



# Siddaganga Institute of Technology, Tumkur 572103

An autonomous institute, Affiliated to VTU Belgaum, Approved by AICTE, Programmes Accredited by NBA

## Department of Information Science & Engineering

**Dr. R Aparna**

Professor

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<b>Educational Qualification</b>	<ul style="list-style-type: none"> <li>• Ph.D. from Visvesvaraya Technological University, Belgaum.</li> <li>• M.S. from Birla Institute of Technology, PILANI.</li> <li>• B.E. from Bangalore University, Bangalore.</li> </ul>	
<b>Experience</b>	<b>Teaching</b>	<ol style="list-style-type: none"> <li>1. Professor, Dept. of ISE, SIT Tumkur, since 20-07-2015</li> <li>2. Associate Professor, Dept. of ISE, SIT Tumkur, from 02-03-2015 to 19-07-2015</li> <li>3. Associate Professor, Dept. of CSE, SIT Tumkur, from 01-01-2011 to 01-03-2015</li> <li>4. Assistant Professor, Dept. of CSE, SIT Tumkur, from 10-03-2005 to 31-12-2010</li> <li>5. Senior Lecturer, Dept. of CSE, SIT Tumkur, from 20-08-2002 to 09-03-2005</li> <li>6. Lecturer, Dept. of CSE, SIT Tumkur, from 21-12-1995 to 19-08-2002</li> </ol>
<b>Area of Interests / Research</b>	<ol style="list-style-type: none"> <li>1. Cryptography and Network Security</li> <li>2. Security in Wireless Sensor Networks</li> <li>3. Routing issues in Ad Hoc Wireless Networks</li> </ol>	

<b>List of Funded Projects</b>				
	<b>Year</b>	<b>Organization</b>	<b>Title</b>	<b>Amount in Rs.</b>
	2012	ABB	Creating Side-Channel Attacks Infrastructure Framework	15,00000/-
<b>Guiding Number of Research Scholars &amp; Area</b>				
	<b>Scholar Name</b>		<b>Research Topic</b>	<b>Year of Registration</b>
	V M Aparanji 1SI13 PEN03		Development of Soft Control Algorithms for Multi-segment Humanoid Mechanisms	<b>2013, Awarded Ph.D. degree in Jan. 2018</b>
	Ramyashree B R 1SI15PEJ10		Energy Efficient Secure Localization for Self Organizing Wireless Sensor Networks	2014
	Rudramurthy V C 1SI16PEJ11		Energy Efficient Secure Routing and Data Aggregation Framework for Wireless Sensor Networks	2016
	Pradeep Kumar S S 1SI17PEAO3		Access Control, Data Authentication and Client Privacy in Internet of Things (IOT)	2017
	Hemavati 1SI18PCS01		Distributed attack detection using deep learning for Internet of Things	2018

