



# Dayananda Sagar Academy of Technology & Management

(Autonomous Institute under VTU)

Affiliated to **VTU**  
Approved by **AICTE**  
Accredited by **NAAC** with **A+** Grade  
6 Programs Accredited by **NBA**  
(CSE, ISE, ECE, EEE, MECH, CV)

<b>Faculty Name</b>	<b>Dr.Vatsala G A</b>	
<b>Academic Designation</b>	<b>ASSOCIATE PROFESSOR</b>	
<b>Educational Qualification</b>	<b>M.Sc, Ph.D</b>	
<b>Experience in Teaching &amp; Industry</b>	<input type="text" value="28-Year"/> <input type="text" value="6-Months"/>	
<b>Date of Joining</b>	<b>30-07-2014</b>	
<b>Official Email ID</b>	<b>dr.vatsala@dsatm.edu.in</b>	
<b>Employee ID</b>	<b>180239</b>	

## Educational Details

FORMAL MODE OF EDUCATION				
Degree	Board/Institution	Mode of education	Year Of Passing	Percentage of Marks
Ph.D (Mathematics)	CCS- University, Meerut. UP	Part-Time	2012	Awarded
M.Sc	Gulbarga University, Gulbarga.	Full-Time	1997	First Class
B.Sc (Mathematics)	LVD college  Raichur,GUG	Full-Time	1995	First Class

## Publications

1. **VATSALA GA** AND SHARMA SD (2007):*A Goal Programming Model for measuring the effectiveness of Quality Control Circles*.Reflections des ERA-Journal of mathematical sciences, 2[1], 51 – 68, ISSN 0973-4597.
2. **VATSALA GA** AND SHARMA SD (2007):*Banks Asset Allocation - A Goal Programming Approach*. Reflections des ERA-Journal of mathematical sciences, 2[4], 311 – 312, ISSN 0973-4597.
3. **VATSALA GA** ,SHARMA SD, G RAVINDRA BABU AND TRIPTHI SHARMA (2011): *Optimization of university resource management through Goal Programming*. – PASIFIC-ASSIAN JOURNAL OF MATHEMATICS, vol 5, ISSN 0973-5240, page 27-34.( **Google scholar** )
4. **VATSALA GA** ,SHARMA SD, G RAVINDRA BABU AND TRIPTHI SHARMA (2011) : *A resource allocation model for insurance management using Goal Programming*. – International journal of applied mathematical analysis and application vol 6, ISSN 0973-3868, page 199-206.( **Google scholar** )

