigators to appended in about 2 pages each.

Bio-data appended towards the end of the document.

C. ADMINISTRATIVE & FINANCIAL INFORMATION

1. Project Cost

Year	Consumables# (Lakhs)	Contingency (Lakhs)	Exchange Visits (Lakhs)		Total (Lakhs)
			India to Thailand	Thailand to India	
1st Year	1.5	1.0	2.5	2.5	7.5
2nd Year	1.0	1.5	2.5	2.5	7.5
3rd Year	1.0	1.5	4	4	10.5
Total	3.5	4.0	9	9	25.5

Justification for consumables

The consumables budget is required for purchasing various sensors (pressure sensors, Range sensors, GPS modules, microcontroller kits, etc.) that would be deployed for the waste management,emergency services and road condition monitoring modules of the project. These are essential components of the proposed IoT based sensing system integrated with GIS services to significantly improve the quality of service for civic amenities management. Further, deployment of the webGIS platform requires us to buy a domain and website hosting charges with Dedicated and Virtual Private Server capabilities to enable us to install our own software, configure it and deploy.

Justification for contingency

Contingency amount is needed for covering stationery, printing, photocopying and other incidental charges.Expenses related to field data collection in all the selected four places. In addition, it will be utilized for other things like, buying small accessories, equipments for setting up of sensors, charges for hauling the equipment for field deployment.

Justification for travel

Travel amount is required for understanding the ground conditions at the selected Tier 2 cities and also to be able to meet with local authorities to gauge their needs. Requirements collection, analysis and development of the framework requires face-to-face-meeting and extensive discussions. Further, travel is necessary for presenting research results in conferences and DST review meetings. On an average, results will be presented annually in one or two national conferences.

2. Signatures of the Project Investigators & Co - investigators

Certificate from Principal Investigators

"Service Oriented Participatory Platform for Local SDI: Smart Civic Services for Second Tier Cities in Thailand and India"

submitted as a project proposal under the Programme of Cooperation in the fields of Science and Technology for the years 2018-20, the Indian Department of Science and Technology (DST), Ministry of Science and Technology, Government of India and the Ministry of Science & Technology (MOST) of the Kingdom of Thailand.

We the undersigned, confirm on behalf of our organisations, Centre of Studies in Resources Engineering (CSRE), IIT Bombay, India and the Faculty of Agriculture Natural Resources and Environment, Naresuan University, Thailand, our interest in the above-mentioned project. We would seek to collaborate for the progress of this project and support the project submission.

We strongly believe that the submitted proposal is in line with the goals and aspirations of Programme of Cooperation in the fields of Science and Technology for the years 2018-20 and is consistent with the strategies of our organization.

We therefore fully support this initiative.

Dr. Sittichai Choosumrong (PI)
Naresuan University, Thailand
E-mail: sittichaic@nu.ac.th
Tel: +66-5-5962753
Dated: 16/07/2018

Dr. Surya Durbha (PI)
CSRE, IIT Bombay, India
E-mail: sdurbha@iitb.ac.in
Tel: +91-22-25767679
Dated: 16/07/2018

Declaration from the Heads of the Collaborating Institutions:

It is certified that :

i. The Institutions agree to participate in this Joint Research Project; (Indo-Thailand) under the Research area: "Geospatial Technologies covering creation of GIS of towns in Thailand for urban development". The title of the proposed project is: *"Service Oriented Participatory Platform for Local SDI: Smart Civic Services for Second Tier Cities in Thailand and India"*

ii. The Institutions shall provide infrastructure & necessary facilities for implementing the joint project;

iii. The Institutions assume to undertake financial & other management responsibility for the part of the project work to be carriec

iv. the back-up funding for manpower, consumabl

13/7/18

Signature & Seal of the Head of the Institutions

(India)

विभागाध्यक्ष/Head
सी.एस.आर.ई.
Centre of Studies in Resources Engineering
आय.आय.टी. मुंबई/IIT Bombay.
पवई, मुंबई-७६./Powai, Mumbai - 76.

I.I.T. Powai * CSRE * BOMBAY - 76

Vidhaya Jansila

(Assoc. Prof. Dr. Vidhaya Jansila)

Vice President, Naresuan University

THAI

Biodata of investigators

Curriculum vitae

Dr. Surya S. Durbha
Associate Professor
Centre of Studies in Resources Engineering (CSRE)
Indian Institute of Technology Bombay (IITB)
Ph. 022-25767679, email. sdurbha@iitb.ac.in

A. PROFESSIONAL PREPARATION

College/University	Major	Degree&Year
Andhra University	Civil-Environmental Engineering	B.E., 1994
Andhra University	Remote Sensing	M.Tech, 1997
Mississippi State University (USA)	Computer Engineering	Ph.D., 2006

B. ACADEMIC/PROFESSIONAL APPOINTMENTS

- Associate Professor(Sep 2014-till date), Centre of Studies in Resources Engineering (CSRE), IIT Bombay
- Assistant professor (Apr 2011-Aug 2014), Centre of Studies in Resources Engineering (CSRE), IIT Bombay
- Assistant Research Professor (June 2009 –March 2011), Mississippi State University, Center for Advanced Vehicular Systems (CAVS), USA.
- Assistant Research Professor (2006 – June 2009), Mississippi State University, GeoResources Institute (GRI), USA.
- Scientist, 'SD', (1998-2001), Indian Institute of Remote Sensing (IIRS), Department of Space, India;

C. SELECTED PUBLICATIONS

(Full list of Publications:
https://scholar.google.co.in/citations?user=_9b5RVUAAAAJ&hl=en&oi=ao)

U. Bharambe., S. S. Durbha (2018), Adaptive Pareto-based approach for geo-ontology matching. Computers & Geosciences.Elsevier,119,92-108.

U. Bhangale., S. S. Durbha, R. L. King., N. H Younan., & R. Vatsavai. (2017). High performance GPU computing based approaches for oil spill detection from multi-temporal remote sensing data. Remote Sensing of Environment, Elsevier.

S. Sawant, S. S. Durbha, A. Jagarlapudi,(2017), Interoperable agro-meteorological observation and analysis platform for precision agriculture: A case study in citrus crop water requirement estimation, "Computers and Electronics in Agriculture", Volume 138, Pages 175-187, 2017 (Elsevier)

K. R. Kurte, S. S. Durbha, R. L. King., N. H Younan., & R. Vatsavai. (2016). Semantics-Enabled Framework for Spatial Image Information Mining of Linked Earth Observation Data. IEEE Journal of Selected Topics in Applied Earth Observations and Remote Sensing, 10(1). 29-44.)

S. S. Durbha, R. L. King, A. Prakash, & N. H. Younan, (Aug 2012). Transfer Learning for Image Information Mining Applications. International Journal of Image and Data Fusion Taylor & Francis, 10, 17. DOI: 10.1080/19479832.2012.698658.

B. Gokaraju, S. S. Durbha R. L. King, & N. H Younan (Sep 2011). A Machine Learning Based Spatio-Temporal Data Mining Approach for Detection of Harmful Algal Blooms in the Gulf of Mexico. IEEE Journal of Selected Topics in Applied Earth Observations and Remote Sensing IEEE, 4(3), 710-720

S. S. Durbha, R. L. King,, S. K.,Amanchi, S. Bheemireddy, & N.H. Younan (2010). Standards-based middleware and tools for coastal sensor web applications. IEEE Journal of Selected Topics in Applied Earth Observations and Remote Sensing, 3(4), 451-466.

S. S. Durbha, R. L. King, and N.H. Younan (2007) "Support Vector Regression to estimate Leaf Area Index from Multi-angle Imaging Spectroradiometer, *Remote Sensing of Environment*, 107, 348-361

V. P. Shah, N. H. Younan, S. S. Durbha, and R. L. King, (April 2007). "A Systematic Approach to Wavelet Decomposition-Level Selection for Image Information Mining From Geospatial Data Archives," *IEEE Transactions on Geoscience and Remote Sensing*, Vol. 45, no. 4, pp. 875 – 878,.

