

Nurzaman Ahmed (B.Tech, M.Tech, Ph.D. Pursuing)

✉ nurzaman713@gmail.com

🌐 <https://nurzaman7.github.io/>

📄 <https://scholar.google.com/citations?user=wUFC3VMAAAJ&hl=en>

☎ +91-9402109565

Address: DHANTOLA, DHUPDHARA, ASSAM, INDIA-783123



Employment History

- 2015 – 2019 ■ **Project Scientist** Information Technology Department, School of Technology, NORTH-EASTERN HILL UNIVERSITY, Shillong, India. (Part-time position Nov 2015–Aug 2019.)
MeitY (Govt. of India) sponsored Project titled: *QoS Provisioning in WiFi-based Long Distance Wireless Networks for Hilly Terrain Areas*.
- 2013 – 2015 ■ **Junior Research Fellow** Information Technology Department, School of Technology, NORTH-EASTERN HILL UNIVERSITY, Shillong, India. (Part-time position Aug 2013–Jan 2015.)
MeitY (Govt. of India) sponsored Project titled: *QoS Provisioning in Internet of Things (IoT)*.

Education

- 2016 – ■ **Ph.D., North-Eastern Hill University, India** in Information Technology.
Thesis title: *Designing IEEE 802.11ah-based scalable network architecture for Internet of Things*.
- 2014 – 2016 ■ **M.Tech., North-Eastern Hill University, India** in Information Technology.
Thesis: *Designing a MAC protocol for Internet of Things (IoT)*.
First Class 79%
- 2008 – 2013 ■ **B.Tech., North-Eastern Hill University, India** in Information Technology.
Project: *Extension of NS-2 for Long Distance Wi-Fi support*.
First Class 70%
- 2006 – 2008 ■ **Higher Secondary, Assam Higher Secondary Education Council, India** in Science.
First Class 71% Dakshin Kamrup College
- 2003 – 2006 ■ **High School Living Certificate, Board of Secondary Education, Assam, India**
First Class 78% Padupara Anchoic High School

Research Publications

Journal Articles

- 1 Ahmed, N., Das, S. K., & Hussain, M. (2019). Dynamic Bandwidth Allocation Schemes for Multi-hop Wireless Mesh Networks. *International Journal of Next-Generation Computing, ESCI Indexed*, 10(2), 81–90.
- 2 Thungon, L., C, Ahmed, N., & Hussain, M. I. (2019). Comparison of AES and PRESENT Block Cipher for 6LoWPAN Based Internet-of-Things. *International Journal of Computational Intelligence & IoT*, 1(2). 🌐 <https://ssrn.com/abstract=3354723>

- 3 Ahmed, N., De, D., & Hussain, I. (2018). Internet of Things (IoT) for Smart Precision Agriculture and Farming in Rural Areas. *IEEE Internet of Things Journal, SCI Indexed*, 5(6), 4890–4899. doi:10.1109/JIOT.2018.2879579
- 4 Ahmed, N., Rahman, H., & Hussain, M. I. (2018). An IEEE 802.11 ah-based scalable network architecture for Internet of Things. *Annals of Telecommunications, SCI Indexed*, 73(7-8), 499–509.
- 5 Rahman, H., Ahmed, N., & Hussain, M. I. (2018). A QoS-aware hybrid data aggregation scheme for Internet of Things. *Annals of Telecommunications, SCI Indexed*, 73(7-8), 475–486.
- 6 Ahmed, N., Rahman, H., & Hussain, M. I. (2016). A comparison of 802.11 ah and 802.15. 4 for IoT. *ICT Express, ESCI Indexed*, 2(3), 100–102.
- 7 Hussain, M. I. & Ahmed, N. (2016). A Performance Analysis of E-Learning over WiFi-based Long Distance Networks. *Journal of Wireless Networking and Communications*, 6(4), 85–93.
- 8 Hussain, M. I., Dutta, S., Ahmed, N., & Hussain, I. (2015). A WiFi-based reliable network architecture for rural regions. *ADBU Journal of Engineering Technology*, 3.

