


Faculty Profile

Department Name	Computer Science		 <p style="text-align: center;">Photo</p>
Name of Teaching Staff:	Dr. Shilpa. B. Sarvaiya		
Designation:	Assistant Professor		
Qualification with Class/Grade:	M.Sc., MPhil. Class-I Grade-A, NET, PhD.		
Total Experience in Years:	Teaching:	23 years	
	Research:	05 years	
Papers Published (Journals):	National:	00	
	International:	20	
Papers presented in Conferences:	National:	04	
	International:	03	
PhD Guide? Give faculty and University:	Area of Research:	Internet of Things Security	
	University:	Sant Gadge Baba Amravati University, Amravati.	
PhD's Guided/Supervised:	Dr. Dinesh N. Satange Narsamma Hirayya Arts Commerce & Science, Amravati, India.		
Books Published/IPRs/Patents:	Published:	Published: Title of Invention: Design and Development of Secure Protocol System for IoT. Docket Number: 35093 Patent Application Number: 202321028653 Acknowledgement Slip Date: 20/04/2023 Purpose of the Algorithm: Improved the security Between IoT Nodes and Devices communications. URL: https://ipindiaonline.gov.in/epatentfilling	
	Copyright	Copyright registered for Secure Protocol System for IoT Acknowledgement Slip Date: 01/November/2022 Diary Number: 22549/2022-CO/L Purpose of Algorithm: Improved the security between IoT Nodes and Devices communications. URL: www.copyright.gov.in	

Awards/Prizes:	“Research Excellence Award-2023” for outstanding contribution in the field of Internet of Things organized by Ramgarh Engineering College Jharkhand in collaboration with Sultan Moulay Slimane University, Morocco City University, Malaysia. URL: https:// aota.co.in/
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Title Ph.D. Thesis : Design and Development of Secure Protocol System for IoT

Name of Supervisor: Dr. Dinesh N.Satange

Date of Admission: 01/09/2019.

Date of PhD Registration : 10/12/2020.

Date of Viva-Voce:23/12/2023

Registration Number: SGBAU/Ph.D/CPS/136/ 2020

Place of work: Amravati (Maharashtra)

Name of University: Sant Gadge Baba Amravati University

About My Thesis:

The IoT security aims for enabling IoT data protection in various interconnected nodes. These scenarios require secured solutions to prevent leakage of private information and harmful actuating activities by means of peer authentication and secure data transmission between the IoT nodes and servers. Node communication in IoT network sometime get hacked and wrong operation performs if it happened then there will be a chance to go for heavy loss. So that proposed methodology improves the communication network with the implementation of IP binding technique and the uses of random encryption selection process. As there are the different nodes like receiver and sender data will be send to receiver in which the receive data need to be valid and decrypted using shared keys into the packet. At the receiver end before transferring the data to the IoT node it will be perform with IP extraction packet with IP validation on to the received packet which leads to perform secure data sharing at the both receiver and sender node. As per the existing study in IoT Networks most probably data will be shared without any authentication and verification which cause big security clause in IoT Networks. So, it is necessary to improve data sharing with some advance techniques. So that the propose mechanism which authenticate and verify data at the time of sending as well as receiving which make the IoT network more secure. If there is any attacks perform in IoT network then due to the authentication the intruder can be trap and system will not allowed to change the network data. As per the above description the proposed mechanism will help for maintaining the security in IoT network.

List of Papers Publication

[1] Ms S.B. Sarvaiya, Dr.S.S. Sherekar, Dr.V.M.Thakare,” Study of Security Challenges in Multi-layered Structure and Various Attacks on IOT”, AIC 2K18 Annual IETE Convention **International Journal of Electronics, Communication And Soft Computing Science & Engineering (IJECSCSE),Impact Factor 4.526 ISSN 2277-9477, 29 and 30 September-2018.**

[2] Ms.S.B. Sarvaiya, Dr.S.S.Sherekar,Dr.V.M .Thakare,” Taxonomy of Authentication Techniques in Security Attacks of Internet of Things”, NCETS “Research Journey” **International E- Research journal, Impact Factor 6.261 ISSN: 2348-7143,February-2019**

[3] Ms.S.B. Sarvaiya, Dr.S.S. Sherekar, Dr.V.M. Thakare,” Internet of Things Security Architecture: Challenges and ISSUES”, Recent Advances in Science and Technology **(RAISAT-2019), 5 and 6 March-2019.**

[4] Ms.S.B. Sarvaiya, Dr.S.S. Sherekar, Dr.V.M. Thakare,” The Risks and Limitations of Security Mechanisms on IoT Environments”, International Engineering Journal for Research and Development, **Impact Factor 6.03 ISSN: 2349-0721 vol.4 Issue 29th November to 1st December 2019. Scope Database, Journal Indexing and Citation analysis. (31 Dec 2021).**