S. S. Durbha and R. L. King, (Nov 2005.) "Semantics-enabled framework for knowledge discovery from Earth observation data archives", *IEEE Transactions on Geosciences and Remote Sensing* Vol.43, NO.11,

D. SYNERGISTIC ACTIVITIES

- Disclosure filed at NASA eNTRe system on a new technology Report (NF1679) by MSU office of technology and commercialization

Report title: Semantics-Enabled Knowledge Retrieval from Earth Observation Data Archives

- **Patent:** Sawant S.A., Durbha S.S., J. Adinarayana. SenseTube: Interoperable Wireless Sensing System for Precision Agriculture, Patent File Number: 2236/MUM/2015. (Status: published)

- Co-instructor for a full day Tutorial on "Advanced Classification Techniques for remote sensing "at International Geoscience and Remote Sensing Symposium (IGARSS 2009,2010,2012).
- **Program Committee Member**: Pattern Recognition in Remote Sensing 2012, 2014, 2016,Big Spatial, 2015, PetascaleData Analytics: Challenges, and Opportunities (PDAC-12), ICVGIP12, Spatial and Spatio-temporal data mining (SSTDM 08, 09, 10,11,12), Theme coordinator/Session Organizer, IGARSS 09,14,15,16Semantic Scientific Knowledge Integration (SSKI) Symposium, Stanford. **Invited session co-chair**: IGARSS 2009, 2010, 2011 (Data Mining and Machine Learning for Remote Sensing),**Session co-chair (IGARSS 2008, 2009, 2010)**: GIS Techniques and Standards (oral), Geographic Information Science: Techniques (oral) GIS Techniques and Standards I (poster), GIS Techniques and Standards II (poster), Geographic Information Science Applications Data Mining Tools and applications, Geographic Information Science tools
- **Manuscript Reviewer**

Journals: Computers and Geosciences Journal, IEEE Geoscience and Remote Sensing, IEEE Geoscience and Remote Sensing Letters, IEEE Journal of Selected Topics in Applied Earth Observations and Remote Sensing,Geoinformatica,International Journal of Image and Data Fusion, Earth Science Informatics (Springer), Optical Engineering, Journal of Geomatics. Computers and Electronics in Agriculture. **Conference papers reviewer:** IGARSS (2008-2017), SSTDM (2008-2017), IAPR Workshop on Pattern Recognition in Remote Sensing PRRS-2012,2014, 2016,2017, SSTDM-2015, 2016,2017, Big spatial 2015,16,17, ICSD-2015,Petascale Data Analytics: Challenges and Opportunities (PDAC-12), SSKI 2008

Thesis Advisor and Postgraduate Scholar Sponsors over the Last Five Years (3 PhD, 16 M.Tech):

- 2011 - current Supervisor for 5 PhD students, Co-supervisor to 4 PhD students, CSRE, IIT Bombay

- 2011-2017 Supervisor to 12 M.Tech and Co-supervisor to 4 M.Tech Students
- 2008-2010 Co-Major Professor for 6 students (MSU, USA)
- 2008-2010 Ph.D. Graduate committee member for 4 students (MSU, USA)
- 2007- 2010 PhD. Co-Major Professor and dissertation Supervisor for 1 student (MSU, USA)

Awards/Recognition

- NVIDIA Innovation award, NVIDIA, 2016
- Excellence in Teaching award, IIT Bombay, 2016
- StatePride Faculty award, MSU, 2009
- Outstanding Research award at MSU, 2008

Curriculum vitae

Dr. Sittichai Choosumrong
Assistant Professor
Department of Natural Resource and Environment
Faculty of agriculture, natural resources and environment,
Naresuan university, Phitsanulok, Thailand
Ph. +66(55)962753, email. sittichaic@nu.ac.th

PROFESSIONAL PREPARATION

College/University	Major	Degree&Year
Naresuan University, Thailand	Geography	B.Sc., 2004
Osaka City University, Japan	Urban Informatics	M.S, 2011
Osaka City University, Japan	Urban Informatics	Ph.D., 2014

B. ACADEMIC/PROFESSIONAL APPOINTMENTS

- Assistant Professor (2014 - till date), Department of Natural Resource and Environment, Naresuan University, Thailand
- Meteorologist (2007-2008), at National Disaster Warning Center and Thai Meteorological Department
- Team Leader (2005- 2007), Ortho Photogrammetry section at Pasco Co., Ltd. Bangkok, Thailand

C. SELECTED PUBLICATIONS

Choosumrong, S., Raghavan, V., Delucchi, L., Yoshida, D. and Vinayaraj, P. (2014) Implementation of Dynamic Routing as a Web Service for Emergency Routing Decision Planning, International Journal of Geoinformatics, Vol.10, No.2, pp.13-20 (ISSN 1686-6576)

Choosumrong, S., Raghavan, V. and Bozon, N. (2012) Multi-Criteria Emergency Route Planning Based on Analytical Hierarchy Process and pgRouting, Geoinformatics, Vol.23, No. 4, 159-168. Choosumrong, S., (2014) Development of A Web-GIS Application Based on Mobile Interface for Multi-Purpose Application Fields Using FOSS4G, Proceedings of GIS-IDEAS 2014, Danang, Vietnam, 6-9 December 2014

Choosumrong, S., Raghavan, V. and Yoshida, D. (2013) Implementing Dynamic Routing as a Web Service for Multi-purpose Applications, Proceedings of Geoinforum 2013, Tsukuba, Japan, 20-21June 2013, Geoinformatics, Vol. 24, No. 2, pp. 98-99 (ISSN 0388-502X).
Choosumrong, S., Raghavan, V. and Bozon ,N. (2012) Development of Web-GIS Application for Emergency Route Decision and Planning using AHP analysis and

pgRouting algorithm, Proc[illegible] of GIS-IDEAS 2012, Hochiminh, Vietnam, 16-20 October 2012.

Choosumrong, S., Raghavan, V. and Realini, E. (2010) Implementation of dynamic cost based routing for navigation under real road conditions using FOSS4G and OpenStreetMap, Proceedings of Geoinforum 2010, Tokyo, Japan, 22-23 June 2010, Geoinformatics, Vol. 21, No. 2, pp. 108-109 (ISSN 0388-502X)

Choosumrong, S. and Rag[illegible] V. (2011) Optimal Traffic Routing Based on Real-time Cost Updates for Current Road Conditions, Proceedings of Geoinforum 2011, Osaka, Japan, 23-24 June 2011, Geoinformatics, Vol. 22, No. 2, pp. 66-67 (ISSN 0388-502X)

D. SYNERGISTIC ACTIVITIES

Projects:

- PI"Development of an elderly database to support change and follow up with GIS" granted from the budget of 2018 for National Strategic Plan Budget during 2017-2018
- PI for "Development of a Timely Environmental Alert System in Farms to Enhance Productivity for Small Farmers" on Annual Research and Innovation Project to transfer technology funded by CMR Foundations during 2016-2017

PI for "Development of Decision Support Systems to Find Routes for Emergency Medical Services" funded by Institute of Emergency Medicine, Thailand during 2016-2017.

- Project Consultant for "Data Analysis and Mapping for One Map Improvement" funded by Ministry of Natural Resources and Environment during 2016

Selected Professional Training [illegible]eceived/Conducted:

November 7-8, 2008 : Attended to FOSS4G (Free and Open Source Softwere for Geospatial) Osaka conference, MapServer workshop and pgRouting workshop in Osaka.

August 2009: Attended the Database Management System using PostgreSQL/PostGIS Workshop in Osaka.

September 2009: Attended the OpenLayers and MapServer workshop in Umeda Campus, Osaka City University.

October 2009: Attended the ZOO-Web processing Service workshop in Umeda Campus, Osaka City University.

June 2011: Attended an Opensource Geospatial workshop in Umeda Campus, Osaka City University.

June 2011: Attended the Plugin for QGIS using Python programing workshop in Osaka City University.

June 5th, 2013: Attended the UAV, disaster mapping workshop in Umeda Campus, Osaka City University.

June 12th, 2013: Attended DEM analysis using QGIS workshop in Umeda Campus, Osaka City University.

August 12, 2014 : special lecturer on MapServer workshop at University of Phayao, Phayao, Thailand.

December 2, 2014 : ZOO WPS and MapMint workshop in AIT, Bangkok, Thailand.
December 6, 2014 : ZOO WPS and MapMint workshop in University of Danang, Vietnam. December 12, 2014 : MapServer workshop in Naresuan University, Phitsanulok, Thailand.

