Dr. Dhawan Singh

An effective **Research & Teaching** professional with the methodical approach to solve problems, reach independent decisions, enthusiastic with blend management skills. A technical expertise who communicates confidently with the superiors, subordinates, and students.

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Academic Credential

Ph.D. (Electronic Engineering)	Discipline of Electronic Engineering, Howard College Campus, University of KwaZulu-Natal, Durban-4041, South Africa **Times World University Rankings 2019 (401-500) Awarded in March 2019.**	**Thesis Title:** Design and Realization for **Radar Cross Section Reduction of Patch Antennas** Using Shorted Stubs Metamaterial Absorbers. Link
M. Tech (ECE)	Akal College of Engineering and Technology (ACET), Eternal University, Baru Sahib, District-Sirmour (H.P), India-173101 75 % in 2013.	**Thesis Title:** A Low-Cost Design and Monitoring of Automatic Irrigation System Based on Wireless ZigBee Technology.
M.Sc. (Electronics)	School of Study in Electronics, Jiwaji University, Gwalior (M.P), India in 2006 secured 65 % marks.	
UGC-NET	Qualified NET in **Electronic Science (88)** with 66.29 % in December 2014.	

Work Experience

Organisation	Exp. (years)	Period	Designation
Chitkara University, Punjab	2.9	June 2019- Currently	Associate Professor
UKZN, South Africa.	3	2016 – 2019	Ph.D. Researcher/ Demonstrator
Eternal University, India	3	2013 – 2016	Assistant Professor
Eternal University, India	4	2009 – 2013	Lecturer
Shah Infosys, Mohali	3	2006 – 2009	Embedded Soft. developer

Additional Qualification & Other Achievements

Qualifications	Description
Google Scholar Citation	(Total-184 with h-index (7), i10-index (6)). https://scholor.google.co.za/citation?user=y80jQngAAAAJ&hl=en
Research Gate	(RG Score- 8.21) https://www.researchgate.net/profile/Dhawan_Singh
Professional Affiliations	**Google Scholar; Research Gate; ORCiD; Scopus**
Professional Members	IEEE Member ID: 94115020; IAENG Member ID: 215991.

Professional Skills

Skill Sets	Tools
Electromagnetic Simulation Tools	CST Microwave Studio, HFSS, ADS, Antenna Magus
IDE Simulation Tools	MATLAB, Turbo C/C++, Keil uVision, Arduino IDE, TinkerCad
Siemens Automation tools	Sipass, Si-VMS, Desigo-CC.
Operating Systems	Windows-based all operating systems
Editing Tool Packages	Microsoft office, Latex (MiKTeX and Texmaker)
Languages	C, C++, Embedded C, VHDL, Assembly Languages for (8051, 8085/86)
Microprocessors & Microcontroller	8085/86, 8051, PIC, AVR, ARM7 family
Boards	Arduino, MKR 1000, Raspberry Pi, STM32
PCB Designing Tool	OrCad, Proteus

Social and other achievements

- Since January 2022, I've been a member of the Editorial Board of the American Journal of Science, Engineering, and Technology (AJSET).
- Delivered a session during National Level Faculty Development Program on “Internet of Things- A hands on Approach Using MKR1000” from 16th to 20th Dec 2019.
- Awarded as one of the UKZN’s Top 11 Published Student Researchers and interview included in the UKZN Research Report 2018.
- Resource Person for Scientific Project Report on 26th Children Science Congress with focal theme on Science, Technology, and Innovation for a Clean, Green, and Healthy Nation from 9th-12th October 2018 in Chawgan, Chamba (H.P), India.
- Served as a volunteer for FOOD FOR LIFE Organization between June 2016 to June 2018 at Durban, South Africa.
- Reviewer of Elsevier (AEU), Springer (wireless personal communication), EDAS, ACES Conference & Journal Management System, IJECE, IJET.
- Awarded ZAR 4500/- funding to participate in IEEE PLENARY SESSION for IEEE Region 8 held on 18th Sep 2017 in Cape Town, South Africa.
- Awarded with Honors Degree of “Master of Technology in ECE” at Eternal University, Baru Sahib, India.

Courses Taught (B.Sc./B.Tech/M.Sc./M.Tech.)