Communicated Articles

- 1 Ahmed, N., De, D., & Hussain, M. I. (2019). MAC protocol for IEEE 802.11ah-based Internet of Things: A Survey. Under 2nd round of revision in IEEE Communications Surveys & Tutorials.
- 2 Ahmed, N. & Hussain, M. I. (2019a). Periodic Traffic Scheduling for IEEE 802.11ah Networks. Under 1st round of revision in IEEE Communication Letters.
- 3 Ahmed, N. & Hussain, M. I. (2019b). QoS.11ah: A QoS-aware Scheduling-cum-grouping scheme for IEEE 802.11ah. Communicated to IEEE Transactions on Wireless Communications.
- 4 Thungon, L., Ahmed, N., & Hussain, M. I. (2019). A Survey on 6LoWPAN Security: State-of-the-art and Challenges. Under 1st round of revision in IET Communications.

Conference Proceedings

- 1 Ahmed, N., De, D., & Hussain, M. I. (2018). A qos-aware mac protocol for ieee 802.11 ah-based internet of things. In *2018 Fifteenth International Conference on Wireless and Optical Communications Networks (WOCN)* (pp. 1–5). IEEE. doi:10.1109/WOCN.2018.8556133
- 2 Thungun, L. C., Ahmed, N., & Hussain, M. (2018). Comparison of AES and PRESENT Block Cipher for 6LoWPAN based Internet-of-Things. In *International Conference on Computational Intelligence & IoT (ICCIoT)* (pp. 1–6). NIT, Tripura, India.
- 3 Ahmed, N., Rahman, H., & Hussain, M. I. (2017a). Scalability analysis of medium access control protocols for internet of things. In *Proceedings of international conference on communication and networks* (pp. 601–611). Springer.
- 4 Kalita, A., Ahmed, N., Rahman, H., & Hussain, M. I. (2017). A qos-aware mac protocol for large-scale networks in internet of things. In *IEEE International Conference on Advanced Networks and Telecommunications Systems (ANTS)* (pp. 1–6). IEEE. doi:10.1109/ANTS.2017.8384132
- 5 Ahmed, N. & Hussain, M. I. (2016a). A distributed channel access mechanism for ieee 802.11 ah. In *IEEE 3rd World Forum on Internet of Things (WF-IoT)* (pp. 1–6). IEEE.
- 6 Ahmed, N. & Hussain, M. I. (2016b). Relay-based ieee 802.11 ah network: a smart city solution. In *2016 Cloudification of the Internet of Things (CIoT)* (pp. 1–6). IEEE. doi:10.1109/CIOT.2016.7872922

- 7 Rahman, H., Ahmed, N., & Hussain, I. (2016). Comparison of data aggregation techniques in Internet of Things (IoT). In *International Conference on Wireless Communications, Signal Processing and Networking (WiSPNET)* (pp. 1296–1300). doi:10.1109/WiSPNET.2016.7566346
- 8 Rahman, H., Ahmed, N., & Hussain, M. I. (2016). A hybrid data aggregation scheme for provisioning quality of service (qos) in internet of things (iot). In *2016 Cloudification of the Internet of Things (CIoT)* (pp. 1–5). IEEE. doi:10.1109/CIOT.2016.7872917
- 9 Ahmed, N., Ahmed, Z. I., Saikia, S. I., & Hussain, I. (2015). Augmentation of Directional and Sector Antenna Support in NS2. In *2015 international conference on computational intelligence and networks* (pp. 68–73). doi:10.1109/CINE.2015.23
- 10 Ahmed, S., Hussain, I., & Ahmed, N. (2015). Driver level implementation of tdma mac in long distance wifi. In *International Conference on Computational Intelligence and Networks* (pp. 80–85). IEEE. doi:10.1109/CINE.2015.25
- 11 Rahman, H., Ahmed, N., Hussain, & I. (2015). Internet of things (iot): advances and research challenges. In *International conference on computing and communication systems (i3cs)* (April, pp. 89–96). NEHU, Shillong, India.
- 12 Hussain, I., Ahmed, N., Saikia, D., & Sarma, N. (2014). A qos-aware multipath routing protocol for wifi-based long distance mesh networks. In *2nd International Conference on Emerging Technology Trends in Electronics, Communication and Networking* (pp. 1–8). IEEE. doi:10.1109/ET2ECN.2014.7044990
- 13 Hussain, M., Dutta, S. K., Ahmed, N., & Hussain, I. (2014). A Multi-gateway based Reliable Low Cost Network Architecture for Rural Region. In *National Conference on Emerging Global Trends in Engineering & Technology (EGTET)* (pp. 1–7). Don Bosco University, Assam, India.