Awards/Recognition

2011-2014 Japanese Government (Monbukagakusho) Scholarship for pursuing Doctoral Degree in Urban Informatics, Oska City University, Japan

2009-2011 Japanese Government (Monbukagakusho) Scholarship for pursuing Master Degree in Urban Informatics Oska City University, Japan

2008-2009 Japanese Government (Monbukagakusho) Scholarship for Research student in Urban Informatics Oska City University, Japan.

Curriculum vitae

Dr. V Rajesh Chowdhary
Associate Professor
Electronics & Telecommunication Engineering (E&TC)
International Institute of Information Technology, Pune (IITP)
Ph. 020-22933441, email. vrajeshc@isquareit.edu.in

A. PROFESSIONAL PREPARATION

College/University	Major	Degree&Year
Jawaharlal Nehru Technological University, Kakinada	Electronics & Communication Engineering	B.E., 2009
International Institute of Information Technology, Pune	Satellite Communication & Space Systems	M.Tech, 2011
Asian Institute of Technology (Thailand)	Remote Sensing & GIS	Ph.D., 2015

B. ACADEMIC/PROFESSIONAL APPOINTMENTS

- Associate Professor (Jan 2018 - till date), Electronics & Telecommunication Engineering (E&TC), IIIT Pune

- Research Associate (Jun 2015 -- Dec 2017), Remote Sensing & GIS, Asian Institute of Technology, Thailand

C. SELECTED PUBLICATIONS

Sivavaraprasad, G., Otsuka, Y., Tripathi,N.K., Chowdhary, V.R., Ratnam, D.V., Khan, A.K., "Spatial and temporal characteristics of ionospheric total electron content over Indian equatorial and low-latitude GNSS stations" in Conference on Signal Processing And Communication Engineering Systems (SPACES), 4th -5th January 2018, IEEE Xplore. Suraj P.S., Kumar Dabbakuti, J.R.K., Chowdhary, V.R., Nitin K. Tripathi, D.Venkata Ratnam "Linear time series modeling of GPS-derived TEC observations over the Indo-Thailand region" https://doi.org/10.1007/s00190-017-1099-6, Journal of Geodesy, 2017. V Rajesh Chowdhary, Nitin K Tripathi, Sanit Arunpold, "Ionospheric Impact of Severe Space Weather Events on GNSS Measurements from Thailand" in 2nd International Conference on Aerospace Electronics, Electrical, Communications & Instrumentation, Vijayawada, India, 22nd -23rd October 2016. Sarawoot Rungruenwajiake, Dessi Marlia, Azad Ahmad Mansoori,V. Rajesh Chowdhary, "Investigation of 08 November 2004 Storm effects on Ionosphere at Southern and Northern hemisphere and its comparison with IRI and RT-IRI", in International Reference Ionosphere (IRI) 2015 Workshop, during 2nd -13th November 2015, Bangkok, Thailand. Chowdhary, V.R., Tripathi, N.K., Arunpold.S.,

Raju,D.K., Characterization of GPS-TEC in low-lattitude region over Thailand during 2010-2012, Annals of Geophysics. Vol 58, No 5, 2015. ▪ Chowdhary, V.R., Tripathi, N.K., Arunpold, S., Raju, D.K.,Variations of total electron content in the equatorial anomaly region in Thailand, Advance in Space Research., 55,231-242, 2015. ▪ Arunpold, S., Tripathi, N.K., Chowdhary, V.R., Raju, D.K., Comparison of GPS-TEC measurements with IRI-2007 and IRI-2012 modeled TEC at an equatorial latit.. station, Bangkok, Thailand. J. Atmos. Sol. Terr. Phys. 117, 88–94, 2014. ▪ Tripathi, N.K., Chowdhary, V.R., Arunpold, S., "Ionospheric Scintillations during increasing Solar Activities using GPS", in Asian Congress on Citizen & Environment Safety & Security, U-Town, Singapore, 5th - 7th June 2013.

D. SYNERGISTIC ACTIVITIES

Projects:

▪ Collaborative Research for the Regional Forum on Climate Change on the topic "Developing new methods to monitor forest carbon in Asian tropical forests" 2016 – 2018, funded by French Government as Research Associate ▪ Project for developing course modules on "GIS for Health & Geoinformatics for Coastal & Marine Resource Management" 2015 – 2018, funded by Erasmus + (EU) as Research Associate ▪ Local ionospheric scintillation analysis (LISA) using GNSS stations in Thailand, 2014-2016, funded by US AOARD as Research Associate ▪ Research on Ionospheric Scintillations in Asia (RISA) using GNSS, 2011- 2014, funded by US AOARD (United States Asian Office of Aerospace Research & Development) as Doctoral Student

Selected Outreach Activities:

▪ Conducted 3 days National level Faculty Development Program on "Geoinformatics System" at Department of Computer Engineering, International Institute of Information Technology, Pune, India during 24th – 26th April 2018 ▪ Conducted five days workshop on "Remote Sensing & GIS Applications" at Civil Department, Vasireddy Venkatadri Institute of Technology, Nambur, Guntur , Andhra Pradesh, India, during 18th – 22th December 2017.▪ Conducted two days training for "Capacity Building Programme on Flood Risk Assessment and Management" at AIT for Climate Technology Centre & Network (CTCN) project, during 30th October – 8th November 2017 as a resource personnel.▪ Conducted 5 days workshop on "Geoinformatics System Development" at JIS College of Engineering, Kalyani, West Bengal, India during 24th – 28th July 2017.▪ Conducted a one week hands-on training on Urban Planning & Management for SJ College of Engineering at Mysore, India under MHRD sponsored GIAN project during 24th -30th July 2016 with Prof Nitin Kumar Tripathi. ▪Conducted a one-week hands-on training on RS & GIS for UNDP personnel at AIT during 24th -28th November 2015.

Selected Conferences/Workshop Organized:

▪ Organized one day conference on "Flood Rapid Defence System" in association with Korean Institute of Civil Engineering & Building Technology, South Korea at AIT on 21st November 2017.

▪ Organized two days workshop on "Mobile Web GIS Applications for Monitoring & Evaluation" in association with Open Source Geo (OSGeo) at Holiday Inn, Bangkok during 25th -26th August 2017. ▪ Organized four days workshop on "Creating Research Competency" in association with "National Research Council of Thailand" at Asian Institute of Technology, Thailand, funded by NRCT, during 3rd – 6th July 2017. ▪ Organized two weeks "Geo Services 4 Sustainability (GeoS4S) International Summer School – 1" co-funded by the Erasmus+ programme of the European Union at Asian Institute of Technology, Thailand during 22nd May – 2nd June 2017. ▪ Organized a one week workshop on BioShare Asia at Asian Institute of Technology, Thailand, during 2nd -6th August 2016. ▪ Program Coordinator for "6th International Conference on Health GIS 2015" during 19th

-21st November 2015 in Mysore, India. ▪ Organizing and Logistics committee member for "Free and Open Source Solution for Geoinformatics (FOSS4G), ASIA Conference" Bangkok, Thailand, 2nd -5th December, 2014. ▪ Organizing and Logistics committee member for "5th International Conference on Health GIS 2013" Bangkok, Thailand, 21st -23rd August 2013.

Awards/Recognition

▪ Japanese Government Scholarship for pursuing PhD in Asian Institute of Technology, Bangkok, Thailand during 2011-2015. ▪ Received full grant by office of Outer Space Affairs, United Nations to participate in workshop and Conference on NeQuick" at International Centre for Theoretical Physics, Trieste, Italy during 4th – 8th May 2015

UNIVERSITY OF PHAYAO
THAILAND

PHAISARN JEEFOO, PH.D.
ASSISTANT PROFESSOR
MALE, THAISARN, 37
No. 19, Moo 2,
Mae-Ka, Muang, Phayao
Thailand 56000
Email: p.jeefoo@gmail.com
URL: http://ict.up.ac.th/phaisarn/
Tel., (Office): +66-54466666 ext., 2312
Fax: +66-54466666 ext., 2329
Mobile: +66-872030721

PERSONAL DETAILS

- Father's Name : Lee Jeefoo
- Date of Birth : 21th May 1981
- Linguistic Proficiency : English, Thai

EDUCATION

Degree/ Examination	Year of Passing	School/Institute	Board/University	Percentage /Grade
Ph.D (Remote Sensing & Geographic Information Systems)	2011	Department of Information and Communication Technologies, School of Engineering and Technology	Asian Institute of Technology (AIT)	3.75/4.00
M.Tech (Remote Sensing & Geographic Information Systems)	2006	Department of Information and Communication Technologies, School of Engineering and Technology	Asian Institute of Technology (AIT)	3.25/4.00
B.S. (Geography)	2004	Geography, Faculty of Agriculture Natural Resources and Environment	[illegible] University, Thailand	2.71/4.00
Class XII	2000	Wired Science - Mathematics	Chak Kham Khanathon School, Lamphun, Thailand	2.24/4.00

PROJECT WORK / TRAINING

PUBLICATIONS

Jeefoo, P., Tripathi, N.K., Souris, M., Phonekeo, V., and Pirasteh, S., (2009). Exploring Geospatial Factors Contributing to Malaria Prevalence in Kanchanaburi, Thailand. International Journal of Geoinformatics, 5(1), 21-26.