- Antenna & Wave Propagation
- Microcontroller & Embedded Systems
- IoT (Arduino, Blynk Cloud)
- Digital Electronics
- Analog Communication
- T.V. Engineering
- Circuit theory
- Electromagnetic Theory
- Analog Electronics
- Microprocessors
- Building Technology
- Digital Communication
- Digital Signal Processing
- Microwave and Propagation

Courses Curriculum Designed

- B.Tech ECE/CSE/EE
- M.Tech ECE/CSE

Research Profile

Specialization & General Research Area:

Metamaterial Antennas Design: Theory, Analysis & Modeling of miniaturized Microstrip Antennas, Embedded systems & Robotics.

Research Fields:

- Metamaterial Absorbers (MMA), Frequency Selective Surfaces (FSS), Electronic Band-Gap Structure (EBG), Microstrip Antennas, Defected Ground Structures (DGS), 5G, MIMO.

Future Research Interest

- Nano-antennas, 5-G Antennas, Millimeter/TeraHertz Microstrip Antennas, Antenna Optimization using Genetic Algorithm.
- Active metamaterial absorber and frequency selective surfaces structure design for broadband applications.
- IOT, Automation, Smart Embedded system prototype design.

Workshops/Short Term Courses (STC)

- Organized a workshop for 15 days on "Electrical Engineering Research" under Chitkara University, Rajpura, Punjab as a Convener/Resource Person between 14th June-2nd July, 2021.
- Participated in 2-day workshop on "Intellectual Property Rights: Issues and Challenges (IPRIC-2019)" during 28-3-19 to 29-3-19 organized by IPR Cell, Eternal University, Baru Sahib, in association with Himachal Pradesh Patent Information Center (HPPIC) and Himachal Pradesh Council for Science, Technology, and Environment, Shimla, H.P., India.
- Participated in Induction/Refresher Course on "Advances in Antenna Theory & Techniques" during 3-12-18 to 8-12-18 organized by Department of Electronics & Communication Engineering, Guru Nanak Dev Engineering College, Ludhiana, Punjab, India.
- Attended Short Term Course (STC) organized by NITTTR Chandigarh on "4G and 5G" through ICT (Information & Communication Technology) between 17th-21st September 2018 at Eternal University, Baru Sahib (H.P), India.
- Attended short-term course organized by NITTTR Chandigarh on "VLSI Design" through ICT between 24th-28th September 2018 at Eternal University, Baru Sahib (H.P), India.

Design and Utility Patents

1. **Dhawan Singh**, Abinash Singh, Himanshu Jindal, Aditi Thakur, and Geetanjali, "Water Purifier and Control Method Thereof", Application no. **202211012826**, Date of filing: **Feb 07, 2022**.
2. **Dhawan Singh**, Abinash Singh, Himanshu Jindal, Aditi Thakur, and Sumit, "Enhanced Water Purifier", Date of filing: **Feb 25, 2022**, Application: DSGN/IN/1478, Application No. 359406-001
3. Abinash Singh, **Dhawan Singh**, Mohit Kalsia, **Smart Anti-Theft Multipurpose Lock,** Date of filing: Application no. **358017-001,** Date of filing: **Feb 7, 2021**.
4. Abinash Singh, **Dhawan Singh**, Mohit Kalsia, Wireless anti-theft multipurpose lock, **Application No. 355664-001**, Date of filing: **Dec 28, 2021.**

5. **Dhawan Singh**, Abinash Singh, Himanshu Jindal, Aditi Thakur, Solar-powered Touchless Garbage Bin, Application No. **354758-001** Date of filing: **Dec 11, 2021**.
6. **Dhawan Singh**, Abinash Singh, Himanshu Jindal, Access Controlled Smart Solar powered lawn mower, Application no. **354246-001,** Date of filing: **Dec 3, 2021**.
7. Abinash Singh, **Dhawan Singh**, Mohit Kalsia, SOLAR ENABLED SMART BICYCLE KIT, Application No. **354085-001**, Date of filing: **Dec 1, 2021.**
8. Amandeep Kaur, Meenu Khurana, Geetanjali, Vinay Gautam, **Dhawan Singh**, Deepak Thakur, Tanya Gera, Isha Gupta, Neeru, Vikas Lamba, "SMART HEALTH TRACKING DEVICE" Patent File Number - 202111028801, Patent File Date - 26/06/2021.
9. Rajeev Kumar, Gurpreet Singh Saini, Manish Sharma, **Dhawan Singh**, Daljeet Singh, and P. R. Prajapat, "LOW PROFILE ANTENNA FOR KU-BAND APPLICATIONS," Patent File Number - 335030-001, Patent File Date - 09/11/2020. Date of issue: 29/9/21, **Granted.**

