

# AAKASH BANSAL

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## EDUCATION

- Bachelor of Technology in Electronics and Communication Engineering (B.Tech. ECE)** (2013-17)  
Maharaja Surajmal Institute of Technology (G.G.S.I.P. University), New Delhi **78.47 %**
- All India Senior School Certificate Examination (AISSCE)** (2012-13)  
Vivekanand International Sr. Sec. School (C.B.S.E.), New Delhi **84.4%**
- All India Secondary School Examination (AISSE)** (2010-11)  
Vivekanand International Sr. Sec. School (C.B.S.E.), New Delhi **CGPA 8.8**

## TECHNICAL SKILLS

**Software(s)** Keysight Advanced Design System (ADS), Ansys HFSS, CST Microwave Studio, Comsol Multiphysics (Basic), MATLAB, Simulink, Proteus Professional, Android Studio.  
**Language(s)** C (Novice), C++ (Novice), Embedded C (Novice)  
**Platform(s)** Arduino, AVR Microcontrollers, 8051 Microcontrollers, Raspberry Pi, NodeMCU, TI MSP430.

## INDUSTRIAL TRAININGS AND INTERNSHIPS

**Student Trainee, CSIR – Central Electronics Engineering Research Institute, Pilani** [Jul 17 – Present]  
Project : Design and Development of Planar RF SWS for Staggered Double Vane Traveling Wave Tubes  
Guide : Dr. Vishnu Srivastava (Emeritus Scientist, CSIR-CEERI), Dr. R. K. Sharma (Head, MWT)

**Product Developer, Awesome Projects** [Jun 16 – Jun 17]  
Project : Wireless Panic Messenger for Tihar Prison  
Automated Token Generator for Clinic

**Student Trainee, Network Experience Centre, Bharti Airtel, Gurugram** [Jan 16 – Feb 16]  
Project : Call Flow and Protocols in GSM and GPRS Networks  
Guide : Mr. Kartik Misra (Lead CEM Operations, SMC | NEC Bharti Airtel)

**Maker Intern, JMoon Makerspace, JMoon Technologies Pvt. Ltd. New Delhi** [Oct 14 – Dec 15]  
Project : Design of Embedded Applications and Technical Documentation for the same  
Guide : Mr. Jasmeet Singh (Founder, JMoon Tech)

**Student Intern, Department of Electronics and IT (DeitY), Ministry of IT, Govt. of India** [Jun 15 – Aug 15]  
Project : Study of Fifth Generation Mobile Communication  
Guide : Dr. B. M. Baveja (Sr. Director, R&D CC&BT, DeitY)

**Attendee, 5 Days Workshop on Advanced RF Designing by Keysight Technologies** [Aug 15 – Aug 15]  
Project : Microstrip Filter Design for 900 MHz with 50 MHz Bandwidth  
Guide : Md. A. Maktoomi (Ph.D. Scholar, IIT-Delhi)

## PROJECTS UNDERTAKEN

- Modifying FDTD Algorithm for simulation in THz band using MATLAB
- Terahertz Microstrip Antenna Analysis using Photonic Band Gap Material
- Large Signal Modeling of a Sheet Beam TWT Amplifier
- Comparative Analysis of Different Configurations of Antenna Arrays
- Design and Implementation of Coaxial Fed Microstrip Antenna Array
- Analysis of Feeding Techniques and Array for Rectangular Patch Antennas
- Crowd Estimation for Routing Masses in Public Transports
- Offline GPS – Mathematical Model for Location Tracking without GPS
- Decentralized Vehicular Network with modified planar antennas for long distance communication
- Wireless Soil Quality Analyzer
- Virtual Reality Based Gaming Console
- Digital Resistance Box: Generating Desired Resistance by Automated Variation of Potentiometers
- NASA Radio Jove: Study of Radiations from Jovian Cluster
- AnyTouch: A Smart Technique to Enable Touch Interface in Personal Devices
- Study of Sudden Disturbances in Ionosphere due to Solar Radiations of Sun