<p><b>Publications</b></p>	<p><b>Conferences</b></p>	<ol style="list-style-type: none"> <li>1. R.Aparna, B.B.Amberker, Prashant Koulgi, Multi-sender Multi-receiver Message Authentication, and an Application to Verifiable Secret Sharing, National conference on Mathematical Foundations of Coding, Complexity, Computation and Cryptography, IISc., Bangalore.</li> <li>2. R. Aparna, B.B.Amberker, A.S.Poornima and Prashant Koulgi, <i>A Periodic Group Rekeying Approach For Secure Multicast Using One Way Hash Functions</i>, International Conference on Advanced Computing and Communication, Madurai., Tamilnadu, India, Feb.9-10, 2007.</li> <li>3. R. Aparna, B.B.Amberker, A.S.Poornima, <i>Key Management for Cumulative member Removal in Secure Group Communication</i>, International Conference on Embedded Systems, Mobile Communication and Computing, Bangalore, India, August 3-5, 2007.</li> <li>4. R.Aparna, B.B.Amberker, A.S.Poornima, <i>SDS: A New Distributed Key Management Technique</i>, International Conference on Information Processing, Bangalore, Aug.10-12, 2007.</li> <li>5. R.Aparna, B.B.Amberker, A S Poornima and Prashant Koulgi, <i>String Searching in Dispersed Files using MDS Convolutional Codes</i>, Fourth International Conference on Cryptography, Coding and Information Security, Venice, Italy, Nov.23-25, 2007.</li> <li>6. R.Aparna, B.B.Amberker, <i>Dynamic Authenticated Secure Group Communication</i>, Fourth International Conference on Cryptography, Coding and Information Security, Venice, Italy, Nov.23-25, 2007.</li> <li>7. R.Aparna, B.B.Amberker, <i>Authenticated Secure Group Communication using Broadcast Encryption Key Computation</i>, The 5th International Conference on Information Technology – New Generations (ITNG'08), Las Vegas, Nevada, USA, April 7-9, 2008.</li> <li>8. R.Aparna, B.B.Amberker, <i>New Group Key Computation Technique for Secure Group Communication</i>, The 19th IEEE International Symposium on Personal, Indoor and Mobile Radio Communications (PIMRC), Cannes, France, Sept.15-18, 2008.</li> <li>9. R.Aparna, B.B.Amberker, <i>New Method to Compute Auxiliary keys in LKH based Secure Group Key Management Scheme</i>, The Sixteenth International Conference on Advanced Computing and Communication, Anna University, Chennai, India, pp.46-51, Dec.14-17, 2008.</li> <li>10. R.Aparna, B.B.Amberker, <i>Key Management Scheme for Multi-Layer Secure Group Communication</i>, THE First International Conference on COMMunication Systems and NETworkS (COMSNETS), Jan.5-10, 2009.</li> </ol>
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		<ol style="list-style-type: none"> <li>11. R.Aparna, B.B.Amberker, <i>Key Management Scheme for Multi-Layer Secure Group Communication</i>, THE First International Conference on COMMunication Systems and NETWORKS (COMSNETS), Jan.5-10, 2009.</li> <li>12. R.Aparna, B.B.Amberker, <i>Key Management Scheme for Multiple Simultaneous Secure Group Communication</i>, IEEE International Conference on Internet Multimedia Systems Architecture and Application (IEEE IMSAA 2009), Bangalore, India, Dec.9-11, 2009.</li> <li>13. R.Aparna, B.B.Amberker, <i>Secure Group Communication Using Binomial Trees</i>, Third IEEE International Conference on Advanced Networking and Telecommunications (IEEE ANTS 2009), New Delhi, India, Dec.14-16, 2009.</li> <li>14. R.Aparna, B B Amberker, Amoolya P, Archana J, Divya K, Divyashree Jagadeesh, <i>Implementation of Key Management Scheme for Multiple Simultaneous Secure Group Communication</i>, International Conference on Communication, Computation, Control and NanoTechnology (ICN-2010), Oct.29-30, 2010.</li> <li>15. R Aparna, Shalini Kumari H A, <i>Secure Dispatch of Mobile Sensors in a Hybrid Wireless Sensor Network</i>, International Conference on Communication, Computation, Control and NanoTechnology (ICN-2011), Sept. 23-25, 2011.</li> <li>16. R Aparna, Navya V.B. Bhaskar G, <i>Mobile Payment Security by Key Shuffle Mechanism in DES</i>, International Conference on Computational Intelligence and Information Technology (CIIT 2011), Nov. 7-8, 2011, pp 281-285, Pune, India.</li> <li>17. R Aparna, M Vyshnavi, <i>Big Data: Technologies and Techniques for Large Scale Data Management</i>, IRNET International Conference on Electrical Engineering and Computer Science (ICEECS), August 19, 2012.</li> <li>18. R Aparna, R Pallavi, <i>Data Integrity Scheme for Hierarchical Attribute Encryption in Cloud Computing</i>, International Conference on Computer Science and Information Technology, InterScience Research Network, INDIA, March 10, 2013.</li> <li>19. Kalakappa pattanashetty, R Aparna, <i>Secure Fault Tolerant Data Aggregation for Wireless Sensor Network</i>, International Conference in Computer Science, Electronics and Communication Engineering - ICCECE, 2014, July 27, 2014, Bangalore, INDIA.</li> </ol>
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		<p>20. Praveen Kumar K R, R Aparna, <i>Storage and Access in Product Review System using Hadoop</i>, International Conference on Electrical, Electronics and Computer Science (ICEECS), 24<sup>th</sup> August 2014, Bangalore, INDIA.</p> <p>21. Ravi V and Aparna R, Security in RFID based Smart Retail System, Third International Conference on “Computing for Sustainable Global Development”, 16<sup>th</sup> – 18<sup>th</sup> March, 2016, New Delhi, INDIA.</p> <p>22. V M Aparanji, Uday V Wali, and R Aparna, R Library For Neural Networks, International Conference on Smart Electronic Systems. 20-22 May 2016, Belagavi, INDIA.</p> <p>23. V M Aparanji, Uday V Wali, R Aparna, A Novel Neural Networks Structure for motion control in joints, International Conference on Electrical, Electronics, Communication, Computer Technologies and Optimization Techniques (ICEECOT-2016, IEEE conference) , 9-10, Dec 2016. ISBN: 978-1-5090-4697-3.</p> <p>24. V M Aparanji, Uday V Wali, R Aparna, Robotic Motion Control using Machine Learning Techniques, Sixth IEEE International Conference on Communication and Signal Processing (ICCSP 2017), 6-8 April 2017, Tamilnadu, India.</p> <p>25. Shilpa N L, Aparna R, Biometric Template Protection Techniques: A brief Survey, Third International Conference on Applied Science, Engineering and Technology (ICASET)-17), 18th -19th May 2017, Bengaluru, INDIA.</p> <p>26. V M Aparanji, Uday V Wali, R Aparna, Automated Path Search and Optimization of Robotic Motion Using Hybrid ART-SOM Neural Networks, International Conference on Recent Advancement in Computer &amp; Communication (ICRAC-2017), at iMPLab Research &amp; Innovation Foundation, Bhopal, Madhya Pradesh, India, 26-27 May, 2017. The paper is published in Springer Lecture Notes in Networks and Systems book series (LNNS, volume 34), April 2018.</p> <p>27. Anusha C H, Aparna R, Secure Sharing of Group Data in Clouds, International Conference on Wearable Technologies (ICOWT-17), 22nd -23rd June 2017, Bengaluru, INDIA.</p> <p>28. V M Aparanji, Uday V Wali, R Aparna, “<i>Pathnet: A neuronal model for Robotic Motion Planning</i>,” Third International conference on cognitive, computing and information processing (CCIP 2017), JSS Academy of Tech Ed., Bangalore, Springer CCIS, 15<sup>th</sup> and 16<sup>th</sup> Dec 2017. ISBN 978-981-10-9059-2 <a href="#">Communications in Computer and Information Science</a> book series (CCIS, volume 801).</p>
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		<p>29. V M Aparanji, Uday V Wali, R Aparna, “Tunability of Auto Resonance Network”, International Conference On IoT, Social, Mobile, Analytics And Cloud in Computational Vision And Bio-Engineering (ISMAC - CVB 2019), Vivekanandha College of Technology for Women, Elayampalayam, Tiruchengode - TK, Tamilnadu, India, March 13-14, 2019.</p> <p>30. Rudramurthy V C, R Aparna, “Location Based Cluster Head Selection for Wireless Sensor Networks”, 4th International Conference on Communication and Electronics Systems (ICCES 2019), PPG Institute of Technology, Coimbatore, India, 17-19 July 2019.</p> <p>31. R Aparna, Abhinav Kumar Mallick, Utkarsh Sahay, “Securing Sensor Data on IoT (Internet of Things) devices”, 4th International Conference on Electrical, Electronics, Communication, Computer Technologies and Optimization Techniques (ICEECCOT-2019), GSSS Institute of Engineering and Technology for Women, Mysuru in association with IEEE Bangalore Section, 13-14, Dec. 2019.</p> <p>32. Ramyashree B R, R Aparna, “Enhancing Security for Communication in Wireless Sensor Network”, 2nd International Conference on Computational Intelligence in Pattern Recognition (CIPR), Institute of Engineering and Management, Kolkata, WB. 5-6, Jan. 2020. (The conference proceedings will be published in Springer Advances in Intelligent Systems and Computing (AISC) Series) (Scopus indexed).</p> <p>33. Hemavati, V Susheeladevi, Seba Ann Kuruvilla, R Aparna, Prototype Selection and Dimensionality Reduction on Multi-Label Data, Proceedings of the ACM India Joint International Conference on Data Science and Management of Data (CoDS-COMAD) 2020 (7th ACM iKDD CoDS and 25th COMAD), Hyderabad, India, January 5-7, 2020, pp. 195-199.</p>
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### Journals