5. **VATSALA GA** , SHARMA SD, G RAVINDRABABU AND TRIPTHISHARMA (2011) :*Goal Programming Model For Generating And Evaluating Alternatives In Requirement Analysis* International Journal Of Mathematics 3 (1), 13-24( **Google scholar** )
6. CHAITRA M AND**VATSALA GA (2016):** A *Goal Programming Approach to coffee plantation planning*,**Paper participated in “National conference on Advances in Mechanical Engineering And Applied Sciences”– ISBN 0978-84935-77-1, page 11-14.**
7. Jyothi.P<sup>1</sup>, **VatsalaGA**<sup>2</sup>, RadhaGupta<sup>3</sup>(2016)“*Optimal Solution For Distribution Of Segregated Wastes Ofthe Garbage Disposal Unit Usinggoal Programming*”IJRET International journal of Research in Engineering and Technology,Valume-3,Issue-12 e-ISSN: 2395-0056, p-ISSN:2395-0072 ( ISO 9001:2008 certified) Impact Factor : 4.45<https://www.irjet.net/archives/V3/i12/IRJET-V3I1274.pdf>
8. Jyothi. P ,**Vatsala G.A**,Radha Gupta and AnithaChaturvedi:(2016) “*Optimal Solution for Planning of Disposal of Wastes using Mathematical Model*” International Journal of Control Theory and Applications.Nov- 2016,Volumwe-9,Issue-42,IssuePages : 233-239. ( Q3 )
9. Ghanashyam K.J and **VatsalaG.A**(2016): “*The Dexterous Survey with a Vision Towards Waste Depletion, Garbage Ejection and Recycling Procedure*” International Journal of Control Theory and Applications.Nov-2016,Volumwe-9,Issue-42,IssuePages : 225-231. ( Q3 )
10. Jyothi.P\*1, **Vatsala G A**\*2 , RadhaGupta\*3(2017): *Optimal Solution For The Distribution Of By-Products In Disposal Unit.* International Journal of Research - GRANTHAALAYAH [59] RAST - 17 ISSN- 2350-0530(O), ISSN- 2394-3629(P) ICV (Index Copernicus Value) 2015: 71.21 IF: 4.321 (CosmosImpactFactor), 2.532. Http://www.granthaalayah.com . April-2017 ( UGC listed journal ) <https://doi.org/10.5281/zenodo.80342>
11. Anita Chaturvedi\*1, KokilaRame\*2, **Vatsala G A**\*3 (2017) : A MATHEMATICAL APPROACH TO STUDY THE EFFECT OF POLLUTANTS/TOXICANTS IN AQUATIC ENVIRONMENT, International Journal of Research – GRANTHAALAYAH. ISSN- 2350-0530(O), ISSN- 2394-3629(P) ICV (Index Copernicus Value) 2015: 71.21 IF: 4.321 (CosmosImpactFactor), 2.532 (I2OR) April-2017, [www.granthaalayah.com](http://www.granthaalayah.com). ( UGC listed journal ) <https://doi.org/10.5281/zenodo.80342>
12. Ritesh Kumar<sup>1</sup>, Manjunath Machnoor<sup>2</sup>**Vatsala GA**<sup>3</sup>(2017) *Novel Coupled RF signal cancellation along with spatial diversity using multiple patch antennas for backscatter communication applications.*Microwave and RF conference( IMaRC) 5-9 Dec 2016.MTT-S

International,DOI: 10.1109/IMaRC.2016.7939611,New Delhi ,India.Date of added IEEE xplore:08/06/2017. Electronic ISSN:2377-9152.