## **PUBLICATIONS**

### Accepted/Published:

1. *Improvements in Crowd Estimation Algorithm for High Density Crowd Analysis*, Proceedings of Second International Conference on Advanced Computing and Intelligent Engineering 2017 (Accepted).
2. *AnyTouch: Design and Implementation of a Touch Interface for Bluetooth Enabled Devices*, International Journal for Engineering and Manufacturing MECS Press (Accepted).
3. *A Review on Microstrip Patch Antennas and Feeding Techniques*, Springer's International Journal of Information Technology (Accepted).
4. *Real Time Electricity Monitoring using Smart Energy Meter in a SMART LAN Based Network*, Proceedings of Third International Conference on Research Trends in Engineering Applied Science and Management, Pune, May 17.
5. *Design of Rectangular Microstrip Patch Antennas using Keysight ADS*, an independent handbook presently being used and recommended by professors at MSIT for Antenna Design Lab Work. [Link: [bit.ly/adsantenna](http://bit.ly/adsantenna)]
6. *Digital Resistance Box: An Approach to Generate Desired Value of Resistance by Automatically Varying the Potentiometers*, Proceedings of IEEE International Conference on Power Electronics, Intelligent Control and Energy System, Delhi.
7. *Sudden Solar Disturbances in Ionosphere*, SATYAM – Journal of MSIT Vol. 6, May 2016.
8. *Explosion Intensity Measurement Using Piezo Elements*, International Research Journal of Engineering and Technology, Vol 4, Issue 1, January 2017.
9. *Centralized Traffic Monitoring using Mobile Signal Density*, International Symposium on Fusion of Science and Technology, New Delhi.

### Submitted/Submitting:

1. *Dynamic Approach to Integrated Design and Beam-Wave Interaction Analysis for Planar Structured THz TWT Amplifier*, Special Issue of IEEE Transactions on Electron Devices – June 2018 (Result Awaited).
2. *Terahertz Vacuum Microelectronic Devices for Communication, Imaging and Remote Sensing*, IETE Technical Review 2017 (Result Awaited).
3. *Analytical Modeling of Staggered SWS Backward Wave Amplifier with Sheet Beam*, IEEE Intl Vacuum Electronics Conference 2017. (Result Awaited).
4. *Design of 600GHz Microstrip Antenna based on Photonic Bandgap Material*, Pending to Submit
5. *Analytical Modeling of Microstrip Patch Antennas using Modified FDTD Algorithm*, Pending to Submit
6. *Analysis of Random Patterns in Microstrip Antennas*, Pending to Submit.

## **AWARDS, HONOURS AND RECOGNITION**

1. Exemplary Performance Award for Student Training and Research by MSIT.
2. Recipient of IEEE Computer Society Richard E. Merwin Student Scholarship 2016.
3. Recipient of MIT GSW Fellowship 2016.
4. Received Project Funding for Design of Self Sustained LED Bulbs from Sristi – An IIM-A based NGO.
5. Won IEEE MTT-S YouTube/YouKu Video Contest for Offline GPS.
6. Recipient of IEEE Delhi SAC Outstanding Student Volunteer Award 2016.
7. Winner for multiple Hardware Hackathons organised by TATA Power, DTU, NSIT, IIIT, etc.
8. Winner for various Paper Presentation Competitions organised by MSIT, JMI, etc.

## **SEMINARS/WORKSHOPS/SESSIONS DELIVERED**

1. *Analytical Modeling for Microstrip Antennas*, Maharaja Surajmal Inst. of Tech., New Delhi.
2. *Basics of Arduino*, Government Engineering College Ajmer.
3. *Concepts of Microstrip Antenna Designing*, B K Birla Institute of Engg. And Tech., Pilani.
4. *Applications of Image Processing*, HMR Institute of Technology and Management, New Delhi.
5. *Microstrip Antenna Designing using Keysight ADS*, Maharaja Surajmal Institute of Technology, New Delhi.
6. *Introduction to HAM Radios*, IEEE MTT-S Asia Pacific Microwave Conference-IMaRC 2016, New Delhi.
7. *Engineering Behind HAM Radios*, Indian Red Cross, New Delhi.
8. *Circuit Simulation and Assembling*, National Power Training Institute, New Delhi.
9. *Circuit Simulation and Assembling*, Faculty of Engineering, Jamia Millia Islamia University, New Delhi.
10. Mentor, IEEE Delhi Section Project WIE Stand 2016.
11. Mentor, Intel's K-12 Education Campaign.

## **POSITION OF RESPONSIBILITIES**

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|---------------------------------------------------------------------|----------------------|
| 1. Sub Zonal Coordinator, IEEE Region 10 Student Activity Committee | [Jan 2017-Till Date] |
| 2. Industrial Representative, IEEE India SCT                        | [Jan 2017-Till Date] |
| 3. Mentor, IEEE Delhi Section Student Network                       | [Jan 2017-Till Date] |
| 4. Chairperson, IEEE MSIT Student Branch                            | [Jun 2016-May 17]    |
| 5. Technical Activities Coordinator                                 | [Jun 2016-May 17]    |