1. R.Aparna, A.S.Poornima, B.B.Amberker, Storage and Rekeying Cost for Cumulative Member Removal in Secure Group Communication, International Journal of Computer Science and Network Security, Vol. 7 No. 9 pp. 212-218. Oct 2007.
2. R.Aparna, B.B.Amberker, Multi-Sender Multi-Receiver Authentication For Dynamic Secure Group Communication, International Journal of Computer Science and Network Security, Vol. 7 No. 10 pp. 310-315. Nov 2007.
3. R. Aparna, B.B.Amberker, *Analysis of Key Management Schemes for Secure Group Communication and Their Classification*, International Journal of Computing and Information Technology, Vol. 17, No.2, pp. 203-214, June 2009.
4. R. Aparna, B.B.Amberker, *A Key management Scheme for Secure Group Communication using Binomial Key Trees*, International Journal of Network Management, John-Wiley Publication, Vol.20, No.6, DOI:10.1002/nem.742, pp.383-418, Nov.2010.
5. R. Aparna, B.B.Amberker, *An Efficient Key management Scheme for Handling Bursty Behavior in Secure Group Communication using Binomial Key Trees*, International Journal of Security and Communication Networks, John-Wiley Publication, Vol. 4, No.4, DOI:10.1002/sec.250, pp.1027-1043, Aug.2011.
6. R. Aparna, B.B.Amberker, *Key management Schemes for Multi-Layer and Multiple Simultaneous Secure Group Communication*, International Journal of Communications and Networking, International Scholarly Research Network Publication, Volume 2012 (2012), Aug. 2012.
7. R Aparna, Shalini Kumari H A, *Secure Dispatch of Mobile Sensors in a Hybrid Wireless Sensor Networks*, IOSR Journal of Computer Engineering (IOSRJCE) Volume 3, Issue 2, July-Aug. 2012, pp. 01-05.
8. R. Aparna, B.B.Amberker, *Key management Scheme for Cumulative Member Removal and Bursty Behavior in Secure Group Communication using m-ary Tree*, MIS Review-An International Journal, Volume 18, No. 1, pp.71-91, Sept. 2012.
9. Pallavi R. Aparna R., *Achieving availability and Data Integrity Proofs in Hierarchical Attribute Encryption Scheme using Hybrid Cloud*, Graduate Research in Engineering and Technology- An International Journal, Vol.1, Issue 2, pp.1-7, May 2013.