13. Jyothi.P<sup>\*1</sup>, **Dr.Vatsala G A<sup>2</sup>**, Dr. RadhaGupta<sup>3</sup>,Anitha Chaturvedi<sup>4</sup>(2017) “Optimal solution for establishment of disposal units using goal programming model” International journal of innovative research in science, engineering and technology ,vol 6, special issue 12,18-22, july2017.ELSEVIER - DIVISION REED ELSEVIER INDIA PVT LTD 2215-0986
14. Jyothi.P<sup>\*1</sup>, **Dr.Vatsala G A<sup>2</sup>**, Dr. RadhaGupta<sup>3</sup>(2017) “Financial planning of the Garbage disposal plant using Mathematical model” Journal of Engineering and applied science 12 ( special issue12 ) 9534-9539, 2017,ISSN:1816-949X.(Q3)
15. Sowmya K, Leena N Shenoy, **Vatsala G A**(2018) : "Hamiltonian Laceability of Some Regular Product Graphs", *International Journal of Mathematics Trends and Technology (IJMTT)*. . ISSN:2231-5373. www.ijmtjournal.org. Published by Seventh Sense Research Group. DOI Number - 10.14445/22315373/IJMTT-V52P573, V52(8):521-527 December 2017 , RESEARCH INFORMATION LTD
16. K J Ghanashyam, **Vatsala G A**, Jyothi P, Smitha G Kini, Leena N Shenoy(2018) : *A General Goal Programming Model for Optimal Fiscal Management of Bio- Methanation process using Algal Biomass in Wet Garbage* Published in “International journal of Advanced in Science, Engineering and Technology”, Page 13-16, IRAJ DOI Number - IJASEAT-IRAJ-DOI-11334, ISSN (P)- 2321 –8991 ISSN (O)- 2321 –9009 Impact Factor : 3.15 :- (JIF) 0.41 :-(Jourinfo), Volume-6, Issue-2, Spl. Iss-1 ( May, 2018 ).ELSEVIER - DIVISION REED ELSEVIER INDIA PVT LTD
17. Archana Satkhed, **Vatsala G A**, K J Ghanashyam(2018) : *A New Approach to Optimize the Production of Crop using Compost from Solid Waste* Published in “International journal of Advanced in Science, Engineering and Technology”, Page 81-85, IRAJ DOI Number - IJASEAT-IRAJ-DOI-11349, ISSN (P)- 2321 –8991 ISSN (O)- 2321 –9009 Impact Factor : 3.15 :- (JIF) 0.41 :-(Jourinfo), Volume-6, Issue-2, Spl. Iss-1 ( May, 2018 ).
18. Jyothi.P<sup>1</sup>, **Dr.Vatsala G A<sup>2</sup>**, Dr. RadhaGupta<sup>3</sup>(2018) “Goal Programming model to Budgetary allocation in the garbage Disposal Plant” Pulpished” Logistic, Supply Chain and Financial Predictive analytics. Springer, Singapore. DOI :[http://doi.org/10.1007/978-981-13-0872-7\\_7](http://doi.org/10.1007/978-981-13-0872-7_7). ISBN(P): 978-981-13-0871-0, ISBN(O): 978-981-13-0871-7. ( 07 AUGUST 2018)
19. K J Ghanashyam, **Vatsala G A**, Archana Satkhed(2018) : “*A Progressive Goal Programming Model for the Management of Compost Plant towards the Ejection of Wet Garbage*”, INTERNATIONAL JOURNAL OF ADVANCED STUDIES OF SCIENTIFIC RESEARCH (IJASSR) ISSN

2460 4010 ABSTRACTED & INDEXED IN ELSEVIER-SSRN, Special Issue based on proceedings of 4th International Conference on Cyber Security (ICCS) 2018.

[https://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=3315272](https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3315272)

20. Ayesha, Anita Chaturvedi, **Vatsala G.A.** (2019): Review on Mathematical Modelling in Water Pollution. *International journal of Innovative Science and Research Technology*. ISSN No:- 2456-2165, Page No – 20-23 <https://bit.ly/2WVBstl>
21. Anita Chaturvedi, **Vatsala G.A.**, O. P Misra, Babitha B S (2019) :Simultaneous Effects of Primary and Secondary Toxicants on the Existence of Two competing Populations in an Aquatic Ecosystem: A Mathematical Analysis. *International journal of Innovative Science and Research Technology*. ISSN No:- 2456-2165, Page No -15-20 <https://bit.ly/2WSU90Y>
22. Jyothi.P<sup>1</sup>, **Dr.Vatsala G A<sup>2</sup>**, Dr. RadhaGupta<sup>3</sup>(2019): Establishing Garbage Disposal Unit Using Mathematical Technique. 978-1-7281-0418-8/19/\$31.00©2019 IEEE
23. Archana Satkhed, **Vatsala G A**,BasavarajShimpi (2019):*A General Model for Financial Estimation of Multi Crops and Vegetables Using Water Resources and Soil Management - A Multi Criteria Decision Approach*. 978-1-7281-0418-8/19/\$31.00©2019 IEEE.
24. Ravi Kumar<sup>1</sup>, Dr. RadhaGupta<sup>2</sup>Karthiyani O<sup>3</sup>**Dr.Vatsala G A<sup>4</sup>** (2019):Fuzzified Multi-Objective Transportation Problem: A Real coded Genetic Algorithm approach to the Compromised near-to-Optimal solution 978-1-7281-0418-8/19/\$31.00©2019 IEEE
25. K J Ghanashyam, **Vatsala G A**,Anita Chaturvedi (2019) : A Complete Optimal Solution for the Wet Garbage Recycling Plant in Apartments Cluster by Radical Multi-Objective Decision Model. 978-1-7281-0418-8/19/\$31.00©2019 IEEE DOI: [10.1109/ICATIECE45860.2019.9063615](https://doi.org/10.1109/ICATIECE45860.2019.9063615)
26. Ravi Kumar<sup>1</sup>, Dr. RadhaGupta<sup>2</sup>Karthiyani O<sup>3</sup>**Dr.Vatsala G A<sup>4</sup>** (2019):An innovative approach to find the initial solution of a fuzzy transportation problem. Published Online: 04 December 2019.AIP Conference Proceedings 2177, 020083 (2019); <https://doi.org/10.1063/1.5135258>  
<https://aip.scitation.org/doi/abs/10.1063/1.5135258>
27. K J Ghanashyam, **Vatsala G A**(2021) : “ A Conventional Goal Programming Model for the Optimization of Wet Garbage Biogas Production Facility” “ Turkish Journal of Computer And Mathematics Education .Vol 12. No 12 (2021) Published Online 23 may 2021. (Q4) <https://www.scopus.com/sourceid/21100902608>