Book

10. **Dhawan Singh,** Writing a book on "Fundamental of Security Technologies- Access Control, Camera Surveillance, and Intrusion Detection System"

Book Chapters

11. **Dhawan Singh,** Aditi Thakur, Rajeev Kumar, and Geetanjali, "Design and Analyses of Dual-band Microstrip Patch Antennas for Wireless Communications," Book chapter on "**Microstrip Antenna Design for Wireless Application**" with CRC Press, Taylor and Francis Group, ISBN: 9780367554385, Published November 30, 2021 by CRC Press 352 Pages 161, UINC: **205508059CCAE,** https://doi.org/10.1201/9781003093558
12. **Dhawan Singh,** Aditi Thakur, Geetanjali, Pardeep Kumar, "Advanced antenna system designs for IoT applications," Springer, Ready to Submit.

Journals

13. Aditi Thakur, Dhawan Singh, and Dileep Kumar Sharma, Design Modelling and Performance Analyses of Impressive Tin Based Perovskite Cell, Int. J. of Materials and Product Technology, Inderscience Publication, Under review: IJMPT-104970
14. Aditi Thakur, Dileep Kumar Sharma, and Dhawan Singh, Numerical Simulations of 26.11% Efficient Planar CH3NH3PbI3 Perovskite n-i-p Solar Cell, World Engineering Conference on Contemporary Technologies 2022, Rajpura, Punjab (Near Chandigarh), India **UINC: 215510090CCAE (Need to modify)**
15. Abinash Singh, Gagandeep, **Dhawan Singh,** and Sumit, **"**A Survey on Electronic Access Control Systems amid COVID-19 (CIMS_ 298)," 2nd International Conference on Industrial and Manufacturing Systems (CIMS-2021), Nov 11-13, 2021, **Accepted, UINC:**
16. **Dhawan Singh,** Abinash Singh, Priya Khanduja, Madhur, "Amidst COVID-19 pandemic: A Survey on Building Automation Technologies" (CIMS_ 300), 2nd International Conference on Industrial and Manufacturing Systems (CIMS-2021),Nov 11-13, 2021, **Accepted, UINC: 215510025CCAE**

17. Priya Khanduja, *Dhawan Singh, and Abinash Singh, **"Next Generation Building Automation Technologies amidst COVID-19 pandemic- A Review,"** Building Engineering, Under Review: Ref. No.: BAE-D-21-02335, **UINC: 215507169CCAE**
18. Gagandeep, Abinash Singh, Dhawan Singh, **"Electronic Access Control System and Global Pandemic: A Review ," UINC: 215507172CCAE**
19. **Dhawan Singh,** Amanpreet Sandhu, Aditi Thakur, and Geetanjali, "**Enabling Wireless Communication Technologies for IoT Solutions, Ready to Submit.**
20. **Dhawan Singh**, Aditi Thakur, Maninder Singh, and Amanpreet Sandhu "IoT Implementation Strategies amid COVID-19 Pandemic," International Journal of Computer Applications in Technology, August 2021 Vol.65 No.4, pp.389 – 398. 10.1504/IJCAT.2021.117303 IJCAT-304700, UINC-201006180ECE. **UINP: P215509066CCAE**
21. Amanpreet Sandhu, Dhawan Singh, and Rakesh K. Sindhu, "Energy Dissipation Analysis of Sequential Circuits in QCA," NVEO – Natural Volatiles & Essential Oils, Vol. 8, No. 3, 2021, pp. 1421-1431, **UINC: 201004164ECE**
22. Amanpreet Sandhu, **Dhawan Singh**, Kanika Aggarwal, Vaishali, Shweta Duvuri, " Frequency Scaling Based Power Efficient Flip-Flop Design in 28nm FPGA," International Journal on Emerging Technologies, IJET-RT-3080-ECE, **Communicated on: 13th July 2020. UINC-201007029ECE**
23. **Dhawan Singh,** Amanpreet Sandhu, Aditi Thakur, and Nikhil Priyank, "An Overview of IoT Hardware Development Platforms," International Journal on Emerging Technologies, vol. 11, no. 5, pp. 155-163, Aug 2020. **UINC- 201007044ECE**
24. Maninder Singh, **Dhawan Singh,** Gurpreet Kumar, and Rajeev Kumar, "A Miniaturized and Circularly Polarized L-Shaped Slot Antenna for Ultra-wideband Applications," International Journal of Recent Technology and Engineering (IJRTE), vol. 8, no.4, November 2019. pp. 2133-2139, **Doi:10.35940/ijrte.D7707.118419**
25. **Dhawan Singh** and Viranjay M. Srivastava, "Design Implementation of Concentric Loops with Stubs Metamaterial Absorber," Wireless Personal Communications, Springer, vol. 104, no. 1, pp 1-20, January 2019, **DOI.org/10.1007/s11277-018-6012-y. Citation Per Document-1.37**
26. **Dhawan Singh**, Aditi Thakur, and Viranjay M. Srivastava, "Miniaturization and Gain Enhancement of Microstrip Patch Antenna with Defected Ground and EBG," Journal of Communication (JOCM), vol. 13, no. 12, pp. 730-736, December 2018, **Doi:10.12720/jcm.13.12.730-736**. **Citation Per Document -0.59**
27. **Dhawan Singh** and Viranjay M. Srivastava, "RCS Reduction of Patch Array using Shorted Stubs Metamaterial Absorber," Journal of Communication (JOCM), vol. 13, no. 12, pp. 702-711, December 2018. **Doi:10.12720/jcm.13.12.702-711**. **Citation Per Document -0.59**
28. **Dhawan Singh** and Viranjay M. Srivastava, "Comparative Analyses for RCS of Patch Antenna using Shorted Stubs Metamaterial Absorber," Journal of Engineering Science and Technology (JESTEC), vol. 13, no. 11, pp. 3532-3546, November 2018. **Citation Per Document -0.64**