Jeefoo, P., Tripathi, N.K., Souris, M., (2011). Spatio-temporal Diffusion Pattern and Hotspot Detection of Dengue in Chachoengsao Province, Thailand. International Journal of Environmental Research and Public Health, 8(1), 51-74.

Jeefoo, P., Tripathi, N.K., (2011). Dengue Risk Zone Index (DRZI) for Mapping Dengue Risk Areas. International Journal of Geoinformatics, 7(1), 53-62.

Jeefoo, P. (2012). Space-Time Analysis Tools of Dengue Epidemics in Chachoengsao Province, Thailand. International Journal of Geoinformatics, 8(3), 9-13.

Jeefoo, P. (2012). Spatial Temporal Dynamics and Risk Zonation of Dengue Fever, Dengue Hemorrhagic Fever, and Dengue Shock Syndrome in Thailand. International Journal of Education and Computer Science, 4(9), 58-68. DOI: 10.5815/ijmecs.2012.09.08

Phaisarn Jeefoo (2016). Analyzing Spatial Clustering and Hotspots Detection of HIV/AIDS Prevalence using GIS Technology. International Journal of Geoinformatics, 12(1), 65-73.

Sittichai Choosumrong, Venkatesh Raghavan, Phaisarn Jeefoo, and Natraj Vaddadi (2016). Development of Service Oriented Web-GIS Platform for Monitoring and Evaluation using FOS4G. International Journal of Geoinformatics, 12(3), 67-77.

AREAS OF RESERCH INTERESTS

- Remote Sensing and GIS for Environmental
- GIS database
- Digital Cartography
- Digital Photogrammetry
- 3D GIS
- Web Base GIS (WMS/WFS/WPS)
- Digital Image Processing
- Spatial Analysis
- Database Management
- Free and Open Source
- GPS Technology

Books:

P K Joshi and T P Singh (eds) 2011. Geoinformatics for Climate Change Studies (Chapter 9 – Impact of Climate Variability on Human Health – Malaria Prevalence in Kanchanaburi, Thailand by Phaisarn Jeefoo). New Delhi: The Energy and Resources Institute (TERI) 2011. ISBN 978-81-7993-409-8

ไพศาล จี้ฟู (2018). การพัฒนาโปรแกรมประยุกต์สำหรับระบบสารสนเทศภูมิศาสตร์บนเว็บ (Application Development for Web-based GIS), พิมพ์ครั้งที่ [illegible] สำนักพิมพ์จุฬาลงกรณ์มหาวิทยาลัย, ISBN : 9789740337508.

Biodata of investigators

Curriculum vitae

Dr. Surya S. Durbha
Associate Professor
Centre of Studies in Resources Engineering (CSRE)
Indian Institute of Technology Bombay (IITB)
Ph. 022-25767679, email. sdurbha@iitb.ac.in

A. PROFESSIONAL PREPARATION

College/University	Major	Degree&Year
Andhra University	Civil-Environmental Engineering	B.E., 1994
Andhra University	Remote Sensing	M.Tech, 1997
Mississippi State University (USA)	Computer Engineering	Ph.D., 2006

B. ACADEMIC/PROFESSIONAL APPOINTMENTS

- Associate Professor(Sep 2014-till date), Centre of Studies in Resources Engineering (CSRE), IIT Bombay
- Assistant professor (Apr 2011-Aug 2014), Centre of Studies in Resources Engineering (CSRE), IIT Bombay
- Assistant Research Professor (June 2009 –March 2011), Mississippi State University, Center for Advanced Vehicular Systems (CAVS), USA.
- Assistant Research Professor (2006 – June 2009), Mississippi State University, GeoResources Institute (GRI), USA.
- Scientist, 'SD', (1998-2001), Indian Institute of Remote Sensing (IIRS), Department of Space, India;

C. SELECTED PUBLICATIONS

(Full list of Publications:
https://scholar.google.co.in/citations?user=_9b5RVUAAAAJ&hl=en&oi=ao)

U. Bharambe., S. S. Durbha (2018), Adaptive Pareto-based approach for geo-ontology matching. Computers & Geosciences.Elsevier,119,92-108.

U. Bhangale., S. S. Durbha, R. L. King., N. H Younan., & R. Vatsavai. (2017). High performance GPU computing based approaches for oil spill detection from multi-temporal remote sensing data. Remote Sensing of Environment, Elsevier.

S. Sawant, S. S. Durbha, A. Jagarlapudi,(2017), Interoperable agro-meteorological observation and analysis platform for precision agriculture: A case study in citrus crop water requirement estimation, "Computers and Electronics in Agriculture", Volume 138, Pages 175-187, 2017 (Elsevier)

K. R. Kurte, S. S. Durbha, R. L. King., N. H Younan., & R. Vatsavai. (2016). Semantics-Enabled Framework for Spatial Image Information Mining of Linked Earth Observation Data. IEEE Journal of Selected Topics in Applied Earth Observations and Remote Sensing, 10(1), 29-44.)

S. S. Durbha, R. L. King, A. Prakash, & N. H. Younan, (A '2). Transfer Learning for Image Information Mining Applications. International Journ. ge and Data Fusion Taylor & Francis, 10, 17. DOI: 10.1080/19479832.2012.698658.

B. Gokaraju, S. S. Durbha R. L. King, & N. H Younan (Sep 2011). A Machine Learning Based Spatio-Temporal Data Mining Approach for Detection of Harmful Algal Blooms in the Gulf of Mexico. IEEE Journal of Selected Topics in Applied Earth Observations and Remote Sensing IEEE, 4(3), 710-720

S. S. Durbha, R. L. King,, S. K.,Amanchi, S. Bheer dy, & N.H. Younan (2010). Standards-based middleware and tools for coastal se applications. IEEE Journal of Selected Topics in Applied Earth Observations and Remote Sensing, 3(4), 451-466.

S. S. Durbha, R. L. King, and N.H. Younan (2007) "Support Vector Regression to estimate Leaf Area Index from Multi-angle Imaging Spectroradiometer, *Remote Sensing of Environment*, 107, 348-361

V. P. Shah, N. H. Younan, S. S. Durbha, and R. L. King, (April 2007). "A Systematic Approach to Wavelet Decomposition-Level Selection for Image Infor n Mining From Geospatial Data Archives," *IEEE Transactions on Geoscience and Remote Se* l. 45, no. 4, pp. 875 – 878,.