[5] Ms. S.B. Sarvaiya, Dr.D.N. Satange, “Comparative Study of Various IOT Network Structure in Accordance with Security Based on Packet Processing”, International Engineering Journal for Research and Development, **Impact Factor: 7.169 E-ISSN: 2349-0721vol.6 Issue 2, March-April 2021.**

<https://www.iejrd.com/index.php/%20/issue/archive>

[6] Ms. S.B. Sarvaiya, Dr.D.N. Satange, “Study and Analysis of Cryptographic Algorithms for Securing IOT Devices Based on Avalanche Effect”, 6th International Conference On Internet of Things, Next Generation Networks And Cloud Computing (ICINC-2021),**Sinhgad Technical Education Society’s Smt Kashibai Navale College of Engineering, Pune 22-23 May 2021.PP.63-73.**

[https:// cms.sinhgad.edu/Sinhgad_engineering_institutes.aspx](https://cms.sinhgad.edu/Sinhgad_engineering_institutes.aspx)

[7] Ms. S.B. Sarvaiya, Dr.D.N. Satange, “Transition from IPv4 to IPv6 Network in IoT Security Based upon Transition Methods”, International Journal on Orange Technology (IJOT), **Impact Factor: 6.875, E-ISSN: 2615-8140 | P-ISSN: 2615-7071, Volume: .03 Issue 7, PP. 43-49, 29 July 2021.**

<https://journals.researchparks.org/index.php/IJOT>

[8] Ms. S.B. Sarvaiya, Dr.D.N. Satange, “Improvement in the Security of IoT Network using IP Binding Technique”, 3RD International Conference on Machine Learning, Advances in Computing, Renewable Energy and Communication (MARC-21), held at Krishna Engineering College, Mohan Nagar, Ghaziabad (UP) during 10th-11th December 2021, **Springer [LNEE]. Part of the Lecture Notes in Electrical Engineering book series (LNEE, volume 915), PP.39-48 ISSN: 1876-1100, ISSN: 1876-1119 (electronic), First Online: 18 September 2022.**

<https://link.springer.com/book/10.1007/978-981-19-2828-4>

https://doi.org/10.1007/978-981-19-2828-4_4

[9] Ms. S.B. Sarvaiya, Dr. D.N. Satange, “Analysis of IoT Data Transfer Messaging Protocols on Application Layer”, International Journal for Research in Applied Science and Engineering Technology (IJRASET) , **SJ Impact Factor: 7.538, ISRA Journal Impact Factor 7.894, Volume 10, Issue7 PP.1812-1819, ISSN: 2321-965, DOI: 10.22214, July 2022.**

<https://www.ijraset.com/best-journal/analysis-of-iot-data-transfer-messaging-protocols-on-application-layer>

[10] Ms. S.B. Sarvaiya, Dr.D.N. Satange, “Security in IP-Based IoT Node and Device Authentication”, to the **IEEE** International Conference on Block chain and Distributed Systems Security (ICBDS) 2022 to be held on 16-18 September, 2022 at MCCIA Trade Tower, **Pune Conference Record # 53701.**

[https://ieeexplore.ieee.org/xpl/conhome/9935826/proceeding,](https://ieeexplore.ieee.org/xpl/conhome/9935826/proceeding)

[11] Ms. S.B. Sarvaiya, Dr.D.N. Satange, “Trustworthy IoT Traditional Network Security to Authentication and Access Control Model for Heterogeneous Devices”, **International Journal of Innovative Research in Technology, Volume 9, Issue 5, PP.594-600, ISSN: 2349-6002, 5 October 2022.**

<https://ijirt.org/Article?manuscript=156998>

[12] Ms. S.B. Sarvaiya, Dr.D.N. Satange, “IoT Networks Protection against IP Spoofing Attacks via IP Trace-Back Detection Technique”, **International Journal of Creative Research Thoughts (IJCRT)**, **Impact Factor: 7.97, Volume 10 Issue 10, PP.833-837 ISSN: 2320-2882, UGC Approved Journal No.: 49023 (18) 14 October 2022.**

https://ijcrt.org/track.php?r_id=226423

[13] Ms. S.B. Sarvaiya, Dr.D.N. Satange, “Design and Implementation of IoT Based Object Detection using IR and Ultrasonic Sensors”, **PriMera Scientific Engineering Journal**, **Volume 1 Issue PP. 01-07 ISSN: 2834-2550, 3 December 2022.**

<https://primerascientific.com/psen/volume-1-issue-3>

[14] Ms. S.B. Sarvaiya, Dr.D.N. Satange, “An IoT Real-Time Temperature Sensing System through ThingSpeak Cloud Platform”, **First International Conference on Advanced Optimization Techniques and Applications (AOTA-2023), Ramgarh Engineering College, Chhotki Lari, Murubanda, Jharkhand, January 21-22, 2023.**

[15] Ms.S.B. Sarvaiya, Dr.S.E. Tayde, “Analysis of Security Mechanisms Based on IoT, Fog and Cloud Computing Paradigm.”, **7TH National Conference** on Recent Trends in Computer Science & Applications (RTCSA-2018) 18 & 19 Dec 2018, ISSN: 2249-894X.