29. **Dhawan Singh** and Viranjay M. Srivastava, “An Analysis of RCS for Dual-Band Slotted Patch antenna with a thin dielectric using Shorted Stubs Metamaterial Absorber,” AUE- International Journal of Electronics and Communication, vol. 90, pp. 53-62, June 2018, **DOI.org/10.1016/j.aeue.2018.03.039 Citation Per Document - 2.45**
30. **Dhawan Singh** and Viranjay M. Srivastava, “Low Radar Cross Section of Patch Antenna using Shorted Stubs Metamaterial Absorber,” International Journal of Microwave and Optical Technology (IJMOT), vol. 13, no. 3, pp. 194-202, May 2018. **Citation Per Document – 0.7**
31. Harmandeep Kaur, Aditi Sharma, and **Dhawan Singh**, “Design analysis of patch antenna using EBG structure,” International Journal of Emerging Technologies and Innovative Research (JETIR), vol. 5, no. 4, pp. 916-921, April 2018. **DOI.one/10.1729/IJCRT.17507**
32. Aditi Thakur and **Dhawan Singh**, “Reliable and Fast Future Communications with Millimeter Waves: A Review,” International Journal for Research in Applied Science and Engineering Technology (IJRASET), vol. 6, no. 3, pp. 2320-2326, March 2018.
33. **Dhawan Singh** and Viranjay M. Srivastava, “Dual Resonances Shorted Stub Circular Rings Metamaterial Absorber,” AUE-International Journal of Electronics and Communication, vol. 83, pp. 58-66, January 2018, **DOI.org/10.1016/j.aeue.2017.08.034. (Most downloaded Article 2018). Citation Per Document - 2.45**
34. **Dhawan S. Thakur** and Aditi Sharma, “Voice Recognition Wireless Home Automation System Based on Zigbee,” Journal of Electronics and Communication Engineering (IOSR-JECE)**,** vol. 6, no. 1, pp. 65-75, June 2013.
35. **Dhawan S. Thakur**, Aditi Sharma, and Dileep Kumar Sharma, “A Low-Cost Design & Monitoring of Automatic Irrigation System Based on ZigBee Technology,” International Journal of Engineering Research and Technology, vol. 2, no.5, pp. 1112-1121, May 2013.

Conferences

36. Geetanjali Singla, Neeru Kashyap and **Dhawan Singh**, “Multiband Slotted Circular Microstrip Patch Antenna with Enhanced Bandwidth for Satellite Applications”, MECON - 2022 (2022 INTERNATIONAL MOBILE AND EMBEDDED TECHNOLOGY CONFERENCE), Accepted.
37. Aditi Thakur, Abinash Singh, **Dhawan Singh**, Madhur Chauhan, Dileep Kumar Sharma, “Current Scenario and Perspective of Wind-Solar Cogeneration in India”. WECON, May 20-21, 2022, Submitted.
38. Neeru kashyap, Geetanjali, **Dhawan Singh**, Neha Sharma, “Comprehensive study of Microstrip Patch Antenna using different Feeding Techniques”, CUDC 2021, UINC is 201007303ECE. SPAST Abstracts, 1(01). Retrieved from https://spast.org/techrep/article/view/3204
39. Sumit, Madhur, Abinash Singh, **Dhawan Singh** "Harmonic mitigation in VFD driven water-cooled centrifugal chiller compressor using AC line reactor and DC link choke combination" , CUDC 2021, UINC is 215507118CCAE
40. Abinash Singh, Gagandeep, **Dhawan Singh**, Sumit, A Survey on Electronic Access Control Systems amid COVID-19", CIMS2021, UINC is 215510024CCAE.