<https://turcomat.org/index.php/turkbilmat/article/view/7297>

28. Manjula GururajRao , Priyanka H , Vatsala G A , ChSree Kumar (2023): A Multimodal Approach to CBIR Using Dimensionality Reduction Techniques, IEEE conference Gunupur,08 September 2022 India. **IEEE Xplore**: 07 November 2022**Electronic ISBN**:978-1-6654-5834-4 <https://ieeexplore.ieee.org/abstract/document/9936325>

29. Chaitra M, Vatsala G A, Shilpa P, Vinutha Srikanth ( 2023) : Analysis Effect Of Amplitude Response For Phase Shifter On Phased Array Antenna. 2022 International Conference On Artificial Intelligence And Data Engineering (AIDE), 22-23 December 2022, Karkala, India.

DOI: 10.1109/AIDE57180.2022.10060761, <https://ieeexplore.ieee.org/document/10060761>,

Date Added to IEEE Xplore: 15 March 2023

30. Tejas M P; Taniya Fatima; Vatsala G. A; Shilpa P (2023) : Detection Of Vehicle Crashes Using Multiple Sensors And Various Computing Devices Sending SOS Through GPS Service - Crash Jack. 2022 International Conference On Artificial Intelligence And Data Engineering (AIDE), 22-23 December 2022, Karkala, India.

DOI: [10.1109/AIDE57180.2022.10060469](https://ieeexplore.ieee.org/document/10060469)  
<https://ieeexplore.ieee.org/document/10060469> ,

Date Added to IEEE Xplore: 15 March 2023

31. Prathyusha G, **Vatsala G A**, Udaya Kumar K N (2023) : Optimizing Bi-Objective Solid Transportation Problem Using Hierarchical Order Goal Programming Technique- A Case Study, *Soft Computing : SOFT COMPUTING IN DECISION MAKING AND IN MODELING IN ECONOMICS*- under exclusive licence to Springer-Verlag GmbH Germany, part of Springer Nature 2023 ( Q2, H-INDEX-110), ISSN:1433-7479 ,Soft computing in decision making and in modeling in economics, Published: 10 October 2023, Volume 28, pages 271–279, (2024)

<https://link.springer.com/article/10.1007/s00500-023-09253-y>

32. K J Ghanashyam, **Vatsala G A**(2023) : “ Goal Programming Model for the Optimal financial analysis and management of wet garbage disposal and biogas generation facilities”. *International Journal of Advanced Engineering Science*, ISSN: 2096-3246 Volume 55, issue 2 Dec 2023.9(Q3).