[16] Dr.S.E. Tayde, Ms. S.B. Sarvaiya, “The Merger of Cloud Deployment Models Services with IoT.”, NCETS “Research Journey”, **International E- Research journal**, Impact Factor 6.261 ISSN: 2348-7143, February-2019.

[17] Dr.S.E. Tayde, Ms.S.B. Sarvaiya, “The Role of Just-in-Time Indexing Technique of IoT on Cloudlet-based during Interactive Data Exploration System”, **Recent Advances in Science and Technology (RAISAT-2019)**, 5 and 6 March-2019.

[18] Dr.S.E. Tayde, Ms. S.B. Sarvaiya,” **EDGE CLOUD COMPUTING COMPLIMENTARY ROLE IN IOT ENVIRONMENT**”, **3rd National Conference** Recent Development Science, Engineering and Technology (RDSET 2019), April 03, 2019. Vol.4, Issue 6, ISSN-2349-5162.

[19] Dr.S.E. Tayde, Ms. S.B. Sarvaiya, “Trustworthy Computing in the Dynamic IoT Cloud Resort to Resource and Role Hierarchy Based Access Control Model.”,

[20] Aayushi International Interdisciplinary Research Journal (AIIRJ) ISSN 2349-638x Impact Factor 4.574 Special Issue No. 26 UGC Approved Sr.No.64259 Website: - www.aiirjournal.com Email id: - aiirjpramod@gmail.com

[21] Ms. Shilpa B. Sarvaiya, “COMPARATIVE study of SQL and NoSQL databases”, International conference held by Vidya Bharati Mahavidyalaya, Amravati.

[22] Dr. Shilpa B. Sarvaiya, Dr.D.N. Satange, “IoT Node Security Attacks on Device Layer: Attacks Detection Countermeasures and Solutions”, **National Conference on Recent Advancements in Science and Technology**, organized by Vidya Bharati Mahavidyalaya, Amravati, in collaboration with S.S.S.K.R. Innani Mahavidyalaya Karanja lad, Dist. Washim. On **10th February, 2024**, Page No.10-15, ISBN:978-81-19931-25-5.

<https://www.vbmv.org>

[23] Dr. Shilpa B. Sarvaiya, Dr.D.N. Satange, “A study on the Fog-Edge-Cloud Computing based IoT(FECIoT):Architecture,Security,and Privacy Issues”, **National Conference on Recent Advancements in Science and Technology**, organized by Vidya Bharati Mahavidyalaya, Amravati, in collaboration with S.S.S.K.R. Innani Mahavidyalaya Karanja lad, Dist. Washim. On **10th February, 2024**, Page No.10-15, ISBN:978-81-19931-25-5.

<https://www.vbmv.org>

[24] Dr. Shilpa B. Sarvaiya, Dr.D.N. Satange, “Key Role of Physical Unclonable Functions in Enhancement on Every IoT Node and Device Authentication”, **National Conference on Emerging Trends in Computational Science and Technology**, organized by Shri Shivaji Science College, Amravati, held on **22nd March 2024**, Page No.239-243.

<https://shivajiscamt.org>

1. My Orchid ID

ORCID: 0000-0003-3875-7562

[URL:https://orcid.org/](https://orcid.org/)

2. Research Excellence Award-2023.

For outstanding contribution in the field of Internet of Things (IoT) by **Ramgarh Engineering College Jharkhand** in collaboration with **Sultan Moulay Slimane University, Morocco City University, Malaysia.**

[URL:https://aota.co.in/](https://aota.co.in/)

3. Chapter Wrote: for Springer Book (Publication in Process).

Name of Chapter: Secure Protocol System for IOT using IP Binding Module.

[URL:https://link.springer.com/book/](https://link.springer.com/book/)

4. Story writing for AWSAR (Augmenting Writing Skills for Articulating Research).

Date: 27/09/21.

Topic: Design and Development of Secure Protocol System for IoT.

[URL:www.awsar-dst.in](http://www.awsar-dst.in)

5. Copyright registered for Secure Protocol System for IoT

Acknowledgement Slip Date: 01/November/2022

Diary Number: 22549/2022-CO/L

Purpose of Algorithm: Improved the security between IoT Nodes and Devices communications.

[URL:www.copyright.gov.in](http://www.copyright.gov.in)

6. Published Patent under government of India:

Title of Invention: Design and Development of Secure Protocol System for IoT.

Docket Number: 35093

Patent Application Number: 202321028653

Date of Filling: 20/04/2023

Publication Date: 11/08/2023

Purpose of the Algorithm: Improved the security Between IoT Nodes and Devices communications.

[URL:https://ipindiaonline.gov.in/epatentfilling](https://ipindiaonline.gov.in/epatentfilling)