41. **Dhawan Singh**, Abinash Singh, Priya, Madhur, Amidst COVID-19 pandemic: A Survey on Building Automation Technologies, CIMS2021, UINC is 215510025CCAE.
42. Bhawna Sharma, Anita Rani, Nitin Saluja, Geetanjali Singla, **Dhawan Singh**, "A Compact and Wideband Filtenna Using Elliptical Patch and CSRR Structure for Wireless Application," 10th IEEE International Conference on Communication Systems and Network Technologies (CSNT 2021), paper ID #217,**UINC 211001018CURIN,** Bhopal, India, 10.1109/CSNT51715.2021.9509701
43. Isha, RENU, GEETANJALI, and **Dhawan Singh,** "Fusion based fast De-fogging for Foggy Images," National Conference on Advances in Applied Sciences and Mathematics (NCASM-20), **UINC is 201009013CSE**, Accepted.
44. Jaswinder Singh, Rajesh, and **Dhawan Singh**, "Review Paper-Biomass and its surplus quantity International conference on smart technologies for energy, environment and sustainable development-2020, ICSTEESD-20, Springer, December 4-5, 2020, Nagpur. **UINC-205508088CCAE**, Accepted.
45. Aditi Bharmaik and **Dhawan Singh**, "Smart and Precision Farming using Internet of Things," 3rd Himachal Pradesh Scinece Congress, H.P, India, 22-23 October 2018, pp.144. DOI: 10.13140/RG.2.2.34909.67044
46. **Dhawan Singh** and Aditi Thakur, "Designing of Smart Drip Irrigation System for Remote hilly Areas," IEEE 5th International Conference on Parallel, Distributed and Grid Computing (PDGC), H.P, India, 20-22 December 2018, pp.1-5. 10.1109/PDGC.2018.8745934
47. **Dhawan Singh** and Viranjay M. Srivastava, "Polarization-Insensitive Cylindrical Shaped Frequency Selective Surface," IEEE 10th international conference on Development in eSystem Engineering (DeSe2017), Paris, France, 14-16 June 2017, pp.1-6, **DOI: 10.1109/DeSE.2017.18.**
48. **Dhawan Singh** and Viranjay M. Srivastava, "3-D Cylindrical Shaped Frequency Selective Surface," IEEE 4th International Conference on Advanced Computing and Communication Systems (ICACCS-2017), Coimbatore, India, 6-7 January 2017, pp. 1-6, **DOI: 10.1109/ICACCS.2017.8014564**
49. **Dhawan Singh** and Viranjay M. Srivastava, "Triple Band Regular Decagon Shaped Metamaterial Absorber for X- Band Applications," IEEE International Conference on Computer Communication and Informatics (ICCCI -2017), Coimbatore, India, 5-7 January 2017, pp. 411-415, **DOI: 10.1109/ICCCI.2017.8117766**
50. **Dhawan Singh** and Viranjay M. Srivastava, "Metamaterial Absorber Based on Concentric Rings with shorted stubs," International Conference on Engineering and Technology (ICET-2016), Coimbatore, India, 16-17 December 2016, pp. 159-163.
51. **Dhawan S. Thakur** and Aditi Sharma "Wireless Solar Irradiance Meter," International Conference on Renewable Energy, Eternal University, H.P, India, 5-6 May 2012.
52. **Dhawan Singh** and Aditi Sharma Thakur "Microcontroller Based Digital Solar Insolation Meter," International Conference on Recent Advances in Electronics and Computer Engineering, Eternal University, H.P, India, 17-18 December 2011.

53. Ritesh Parmar, Sachin Bhardwaj, and **Dhawan S. Thakur**, "Advancement in home automation and security systems," International Conference on Recent Advances in Electronics and Computer Engineering, Eternal University, H.P, India, 17-18 December 2011.

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References

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Declaration

I hereby declare that all the information made above is true to the best of my knowledge.

PLACE: Punjab (India) **(Dr. Dhawan Singh)**