S. S. Durbha and R. L. King, (Nov 2005.) "Semantics-enabled framework for knowledge discovery from Earth observation data archives", *IEEE Transactions on Geosciences and Remote Sensing* Vol.43, NO.11,

D. SYNERGISTIC ACTIVITIES

- Disclosure filed at NASA eNTRe system on a new technology Report (NF1679) by MSU office of technology and commercialization

Report title: Semantics-Enabled Knowledge Retrieval from E rvation Data Archives

- **Patent:** Sawant S.A., Durbha S.S., J. Adinarayana. Se e: Interoperable Wireless Sensing System for Precision Agriculture. Patent File Number: 2236/MUM/2015. (Status: published)

- Co-instructor for a full day Tutorial on "Advanced Classification Techniques for remote sensing "at International Geoscience and Remote Sensing Symposium (IGARSS 2009,2010,2012).
- **Program Committee Member**: Pattern Recognition in ensing 2012, 2014, 2016,Big Spatial, 2015, PetascaleData Analytics: Challenges, and Opportunities (PDAC-12), ICVGIP12, Spatial and Spatio-temporal data mining (SSTDM 08, 09, 10,11,12), Theme coordinator/Session Organizer, IGARSS 09,14,15,16Semantic Scientific Knowledge Integration (SSKI) Symposium, Stanford. **Invited session co-chair**: IGARSS 2009, 2010, 2011 (Data Mining and Machine Learning for Remote Sensing) **Session co-chair (IGARSS 2008, 2009, 2010)**: GIS Techniques and Standards (oral), Geo Information Science: Techniques (oral) GIS Techniques and Standards I (po Techniques and Standards II (poster), Geographic Information Science Applications Data Mining Tools and applications, Geographic Information Science tools
- **Manuscript Reviewer**

Journals: Computers and Geosciences Journal, IEEE Geoscience and Remote Sensing, IEEE Geoscience and Remote Sensing Letters, IEEE Journal of Selected Topics in Applied Earth Observations and Remote Sensing,Geoinformatica,Interna Journal of Image and Data Fusion, Earth Science Informatics (Springer), Optical Engi Journal of Geomatics.

Computers and Electronics in Agriculture. **Conference papers reviewer:** IGARSS (2008-2017), SSTDM (2008-2017), IAPR Workshop on Pattern Recognition in Remote Sensing PRRS-2012,2014, 2016,2017, SSTDM-2015, 2016,2017, Big spatial 2015,16,17, ICSD-2015,Petascale Data Analytics: Challenges and Opportunities (PDAC-12), SSKI 2008

Thesis Advisor and Postgraduate Scholar Sponsors over the Last Five Years (3 PhD, 16 M.Tech):

- 2011 - current Supervisor for 5 PhD students, Co-supervisor to 4 PhD students, CSRE, IIT Bombay
- 2011-2017 Supervisor to 12 M.Tech and Co-supervisor to 4 M.Tech Students
- 2008-2010 Co-Major Professor for 6 students (MSU, USA)
- 2008-2010 Ph.D. Graduate committee member for 4 students (MSU, USA)
- 2007- 2010 PhD. Co-Major Professor and dissertation Supervisor for 1 student (MSU, USA)

Awards/Recognition

- NVIDIA Innovation award, NVIDIA, 2016
- Excellence in Teaching award, IIT Bombay, 2016
- StatePride Faculty award, MSU, 2009
- Outstanding Research award at MSU, 2008

Curriculum vitae

Dr. Sittichai Choosumrong
Assistant Professor
Department of Natural Resource and Environment
Faculty of agriculture, natural resources and environment,
Naresuan university, Phitsanulok, Thailand
Ph. +66(55)962753, email. sittichaic@nu.ac.th

PROFESSIONAL PREPARATION

College/University	Major	Degree&Year
Naresuan University, Thailand	Geography	B.Sc., 2004
Osaka City University, Japan	Urban Informatics	M.S, 2011
Osaka City University, Japan	Urban Informatics	Ph.D., 2014

B. ACADEMIC/PROFESSIONAL APPOINTMENTS

- Assistant Professor (2014 - till date), Department of Natural Resource and Environment, Naresuan University, Thailand
- Meteorologist (2007-2008), at National Disaster Warning Center and Thai Meteorological Department
- Team Leader (2005- 2007), Ortho Photogrammetry section at Pasco Co., Ltd. Bangkok, Thailand

C. SELECTED PUBLICATIONS

Choosumrong, S., Raghavan, V., Delucchi, L., Yoshida, D. and Vinayaraj, P. (2014) Implementation of Dynamic Routing as a Web Service for Emergency Routing Decision Planning, International Journal of Geoinformatics, Vol.10, No.2, pp.13-20 (ISSN 1686-6576)

Choosumrong, S., Raghavan, V. and Bozon, N. (2012) Multi-Criteria Emergency Route Planning Based on Analytical Hierarchy Process and pgRouting, Geoinformatics, Vol.23, No. 4, 159-168. Choosumrong, S., (2014) Development of A Web-GIS Application Based on Mobile Interface for Multi-Purpose Application Fields Using FOSS4G, Proceedings of GIS-IDEAS 2014, Danang, Vietnam, 6-9 December 2014

Choosumrong, S., [illegible] and Yoshida, D. (2013) Implementing Dynamic Routing as a Web Service for M[illegible] Applications, Proceedings of Geoinforum 2013, Tsukuba, Japan, 20-21June 2013, Geoinformatics, Vol. 24, No. 2, pp. 98-99 (ISSN 0388-502X).

Choosumrong, S., Raghavan, V. and Bozon ,N. (2012) Development of Web-GIS Application for Emergency Route Decision and Planning using AHP analysis and pgRouting algorithm, Proceedings of GIS-IDEAS 2012, Hochiminh, Vietnam, 16-20 October 2012.

Choosumrong, S., Raghavan, V. and Realini, E. (2010) Implementation of dynamic cost based routing for navigati[illegible]oad conditions using FOSS4G and OpenStreetMap, Proceedings of Geo[illegible]okyo, Japan, 22-23 June 2010, Geoinformatics, Vol. 21, No. 2, pp. 108-109 (ISSN 0388-502X)

Choosumrong, S. and Raghavan, V. (2011) Optimal Traffic Routing Based on Real-time Cost Updates for Current Road Conditions, Proceedings of Geoinforum 2011, Osaka, Japan, 23-24 June 2011, Geoinformatics, Vol. 22, No. 2, pp. 66-67 (ISSN 0388-502X)

D. SYNERGISTIC

Projects:

- PI"Development of an elderly database to support change and follow up with GIS" granted from the budget of 2018 for National Strategic Plan Budget during 2017-2018
- PI for "Develop[illegible]mely Environmental Alert System in Farms to Enhance Productivity for Small Farmers" on Annual Research and Innovation Project to transfer technology funded by CMR Foundations during 2016-2017

PI for "Development of Decision Support Systems to Find Routes for Emergency Medical Services" funded by Institute of Emergency Medicine, Thailand during 2016-2017.

- Project Consultant for "[illegible]nalysis and Mapping for One Map Improvement" funded by Ministry of Natural Resources and Environment during 2016

Selected Professional Training Received/Conducted:

November 7-8, 2008 : Attended to FOSS4G (Free and Open Source Softwere for Geospatial) Osaka conference, MapServer workshop and pgRouting workshop in Osaka.

August 2009: Attended the Database Management System using PostgreSQL/PostGIS Workshop in Osaka.

September 2009: Attended the OpenLayers and MapServer workshop in Umeda Campus, Osaka City University.

October 2009: Atter[illegible]Web processing Service workshop in Umeda Campus, Osaka City University.

June 2011: Attended an Opensource Geospatial workshop in Umeda Campus, Osaka City University.

June 2011: Attended the Plugin for QGIS using Python programing workshop in Osaka City University.

June 5th, 2013: Attended the UAV, disaster mapping workshop in Umeda Campus, Osaka City University.

June 12th, 2013: Attended DEM analysis using QGIS workshop in Umeda Campus, Osaka City University.

August 12, 2014 : special lecturer on MapServer workshop at University of Phayao, Phayao, Thailand.

December 2, 2014 : ZOO WPS and MapMint workshop in AIT, Bangkok, Thailand.
December 6, 2014 : ZOO WPS and MapMint workshop in University of Danang, Vietnam.
December 12, 2014 : MapServer workshop in Naresuan University, Phitsanulok, Thailand.

Awards/Recognition

2011-2014 Japanese Government (Monbukagakusho) Scholarship for pursuing Doctoral Degree in Urban Informatics, Oska City University, Japan

2009-2011 Japanese Government (Monbukagakusho) Scholarship for pursuing Master Degree in Urban Informatics Oska City University, Japan

2008-2009 Japanese Government (Monbukagakusho) Scholarship for Research student in Urban Informatics Oska City University, Japan.