Books and Chapters

- 1 Ahmed, N., Rahman, H., & Hussain, M. I. (2017b). Scalability analysis of medium access control protocols for internet of things. In *Advances in intelligent systems and computing* (Vol. 508, pp. 601–611). Springer Singapore. doi:10.1007/978-981-10-2750-5_62

Skills

Languages	■ Strong reading, writing and speaking competencies for English, Hindi, Assamese, Bengali.
Coding	■ C,C++,Java, PHP, JSP, Python, SQL, L ^A T _E X, ASP.NET, TCLscript.
IoT	■ Sensor/Actuator, Contiki, COAP, MQTT, TelosB, CC2650, ESP8266, Arduino, RaspberryPi, iFogSim, Thingspeak.
Networking	■ Mikrotik Board, Winbox, OpenWrt, Atheros Driver, Driver Programming, 6Lbr.
Web Dev	■ Angular 2.0 (above), HTML, CSS, JavaScript, Liferay, Django, Apache Web Server, Tomcat Web Server.
Misc.	■ Academic research, teaching, training, consultation, L ^A T _E X typesetting and publishing.

Lectures and Presentations

Keynote Lectures

- May 2017 ■ **Implementation of IoT using 6LoWPAN-based Network**, 2-day MeitY sponsored National workshop on *Internet of Things: It's Inside out*, in the department of IT, NEHU, Shillong, India.

Lectures and Presentations (continued)

- **Technologies and Protocols for Internet of Things (IoT)**, 2-day MeitY sponsored National workshop on *Internet of Things: It's Inside out*, in the department of IT, NEHU, Shillong, India.
- Jan 2015 ■ **Protocol Implementation in open source Wireless Local Area (WLAN) driver**, 2-day National workshop on *Trends in Wireless Networks - Protocols and Practice* in the department of IT, NEHU, Shillong, India.
- **Protocol Implementation and Simulation using Network Simulator 2 (NS2)**, 2-day National workshop on *Trends in Wireless Networks - Protocols and Practice* in the department of IT, NEHU, Shillong, India.

Paper Presented

- Jan 2018 ■ **A QoS-aware MAC protocol for large-scale networks in Internet of Things**, in 11th IEEE International Conference on Advanced Networks and Telecommunications Systems (ANTS), 2017
- Jan 2015 ■ **Augmentation of Directional and Sector Antenna support in NS-2**, in IEEE sponsored International Conference on Computational Intelligence and Networks (CINE) held on January 2015 in KIIT University, Bhubaneswar, Orisha.
- **Level Implementation of TDMA MAC in Long Distance WiFi**, in IEEE sponsored International Conference on Computational Intelligence and Networks (CINE) held on January 2015 in KIIT University, Bhubaneswar, Orisha.
- Dec 2014 ■ **A QoS-aware Multipath Routing Protocol for WiFi-based Long Distance Mesh Networks** in 2nd IEEE conference on Emerging Technology Trends in Electronics, Communication and Networking (ET2ECN) held on December 2014 in NIT Surat, Gujarat.

Miscellaneous

Guidance

- Jul 2018 ■ **Guided BSF Technical Team**, *Deployment of WiFi-based Long Distance (WiLD) Network in Border Out Posts (BOPs)*, Ftr, HQ, BSF Frontier Shillong from 2 March to 4 April 2018.

Workshops and Training

- Jul 2012 ■ Undergone an internship programme on **IP addressing** for 7-days at Indian Oil Corporation Limited, Noonmati, Guwahati, Assam.
- Mar 2011 ■ Participated in the **Bhuwan** workshop organized by North Eastern Space Applications Center, Umiam, Shillong
- Sep 2009 ■ Attended workshop on **C programming** organized by CIPHER (a forum under Department of IT, NEHU)

References

Available on Request