<https://www.advancedengineeringscience.com/article/2023/2-676.html>

33. **Rao, M.G., Priyanka, H., Vatsala, G.A., Reddy, K.H.K.(2023)**:Hybrid Technology for Multilevel Feature Extraction in CBMIR, Presented in *7th IEEE International Conference on Computational Systems and Information Technology for Sustainable*, 07 December 2023

<https://ieeexplore.ieee.org/document/10334233>

34. **Manjula Gururaj Rao, G. A. Vatsala, Sumathi Pawar, H. Priyanka(2023):** *Lifetime Enhancement of the IOT WSN Using the HybriOptimization Technique* Conference paper. *Lecture Notes in Electrical Engineering* book series (LNEE,volume 1104), 16 December 2023 (Book Chapter) (H-INDEXT 45) Q4  
[https://link.springer.com/chapter/10.1007/978-981-99-7622-5\\_16](https://link.springer.com/chapter/10.1007/978-981-99-7622-5_16), Electronic ISSN:1876-1119  
Print ISSN:1876-1100
35. Prathyusha G, **Vatsala G A**, Udaya Kumar K N (2024) : Multi - Goal Multi-Product Transportation Problem Via Goal Programming Technique published in **International Journal of Mathematics in Operational Research**, Published Online:April 18, 2024, pp 354-376 <https://doi.org/10.1504/IJMOR.2024.1380599> ( Q3-IF:.23 ,H-index 29)  
**ISSN online:**1757-5869, <https://www.inderscience.com/info/inarticle.php?artid=138059>
36. Jyothi.P, Vatsala G A, Radha Gupta (2024): **Optimum Solution For Effective Management Of University, Published in** Journal of Xidian University, ISSN No:1001-2400, 29 June 2024 VOLUME 18, ISSUE 6, 2024, Page Number 1484-1488 (Q4).  
<https://doi.org/10.5281/Zenodo.12591300>
37. Jyothi.P, Vatsala G A, Radha Gupta (2024): *Optimal Bank Model For Financial Managementcase Study On Karnataka Bank*, GRADIVA REVIEW JOURNAL, ISSN NO : 0363-8057, VOLUME 10 ISSUE 10 2024, page No: 19-22. ( Q4)  
  
DOI:10.37897.GRJ.2023.V10I10.24.5140732
38. Jyothi.P, Vatsala G A, Radha Gupta and Ghanshyam K J (2025)Optimal Solution for Establishment of Disposal Units at Konanakunte. Published in Journal of Xidian University <https://doi.org/10.5281/Zenodo.14936360> ISSN No:1001-2400, VOLUME 19, ISSUE 2, Feb 2025 Page No 399-406.
39. Pradyumna S Athreya; Pavan Kumar C Banasode; Jayanthi P N; Sahana B; Nivya Muchikel; Vatsala G A ( 2025 ) : Enhancing Functional Validation of Communication Systems Using Markov Process-Based Channel Models,3rd International Conference on Intelligent Data Communication Technologies and Internet of Things. 5-7 Feb. 2025, IEEE Xplore: 13 March 2025,DOI: 10.1109/IDCIOT64235.2025.10915058  
  
<https://ieeexplore.ieee.org/document/10915058>
40. Enhancing Aerospace Engineering Design through Goal Programming.  
  
Journal of Dalian University of Technology, 32 (7), 196 – 204, Volume 32, Issue 7, 2025|  
<https://jdut.net>

## Patents

### 1. APPLICATION NUMBER: 202241000486

**TITLE OF THE INVENTION:** IOT BASED FINANCIAL MODELING BIG DATA ANALYTIC SYSTEM FOR USE IN FINANCIAL MANAGEMENT SECTOR

**APPLICANT NAME :** DR. VATSALA G A

**DR. KUSUMA, DR. MANJULA GURURAJA H**

Field Of Invention : Communication

YEAR OF PUBLICATION: 21/01/2022

Abstract: The present disclosure relates to the field of financial sector and more particularly, to the invention relates to IoT (Internet of Things) based financial modeling big data analytics system for use in a financial management sector