Curriculum vitae

Dr. V Rajesh Chowdhary
Associate Professor
Electronics & Telecommunication Engineering (E&TC)
International Institute of Information Technology, Pune (IIITP)
Ph. 020-22933441, email. vrajesho@isquareit.edu.in

A. PROFESSIONAL PREPARATION

College/University	Major	Degree&Year
Jawaharlal Nehru Technological University, Kakinada	Electronics & Communication Engineering	B.E., 2009
International Institute of Information Technology, Pune	Satellite Communication & Space Systems	M.Tech, 2011
Asian Institute of Technology (Thailand)	Remote Sensing & GIS	Ph.D., 2015

B. ACADEMIC/PROFESSIONAL APPOINTMENTS

- Associate Professor (Jan 2018 - till date), Electronics & Telecommunication Engineering (E&TC), IIIT Pune

- Research Associate (Jun 2015 – Dec 2017), Remote Sensing & GIS, Asian Institute of Technology, Thailand

C. SELECTED PUBLICATIONS

Sivavaraprasad, G., Otsuka, Y., Tripathi,N.K., Chowdhary, V.R., Ratnam, D.V., Khan, A.K., "Spatial and temporal characteristics of ionospheric total electron content over Indian equatorial and low-latitude GNSS stations" in Conference on Signal Processing And Communication Engineering Systems (SPACES), 4th -5th January 2018, IEEE Xplore. Suraj P.S., Kumar Dabbakuti, J.R.K., Chowdhary, V.R., Nitin K. Tripathi, D.Venkata Ratnam "Linear time series modeling of GPS-derived TEC observations over the Indo-Thailand region" https://doi.org/10.1007/s00190-017-1099-6, Journal of Geodesy, 2017. V Rajesh Chowdhary, Nitin K Tripathi, Sanit Arunpold, "Ionospheric Impact of Severe Space Weather Events on GNSS Measurements from Thailand" in 2nd International Conference on Aerospace Electronics, Electrical, Communications & Instrumentation, Vijayawada, India, 22nd -23rd

October 2016. ▪ Sarawoot Rungruenwajiake, Dessi Marlia, Azad Ahmad Mansoori,V. Rajesh Chowdhary, "Investigation of 08 November 2004 Storm effects on Ionosphere at Southern and Northern hemisphere and its comparison with IRI and RT-IRI", in International Reference Ionosphere (IRI) 2015 Workshop, during 2nd -13th November 2015, Bangkok, Thailand. ▪ Chowdhary, V.R., Tripathi, N.K., Arunpoid.S., Raju,D.K., Characterization of GPS-TEC in low-lattitude region over Thailand during 2010-2012, Annals of Geophysics. Vol 58, No 5, 2015. ▪ Chowdhary, V.R., Tripathi, N.K., Arunpold, S., Raju, D.K.,Variations of total electron content in the equatorial anomaly region in Thailand, Advance in Space Research., 55,231-242, 2015. ▪ Arunpold, S., Tripathi, N.K., Chowdhary, V.R., Raju, D.K., Comparison of GPS-TEC measurements with IRI-2007 and IRI-2012 modeled TEC at an equatorial latitude station, Bangkok, Thailand. J. Atmos. Sol. Terr. Phys. 117, 88–94, 2014. ▪ Tripathi, N.K., Chowdhary, V.R., Arunpold, S., "Ionospheric Scintillations during increasing Solar Activities using GPS", in Asian Congress on Citizen & Environment Safety & Security, U-Town, Singapore, 5th - 7th June 2013.

D. SYNERGISTIC ACTIVITIES

Projects:

▪ Collaborative Research for the Regional Forum on Climate Change on the topic "Developing new methods to monitor forest carbon in Asian tropical forests" 2016 – 2018, funded by French Government as Research Associate ▪ Project for developing course modules on "GIS for Health & Geoinformatics for Coastal & Marine Resource Management" 2015 – 2018, funded by Erasmus + (EU) as Research Associate ▪ Local ionospheric scintillation analysis (LISA) using GNSS stations in Thailand, 2014-2016, funded by US AOARD as Research Associate ▪ Research on ionospheric Scintillations in Asia (RISA) using GNSS, 2011- 2014, funded by US AOARD (United States Asian Office of Aerospace Research & Development) as Doctoral Student

Selected Outreach Activities:

▪ Conducted 3 days National level Faculty Development Program on "Geoinformatics System" at Department of Computer Engineering, International Institute of Information Technology, Pune, India during 24th – 26th April 2018 ▪ Conducted five days workshop on "Remote Sensing & GIS Applications" at Civil Department, Vasireddy Venkatadri Institute of Technology, Nambur, Guntur , Andhra Pradesh, India, during 18th – 22th December 2017.▪ Conducted two days training for "Capacity Building Programme on Flood Risk Assessment and Management" at AIT for Climate Technology Centre & Network (CTCN) project, during 30th October – 8th November 2017 as a resource personnel.▪ Conducted 5 days workshop on "Geoinformatics System Development" at JIS College of Engineering, Kalyani, West Bengal, India during 24th – 28th July 2017.▪ Conducted a one week hands-on training on Urban Planning & Management for SJ College of Engineering at Mysore, India under MHRD sponsored GIAN project during 24th -30th July 2016 with Prof Nitin Kumar Tripathi. ▪Conducted a one-week hands-on training on RS & GIS for UNDP personnel at AIT during 24th -28th November 2015.

Selected Conferences/Workshop Organized:

▪ Organized one day conference on "Flood Rapid Defence System" in association with Korean Institute of Civil Engineering & Building Technology, South Korea at AIT on 21st November 2017.

▪ Organized two days workshop on "Mobile Web GIS Applications for Monitoring & Evaluation" in association with Open Source Geo (OSGeo) at Holiday Inn, Bangkok during 25th -26th August 2017. ▪ Organized four days workshop on "Creating Research Competency" in

association with "National Research Council of Thailand" at Asian Institute of Technology, Thailand, funded by NRCT, during 3rd – 6th July 2017. ▪ Organized two weeks "Geo Services 4 Sustainability (GeoS4S) International Summer School – 1" co-funded by the Erasmus+ programme of the European Union at Asian Institute of Technology, Thailand during 22nd May – 2nd June 2017. ▪ Organized a one week workshop on BioShare Asia at Asian Institute of Technology, Thailand, during 2nd -6th August 2016. ▪ Program Coordinator for "6th International Conference on Health GIS 2015" during 19th -21st November 2015 in Mysore, India. ▪ Organizing and Logistics committee member for "Free and Open Source Solution for Geoinformatics (FOSS4G), ASIA Conference" Bangkok, Thailand, 2nd -5th December, 2014. ▪ Organizing and Logistics committee member for "5th International Conference on Health GIS 2013" Bangkok, Thailand, 21st -23rd August 2013.

Awards/Recognition

▪ Japanese Government Scholarship for pursuing PhD in Asian Institute of Technology, Bangkok, Thailand during 2011-2015. ▪ Received full grant by office of Outer Space Affairs, United Nations to participate in workshop and Conference on NeQuick" at International Centre for Theoretical Physics, Trieste, Italy during 4th – 8th May 2015

UNIVERSITY OF PHAYAO
THAILAND

PHAISARN JEEFOO, PH.D.
ASSISTANT PROFESSOR
MALE, THAISARN, 37
No. 19, Moo 2,
Mae-Ka, Muang, Phayao
Thailand 56000
Email: p.jeefoo@gmail.com
URL: http://ict.up.ac.th/phaisarn/
Tel., (Office): +66-54466666 ext., 2312
Fax: +66-54466666 ext., 2329
Mobile: +66-872030721

PERSONAL DETAILS

- Father's Name : Lee Jeefoo
- Date of Birth : 21th May 1981
- Linguistic Proficiency : English, Thai

EDUCATION

Degree/ Examination	Year of Passing	School/Institute	Board/University	Percentage /Grade
Ph.D (Remote Sensing & Geographic Information Systems)	2011	Department of Information and Communication Technologies, School of Engineering and Technology	Asian Institute of Technology (AIT)	3.75/4.00
M.Tech (Remote Sensing & Geographic Information Systems)	2006	Department of Information and Communication Technologies, School of Engineering and Technology	Asian Institute of Technology (AIT)	3.25/4.00
B.S. (Geography)	2004	Geography, Faculty of Agriculture Natural Resources and Environment	Naresuan University, Thailand	2.71/4.00
Class XII	2000	Wired Science - Mathematics	Chak Kham Khanathon School, Lamphun, Thailand	2.24/4.00

PROJECT WORK / TRA[illegible]G

PUBLICATIONS

Jeefoo, P., Tripathi, N.K., Souris, M., Phonekeo, V., and Pirasteh, S., (2009). Exploring Geospatial Fac[illegible] to Malaria Prevalence in Kanchanaburi, Thailand. Internatio[illegible]

Jeefoo, P., Tripathi, N.K., Sou[illegible], M., (2011). Spatio-temporal Diffusion Pattern and Hotspot Detection of Dengue in Chachoengsao Province, Thailand. International Journal of Environmental Research and Public Health, 8(1), 51-74.