		<ol style="list-style-type: none"> <li>10. Anupama T A, Aparna R, <i>Securing a Multi-hop Network by Detecting and Locating Pollution Attacks using SpaceMAC</i>, Graduate Research in Engineering and Technology- An International Journal, Vol.1, Issue 2, pp. 51-54, May 2013.</li> <li>11. R Aparna, B.B.Amberker, <i>Multiuser Message Authentication, Application to Verifiable Secret Sharing and Key Management Schemes</i>, International Journal of Computer Science and Information Technology, Horizon Research Publishing Corporation, Vol.1, No.2, pp. 97-104, Sept. 2013.</li> <li>12. Praveen Kumar K R, R Aparna, <i>Storage and Access in Product Review System using Hadoop</i>, International Journal of Recent Advances in Engineering and Technology, Vol.2, Issue-6,7, pp.34-38, 2014.</li> <li>13. Shashikumar H R, R Aparna, <i>An Efficient Methodology for the Detection and Elimination of Holing Attacks in MANETs</i>, International Journal of Computer Science Information and Engg. (IJCSIET), Technologies, Vol.1 Issue 5, April 2015.</li> <li>14. Rudramurthy V C, R Aparna, <i>Security Issues and Challenges in Wireless Sensor Networks: A Survey</i>, International Journal of Innovative and Research in Computer and Communication Engg. Volume 3, Issue 10, October 2015.</li> <li>15. V M Aparanji, Uday V Wali, and R Aparna, <i>R Library For Neural Networks</i>, International Journal of Technology and Science, ISSN (Online) 2350-1111, (Print) 2350-1103 Volume IX, Issue 1, May 2016 pp. 9-12.</li> <li>16. Rudramurthy V C, R Aparna, <i>A Review on Data Aggregation in Wireless Sensor Networks</i>, CiIT International Journal of Wireless Communication, Vol 9, No 8, October 2017.</li> <li>17. Hemavati, R Aparna, <i>A Survey on Intrusion Detection System using Machine Learning and Deep Learning</i>, International Journal of Scientific Research in Computer Science, Engineering and Information Technology, Volume 5, Issue 2, March-April 2019, pp.264-270.</li> <li>18. Poornashree Nagesh, R Aparna, <i>Securing Log And Data Using Class Scheme In Cloud Forensics</i>, Journal of Emerging Technologies and Innovative Research (JETIR), Volume 6, Issue 5, May 2019, pp 525-530.</li> <li>19. Aparanji V.M., Wali U.V., Aparna R.. <i>Multi-Layer Auto Resonance Network for Robotic Motion Control</i>, International Journal of Artificial Intelligence, Volume 18, Issue Number 1, March 2020, pp.19-44.</li> </ol>
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	Book Chapters	<p>1. Aparanji V.M., Wali U.V., Aparna R. <i>Pathnet: A Neuronal Model for Robotic Motion Planning</i>. Cognitive Computing and Information Processing. CCIP 2017. Communications in Computer and Information Science, vol 801. Springer, Singapore First Online 07 April 2018, DOI <a href="https://doi.org/10.1007/978-981-10-9059-2_34">https://doi.org/10.1007/978-981-10-9059-2_34</a></p> <p><b>Publisher Name:</b> Springer, Singapore</p> <p><b>Print ISBN:</b> 978-981-10-9058-5</p> <p><b>Online ISBN:</b> 978-981-10-9059-2</p>
<b>Professional Memberships</b>	<p>1. Member ISTE</p> <p>2. FIE</p>	