### 2. APPLICATION NUMBER:202241030374

**TITLE OF THE INVENTION :** SMART SOLE SHOE FOR POSTURE CORRECTION OF HUMAN BODY"

**Field Of Invention :**Medical Engineering

**Request for the Examination:**27/5/2022

YEAR OF PUBLICATION: 03/06/2022

Granted DATE : 14/05/2024

Patent Number : 537928

Abstract: The principal object of the embodiment here in is to

1. Provide smart sole shoe for posture correction of human body.
2. Precautionary preventing the wrong posture of the human body.
3. Avoid backache, knee pain, heel pain and varicose.
4. Generate electricity for the need of micro controller, vibrators and pressure sensors using piezo electric effect.

5. Vibrate indication to the user when the pressure at a particular point exceeds the threshold value set in the pressure sensors.

**3. APPLICATION NUMBER: 202241040175 ( APPLIED FOR GRANT)**

**TITLE OF THE INVENTION: CRASHJACK**

**Field Of Invention : Electronics**

**Request for the Examination:13/7/2022**

**YEAR OF PUBLICATION: 22/07/2022**

**REPLY TO FER DATE : 29/3/2023**

The principal object of the embodiments herein is to

1. provide detection of accidents using multiple sensors.
2. reduce the time taken for medical help to reach the location.
3. ease of insurance claims by this 25 information.
4. reduce the traffic jams at accident location.
5. provide the accelerometer which detects a rapid and instantaneous change in the movement of the vehicle and accordingly sends information to the microprocessor.
6. share the accident details 5 with other vehicles involved using Bluetooth/Wi-Fi/other device-to-device connection modules.

**4. APPLICATION NUMBER: 202441056493 ( APPLIED FOR GRANT)**

**TITLE OF THE INVENTION : Intelligent Flood Warning System for Underpasses**

**Field Of Invention :Electronics**

**Request for the Examination:3/5/2024**

**YEAR OF PUBLICATION: 17/05/2024**

**Abstract :** The Smart Flood Alert System for Underpasses is designed for public safety, featuring solar-powered IoT monitoring to detect flooding, control water pumps and outlets, and indicate floods via LEDs and speakers.

**5. APPLICATION NUMBER: 202441035139**

**TITLE OF THE INVENTION : Intelligent Blood Bank Management Through IoT, ML, and DL Integration**

**Field Of Invention : Computer Science**

**Request for the Examination:25/7/2024**

**YEAR OF PUBLICATION: 2/8/2024**

**Abstract:** IoT devices for real time tracking, sensors for monitoring storage conditions, ML algorithms for donor matching, and DL models for predictive analytics. Enhanced efficiency, accuracy, and reliability in blood bank operations, including inventory management, donor matching, and predictive analytics

**6. APPLICATION NUMBER: 202441093402**

**TITLE OF THE INVENTION :** Smart Blind Spectacles: A Comprehensive Assistive Technology for Enhanced Mobility, Safety, and Accessibility

**Field Of Invention :** BIO-MEDICAL ENGINEERING

**Request for the Examination:** 29/11/2024

**YEAR OF PUBLICATION: 6/12/2024**

**Abstract:** The present invention relates to assistive technologies for visually impaired individuals, providing enhanced mobility, safety, and accessibility. More particularly, it integrates AI-driven functionalities and sustainable energy solutions into a compact, wearable device.

**7. APPLICATION NUMBER: 202441093404**

**TITLE OF THE INVENTION :** Health Beacon: A GPS-Integrated Emergency Alert Device for Enhanced Rural Healthcare Accessibility

**Field Of Invention :** Emergency Healthcare Technology

**Request for the Examination:** 29/11/2024

**YEAR OF PUBLICATION: 6/12/2024**

**Abstract:** This includes systems and devices designed to enhance the delivery of emergency medical services, particularly in remote and rural areas. The invention focuses on leveraging communication technologies (such as radio frequencies, GSM, LTE, and satellite) and GPS-based location services to improve emergency response times and provide critical medical assistance..