Jeefoo, P., Tripathi, N.K., (2011). Dengue Risk Zone Index (DRZI) for Mapping Dengue Risk Areas. Internatio[illegible]al of Geoinformatics, 7(1), 53-62.

Jeefoo, P. (2012). Sp[illegible] Dengue Epidemics in Chachoengsao Province, Thailand. Interna[illegible]rnal of G[illegible]nformatics, 8(3), 9-13.

Jeefoo, P. (2012). C[illegible]k Zonation of Dengue Fever, Dengue Hemorrhagic [illegible]ngué [illegible], [illegible]ne in Thailand. International Journal of Education and Computer Science, 4(9), 58-68. DOI: 10.5815/ijmecs.2012.09.08

Phaisarn Jeefoo (2016). Analyzing Spatial Clustering and Hotspots Detection of HIV/AIDS Prevalence using GIS Technology. International Journal of Geoinformatics, 12(1), 65-73.

Sittichai Choosum[illegible] Phaisarn Jeefoo, and Natraj Vaddadi (2016). Developm[illegible] [illegible]Platform for Monitoring and Evaluation using FOS4G. Internat[illegible]al Journal of Geoinformatics, 12(3), 67-77.

AREAS OF RESERCH INTERESTS

- Remote Ser[illegible] for Environmental
- GIS databa[illegible]
- Digital Ca[illegible]
- Digital Pho[illegible]
- 3D GIS
- Web Base GIS (WMS/WFS/WPS)
- Digital Image Processing
- Spatial Analysis
- Database Ma[illegible]
- Free and O[illegible]
- GPS Tech[illegible]

Book:

P K Joshi and T P Singh (eds) 2011. Geoinformatics for Climate Change Studies (Chapter 9 – Impact of Climate V[illegible]on Health – Malaria Prevalence in Kanchanaburi, Thailand by Phaisarn Jeefo[illegible]esources Institute (TERI) 2011. ISBN 978-81-7993-409-8

Certificate from Principal Investigators

"Service Oriented Participatory Platform for Local SDI: Smart Civic Services for Second Tier Cities in Thailand and India"

submitted as a project proposal under the Programme of Cooperation in the fields of Science and Technology for the years 2018-20, the Indian Department of Science and Technology (DST), Ministry of Science and Technology, Government of India and the Ministry of Science & Technology (MOST) of the Kingdom of Thailand.

We the undersigned, confirm on behalf of our organisations, Centre of Studies in Resources Engineering (CSRE), IIT Bombay, India and the Faculty of Agriculture Natural Resources and Environment, Naresuan University, Thailand, our interest in the above-mentioned project. We would seek to collaborate for the progress of this project and support the project submission.

We strongly believe that the submitted proposal is in line with the goals and aspirations of Programme of Cooperation in the fields of Science and Technology for the years 2018-20 and is consistent with the strategies of our organization.

We therefore fully support this initiative.

Dr. Sittichai Choosumrong (PI)
Naresuan University, Thailand
E-mail: sittichaic@nu.ac.th
Tel: +66-5-5962753
Dated: 16/07/2018

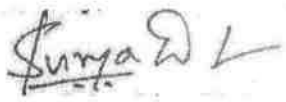
Dr. Surya Durbha (PI)
CSRE, IIT Bombay, India
E-mail: sdurbha@iitb.ac.in
Tel: +91-22-25767679
Dated: 16/07/2018

CONFLICT OF INTEREST

I have read the "Policy on Conflict of Interest" of the DST applicable to the Applicant and agree to abide by provisions thereof.

I hereby declare that I have no conflict of interest of any form in the proposed grant

Signature



Principal Investigator: Prof. Surya S. Durbha

Declaration from the Heads of the Collaborating Institutions:

It is certified that :

i. The Institutions agree to participate in this Joint Research Project; (Indo-Thailand) under the Research area: "Geospatial Technologies covering creation of GIS of towns in Thailand for urban development". The title of the proposed project is: "***Service Oriented Participatory Platform for Local SDI: Smart Civic Services for Second Tier Cities in Thailand and India***"

ii. The Institutions shall provide infrastructure & necessary facilities for implementing the joint project;

iii. The Institutions assume to undertake financial & other management responsibility for the part of the project work to be carriec

iv. the back-up funding for manpower, consumabl

13/7/18

Signature & Seal of the Head of the Institutions

(India)

विभागाध्यक्ष/Head
सी.एस.आर.ई.
Centre of Studies in Resources Engineering
आय.आय.टी. मुंबई/IIT Bombay,
पवई, मुंबई-७६/Powai, Mumbai - 76

I.I.T. Powai CSRE BOMBAY - 76

Vithaya Jansila

(Assoc. Prof. Dr. Vithaya Jansila)
Vice President, Naresuan University
THAI

INTERNATIONAL INSTITUTE OF INFORMATION TECHNOLOGY
Innovation & Leadership

Bhagyashri T <bhagyashrit@isquareit.edu.in>

Fwd: ASEAN-India STI Cooperation - Notification

11 messages

V. Rajesh Chowdhary <vrajeshc@isquareit.edu.in> 9 February 2019 at 14:15
To: ISquareIT All Faculty and Staff <allstaff@isquareit.edu.in>
Cc: Principal I2IT <principal@isquareit.edu.in>

Dear ISquareIT Family,

Greetings of the day....!!!

I am glad to inform that we have bagged an International Multilateral Research Project under Science & Engineering Research Board (SERB), Department of Science & Technology (DST), Government of India. In this project, our institute will be the lead Project Investigator (PI), along with two partners i.e., Asian Institute of Technology, Thailand ad Universiti Kebangsaan Malaysia. This project will involve two major research giants of our country, namely, Indian Space Research Organization (ISRO) and Airport Authority of India (AAI).

A total grant of INR 25.73 Lakhs will be released to our institute for execution of this research project over a two years period. I am grateful to each and everyone's support for making this happen. Next two years, will be very crucial for us for carrying out research and completion of the project on time. Meanwhile, during this period, our partner universities will be visiting our campus for annual meetings. This is also the time to prove our research capabilities and outcomes at the national and international space science community.

I am so excited to work for this prestigious project which involves space agencies of three countries namely, India, Thailand and Malaysia. Looking forward for the continued support and strength from our IsquareIT family members as always.

Thank you once again. Have a nice weekend.

Best Regards,
Rajesh

---------- Forwarded message ---------
From: <aistic@serbonline.in>
Date: Fri, 8 Feb 2019 at 17:55
Subject: ASEAN-India STI Cooperation - Notification
To: <aseanindiainfo@gmail.com>

सत्यमेव जयते

Government of India
Department of Science and Technology
(International Multilateral and Regional Cooperation Division)

Government of India

Department of Science and Technology

International Multilateral Regional Cooperation Division

(AISTDF Secretariat)

Science and Engineering Research Board
5 & 5A, Lower Ground Floor
Vasant Square Mall
Sector-B, Pocket-5
Vasant Kunj
New Delhi - 110 070

Approval Letter

File Number: CRD/2018/000037

Dated: 08-Feb-2019

To,

Subject: Project titled "Development of near real time regional TEC mapping at low-latitude Asean region using GNSS stations".

Dear **Dr. Rajesh Chowdhary Vattikuti**,

The above cited project has been approved for funding under ASEAN- India Collaborative R&D scheme under ASEAN-India S&T Development Fund (AISTDF).

Kindly follow the below steps only then you will be able to acknowledge the approval letter :

1. Go to www.aistic.gov.in through your credentials

2. Go to Menu --> Proposal submission --> View submitted proposals

3. Click on the link under Status column "Proposal Approved, Acknowledgement pending from PI"'

In order to process the issue of formal sanction order for release of funds to your Institute, you are requested to upload the following documents:

1. "Check list" duly signed by PI and forwarded by Head of the Institute / University etc for processing the security sensitivity clearance of HLC, as per template available at ePPMS.
2. Quotation for equipment/s, if any, (including freight, insurance, customs charges etc., if any) and salary structure for the project staff (including HRA, Medical Benefits, if applicable etc.)
3. RTGS details of your Institute to facilitate transfer of the fund as per the template available at ePPMS.