**8. APPLICATION NUMBER: 202441093389 ( APPLIED FOR GRANT)**

**TITLE OF THE INVENTION :** Smart Soil and Crop Optimization System: Precision, Sustainability, and Farmer-Centric Innovation

**FIELD OF INVENTION :** Precision agriculture and Agritech.

**REQUEST FOR THE EXAMINATION:**29/11/2024

**YEAR OF PUBLICATION:** 6/12/2024

**Abstract:** Introduction to Precision Agriculture and Agritech Precision agriculture, a paradigm shift in modern farming, leverages technology and data to optimize resource utilization, improve crop yields, and ensure environmental sustainability. The integration of advanced sensors, data analytics, and intelligent systems has enabled farmers to transition from generalized farming 10 practices to site-specific and crop-specific approaches. Agritech, the application of technology in agriculture, has further propelled this transformation by introducing innovative tools that address critical challenges such as soil degradation, nutrient imbalances, and inefficient resource management.

**9. APPLICATION NUMBER: 202441093403**

**TITLE OF THE INVENTION :** Pioneering Approaches to Chant Detection and Counting

**FIELD OF INVENTION :** ELECTRONICS.

**REQUEST FOR THE EXAMINATION:**29/11/2024

**YEAR OF PUBLICATION:** 6/12/2024

**Abstract:** The invention relates to the field of acoustic signal processing and artificial intelligence, specifically focusing on systems and methods 5 for real-time detection and counting of chants. It leverages advanced machine learning algorithms and signal analysis techniques to accurately identify acoustic patterns and provide actionable insights. The application spans areas such as event monitoring, crowd management, and sentiment analysis.

**10. APPLICATION NUMBER: 202541082716**

**TITLE OF THE INVENTION :** Ecobump: IOT based Multi- sensor infant health monitoring with real time mobile integration and emergency response.

**FIELD OF INVENTION :** Biomedical Engineering.

**REQUEST FOR THE EXAMINATION:**31/08/2025

**YEAR OF PUBLICATION:** 19/09/2025

**Abstract:** The present invention relates to the field of biomedical engineering and wearable healthcare devices. More particularly, the present invention relates to a low-cost, non-invasive, and continuous monitoring system for maternal and fetal health using a multi-sensor wearable belt integrated with wireless communication for real-time data visualization, emergency alerts, and

pregnancy wellness insights. The present invention ensures affordability, accessibility, and improved safety for mothers and infants, especially in rural and resource-constrained environments.

**11. APPLICATION NUMBER: 202541082717**

**TITLE OF THE INVENTION :** A MEMS-Integrated Hybrid OCT–PAI Imaging and Diagnostic System Enabled with AI for Non-Invasive Medical Applications

**FIELD OF INVENTION :** Biomedical Engineering.

**REQUEST FOR THE EXAMINATION:**31/08/2025

**YEAR OF PUBLICATION:** 19/09/2025

**Abstract:** The present invention relates to the field of biomedical imaging and diagnostics, particularly to a hybrid imaging device combining Optical Coherence Tomography (OCT) and Photoacoustic Imaging (PAI). More particularly, it relates to the integration of Micro-Electro-Mechanical Systems (MEMS) to achieve miniaturization, portability, and mobility in diagnostic imaging. The present invention further advances AI-enabled interpretation of biomedical data, offering real-time classification and segmentation of biological tissues, thereby improving accessibility of advanced imaging at point-of-care and rural health settings

**12. APPLICATION NUMBER: 202541082718**

**TITLE OF THE INVENTION :** Sustrosparry: Sustainable Hybrid Orchard sprayer with Zero electricity pressure regulation mechanism.

**FIELD OF INVENTION :** Mechanical Engineering.

**REQUEST FOR THE EXAMINATION:** 31/08/2025

**YEAR OF PUBLICATION:** 19/09/2025

**Abstract:** The present invention relates to the field of agricultural pest management and sustainable farming technologies. More particularly, the invention pertains to a low-cost, mechanically powered orchard pesticide spraying system with an integrated zero-electricity pressure regulation mechanism. The invention ensures uniform coverage, reduced pesticide wastage, energy independence, and cost-effectiveness, making it particularly suitable for small and marginal farmers in rural and semi-rural orchard environments.

## Speaker/ Pennal Member/Resource person

Dr. Vatsala G. A., Speaker and also participated in Faculty Orientation Programme - "*Educate the Educators*" Talk on "A National Education Policy-2016: challenges and Benefits" on 5<sup>th</sup> July 2016 , organized by BheemannaKhandre Institute of Technology Bhalki – 585 328 Dist: Bidar.held on 1<sup>st</sup> -10<sup>th</sup> July 2016

Dr. Vatsala G. A., , Speaker and also participated in Faculty Orientation Programme - "*Educate the Educators*" Talk on "Under taking the quality issues and role of Teacher "on 8<sup>th</sup> July 2016 organized by BheemannaKhandre Institute of Technology Bhalki – 585 328 Dist: Bidar.held on 1<sup>st</sup> -10<sup>th</sup> July 2016.

Dr. Vatsala G A, as a **Resource Person** for FDP On the Topic " Financial Model for waste management" at at the School of Applied Sciences (Mathematics), on 10th June 2019 at REVA University, Rukmini Knowledge Park, Kattigenahalli, Yelahanka, Bengaluru.

Dr. Vatsala G. A., Professor, DSATM Bangalore, **Speaker** on the topic "Operations research and its Application In Engineering" on 31<sup>st</sup> Jan 2022 organized by R V college of Engineering, Bengaluru

Dr. Vatsala G. A., Professor, DSATM Bangalore, Technical session chair 2022 International Conference On Artificial Intelligence And Data Engineering (AIDE), 22-23 December 2022, Karkala, India.

Dr. Vatsala G. A., Professor, DSATM Bangalore, **Technical session chair** 56<sup>th</sup> Annual Convention of Operations research Society of India, in 2023-, and 10<sup>th</sup> International conference on Business Analytic and Intelligence 2023. scheduled during 18-20. December 2023 held at J N Tata Auditorium.IISc, Bengaluru.

Dr. Vatsala G. A., Professor, DSATM Bangalore as a Plenary session speaker/chair for "International Conference On Computational Mathematics in the Era of Data Science and Artificial Intelligence (ICCMDSAI -2025)" at Dayananda Sagar College of Engineering, on 21st & 22nd February 2025.

Dr. Vatsala G. A., Professor, DSATM Bangalore, As a Speaker on the Topic "Essence of AI, ML, Robotic and Data Science in Engineering field using Engineering Mathematical Techniques" on 5/4/2025 at Prouda Devaraya institute of Technology, Hosapete. India.

Dr. Vatsala G. A., Professor, DSATM Bangalore, As a Speaker on the Topic Operations Research and its Applications in Engineering and organized department of Mathematics (8 - 12 Sept 2025). M .S. Ramaiah Institute of Technology Bangalore

## Conference Attended

Capacity Building	International	National	Communication & Collaboration
Conference	14	3	17-Presentations
Workshop	7	12	Participation
Symposium	5	5	
Seminar	1	6	Participation
FDP	9	8	Participation
Webinar	8	4	Participation

## Academic Activity

### Teaching - Courses Taught:

- Engineering Mathematics –I, II, III, IV.
- Discrete Mathematical Structure (for CSE, ISE)
- Graph Theory (for CSE, ISE and Elective ECE)
- Probability & Statistics (Elective for CSE, ISE, ECE and ME)
- Operation Research (for CSE, ISE, ECE, EEE, ME and also MBA)
- Statistical Management (for MBA)
- Number Theor

## Contact Details

Email. ID: dr.vatsala.ga@gmail.com