The above mentioned requisite documents may be uploaded at ePPMS within 15 days of receipt of this communication.

The project's reference no. CRD/2018/000037 may also be mentioned in all research communications arising from the above project.

Kindly quote the reference number in all future correspondence.

Sincerely your,

AISTDF Secretariat (SERB)

* Don't want to receive such notification anymore?Click here to send a mail to unsubscribe

--
Dr. V Rajesh Chowdhary
Associate Professor
Electronics & Telecommunications Engineering,
Hope Foundation's International Institute of Information Technology
P-14, Hinjewadi Rajiv Gandhi Infotech Park,
Hinjawadi, Pune, Maharashtra 411057
+91 8459557727

Adesh Patwardhan <adeshp@isquareit.edu.in> 9 February 2019 at 14:18
To: "V. Rajesh Chowdhary" <vrajeshc@isquareit.edu.in>
Cc: ISquareIT All Faculty and Staff <allstaff@isquareit.edu.in>, Principal - I²IT <principal@isquareit.edu.in>

Congrats Sir !! Best Wishes...
[Quoted text hidden]

Manjusha A <manjushaa@isquareit.edu.in> 9 February 2019 at 14:23
To: "V. Rajesh Chowdhary" <vrajeshc@isquareit.edu.in>
Cc: allstaff@isquareit.edu.in, Principal I2IT <principal@isquareit.edu.in>

Congratulations Sir!!
[Quoted text hidden]

Madhuri R <madhurir@isquareit.edu.in> 9 February 2019 at 14:48
To: Manjusha A <manjushaa@isquareit.edu.in>
Cc: Principal I2IT <principal@isquareit.edu.in>, "V. Rajesh Chowdhary" <vrajeshc@isquareit.edu.in>, allstaff@isquareit.edu.in

Congratulations sir
[Quoted text hidden]
--
Regards
Prof.Madhuri Reddy

Asst.Professor & CEO
"Hope Foundation's
International Institute of InformationTechnology (I²IT)".
P-14 Hinjawadi Rajiv Gandhi Infotech Park,
411057

Hodce I2IT <hodce@isquareit.edu.in> 9 February 2019 at 17:26
To: "V. Rajesh Chowdhary" <vrajeshc@isquareit.edu.in>
Cc: ISquareIT All Faculty and Staff <allstaff@isquareit.edu.in>, Principal I2IT <principal@isquareit.edu.in>

Heartiest congratulations sir

Sent from BlueMail
[Quoted text hidden]

Sandeep P <sandeepp@isquareit.edu.in> 9 February 2019 at 18:52
To: "V. Rajesh Chowdhary" <vrajeshc@isquareit.edu.in>
Cc: allstaff@isquareit.edu.in, Principal - I²IT <principal@isquareit.edu.in>

Letter of Understanding

Between

MOHAN Foundation & Hope Foundation's International Institute of Information Technology (I^2IT) Pune

This Letter of Understanding is signed between MOHAN Foundation & Hope Foundation's International Institute of Information Technology (I^2IT) Pune on 1st February 2021 for a period from 1st February 2021 to 31st May 2021.

This LoU is for technology projects related to Training for Organ donation and Organ Transplantation and other healthcare fields undertaken by undergraduates under the guidance of faculty of Hope Foundation's International Institute of Information Technology (I^2IT) Pune.

MOHAN Foundation is not for profit 24 years old NGO that promotes organ donation and having its Registered Office at 3rd Floor, Toshniwal Building, 267, Kilpauk Garden Road, Chennai-600 010.

International Institute of Information Technology (I^2IT) is an Educational Institution affiliated to Savitribai Phule Pune University having its Registered Office at P-14, Rajiv Gandhi Infotech Park, MIDC Phase – 1, Hinjawadi, Pune – 411057.

The International Institute of Information Technology (I^2IT) will provide consultancy to MOHAN Foundation and its associates (well-meaning individuals, volunteers or CSR companies) to help the NGO help in capacity building in this field.

MOHAN Foundation for this work will provide a nominal remuneration which is commensurate for the efforts undertaken.

The person responsible from MOHAN Foundation for these projects will be Dr. Sunil Shroff, Trustee of MOHAN Foundation or anyone else assigned by him.

The person responsible from International Institute of Information Technology (I^2IT) will be Dr. Sandeep R Patil or any faculty member assigned by him.

For MOHAN Foundation

Dr. Sunil Shroff
Trustee
Date: 1/2/21

Authorised Signatory
SUNIL SHROFF
Managing Trustee

MOHAN FOUNDATION
CHENNAI

For International Institute of Information Technology (I^2IT)

Dr. Sandeep R Patil
Associate Professor
Date:

Tax Invoice

Hope Foundation's International Institute of Info. Tech.
(Affiliated to Savitribai Phule Pune University)
P-14,Rajiv Gandhi Infotech PArk, Phase -I
MIDC,Hinjawadi,Pune-411 057
Tel.(020)22933441,Fax: (020)22934191
GSTIN/UIN: 27AAATH0698B1ZU
State Name : Maharashtra, Code : 27
E-Mail : accounts@isquareit.edu.in
www.isquareit.edu.in

Buyer

Mohan Foundation
3rd Floor, Toshniwal Building
267, Kilpauk Garden Park
Chennai
PAN/IT No :
State Name : Tamil Nadu, Code : 33

Invoice No.	Dated
5	**31-May-2021**
	Mode/Terms of Payment
	Immediate
Supplier's Ref.	Other Reference(s)
LOU dt. 01.02.21	**LOU (Feb - May 21)**
Buyer's Order No.	Dated
Terms of Delivery	

Sl No.	Description of Services	HSN/SAC	Rate	per	Amount
1	***Consultancy Charges - SOW***	998399			**40,000.00**
2	***IGST - 18%***		*18*	*%*	**7,200.00**
	Total				**47,200.00**

Amount Chargeable (in words) *E. & O.E*

Forty Seven Thousand Two Hundred Indian Rupees Only

HSN/SAC	Taxable Value	Integrated Tax		Total Tax Amount
		Rate	Amount	
998399	40,000.00	18%	7,200.00	7,200.00
Total	**40,000.00**		**7,200.00**	**7,200.00**

Tax Amount (in words) : **Seven Thousand Two Hundred Indian Rupees Only**

Remarks:
Consultancy charges for technology projects related to Training for Organ donation and Organ Transplantation and other healthcare fields

Company's PAN : **AAATH0698B**

Declaration
We declare that this invoice shows the actual price of the goods described and that all particulars are true and correct.

Company's Bank Details
Bank Name : **Punjab National Bank**
A/c No. : **11072191009090**
Branch & IFS Code : **Hinjawadi & PUNB0110710**

for Hope Foundation's International Institute of Info. Tech.

Authorised Signatory

This is a Computer Generated Invoice

Bulk File Record Details

as on 02/06/2021 15:33:37 IST

Print This Page

Filter Criteria		
Column Name	**Operator**	**Data**
Amount	=	

Filter Clear

Bulk File Record Details									
Sr. Id.	**File Reference No**	**Credit Account No**	**Name**	**Currency**	**Amount**	**Status**	**Host Ref No.**	**Txn Ref No**	**Record Details**
000000000001	B153211530MD	11072191009090	Hope Foundations International Institute of Info Tech	INR	42,480.00	Executed	N153210613437434	3113	Record Details

Previous Next

Back

Please note:

- Filter Criteria
  - Column Name - Filter based on Column Name.
  - Operator - Condition.
  - Data - String to search on.
- Bulk File Record Details
  - Sr. Id. - Serial Number of the File.
  - File Reference No - Reference number for the file allocated by the system.
  - Credit Account No - Account to which the proceeds will be credited.
  - Name - Beneficiary Name.
  - Currency - INR.
  - Amount - Amount in the Transaction.
  - Status - Status of the transaction.
  - Host Ref No. - Unique Transaction Reference Number (A UTR is a reference number for the RTGS transactions only).
  - Record Details - Link to View the record details.

End of Page