

Nazmul Haque Turja

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EDUCATION

- **Bangladesh University of Engineering and Technology (BUET)** Dhaka, Bangladesh
Bachelor of Science in Electrical and Electronic Engineering July 2014 – April 2019

EXPERIENCE

- **Bangladesh University of Engineering and Technology** Dhaka, Bangladesh
Research Assistant Jan 2020 - Current
 - **IoT Applications:** Involved in several applications of Internet of Things (IoT) for health-care and agriculture for the People's Republic of Bangladesh under the supervision of Dr. Farhad Hossain, Professor, Department of EEE, BUET. [Projects Demo](#)
 - **UGC Grant:** Received a grant of 3,00,000/=(BDT) from University Grants Commission(UGC), Bangladesh for developing and testing IoT based railway track fishplate monitoring system.
 - **IoT Servers:** Worked on various cloud-based servers of Internet of Things (IoT) including AWS IoT platform, Google Firebase and Oracle IoT platform. [Projects Demo](#)
- **Nelsite Inc. Ltd.** Fukuoka, Japan
Semiconductor Engineer Nov 2019 - April 2020
 - **Embedded Systems:** Worked on 32 bit ARM Cortex-M4 microcontroller using keil compiler and embedded C language.
 - **Semiconductor Industrial Training:** Received on-job training on basic fabrication, material characterization and the current technological trends of the semiconductor industries of Japan.
 - **Power over Ethernet(PoE) PCB board:** Designed, built and tested a prototype of power over ethernet (PoE) PCB board using Eagle CAD software.
 - **Japanese Language and Business Japanese:** Received JLPT N4 level intensive Japanese language training and learnt business Japanese for day-to-day official purpose.
- **Ulkasemi Limited** Dhaka, Bangladesh
Trainee Engineer June 2019 - Aug 2019
 - **Front End Verification:** Developed analog models for schematics in verilog-AMS and performed front-end verification of different ASIC design [Projects Demo](#)
 - **IC Layout and Physical Design:** Implemented standard cell in custom design and made analog layout and circuit design of PLL, oscillator and switching regulator.

SELECTED COURSEWORK

- **Data Science:** Machine Learning, Deep Learning, Artificial Intelligence, Optimization for Machine Learning, Linear Statistical Model, Stochastic Decision Models, Random Signal Processing, Introduction to Stochastic Processes, Probability and Statistics.
- **Semiconductor and Embedded System:** VLSI I/II, Micro controller, Compound Semiconductor and Hetero-junction Devices, Semiconductor Device Theory, Processing and Fabrication Technology, Computer Architecture, Microprocessor and Interfacing, Analog Integrated Circuits, Digital Electronics.

PROGRAMMING SKILLS

- **Languages:** Assembly, Embedded C, AVR, C++, Java, Visual Basic, Python, Verilog, VHDL, System Verilog, Matlab, R, Golang, PHP, Javascript, LaTeX
- **Software and Tools:** Keil Compiler, Linux, Atmel Studio, Eagle, Proteus, Quartus II, Cadence, Lumerical, OpenCV, Raspbian, Tensorflow, Keras, Scikit-learn, PSpice, Eclipse, Comsol, Android Studio, Innovus, Assura, Calibre

BACHELOR'S THESIS

- **A Secured Offline Online Approach for Internet of Things(IoT) Using Real-time Database:** My thesis presents several IoT applications along with a new cyber-secured MQTT based offline system that can automate various systems integrated into a single dashboard where monitoring and controlling can be simultaneously executed.

PROJECTS

- **4-bit Shift Register:** Designed a general purpose 4-bit shift register which is capable of left shift, right shift and parallel loading.
- **8-bit Simple As Possible(SAP) Computer:** Designed a 8-bit microcomputer with 64kBytes of main memory(RAM) support and simulated it in Proteus software. [Project Demo](#)
- **Autonomous RC Car:** Made OpenCV and neural network based miniature autonomous RC car which can detect different signs on the road and drive accordingly. [Project Demo](#)
- **Number and Speech Recognition:** Using DSP techniques and MATLAB interface wrote various programs which can recognize the handwritten bengali digits and perform the speech recognition as well.
- **Wearable device for Alzheimer's Patient:** Made a wearable device for Alzheimer's patients for path finding in a house. [Project Demo](#)
- **Counting Machine:** Using image processing techniques built a people's counting machine for a supershop.
- **IoT Home Automation:** Build a IoT based home automation system using real-time database, web interface and also made an android app which can control and monitor that automated system. [Project Demo](#)
- **IoT Waste Management:** Built a IoT based waste management system which can perform current garbage level detection in real-time and alert the garbage collector when necessary. [Project Demo](#)
- **Hand gesture recognition:** Using an accelerometer, built a hand gesture recognition device for elderly patients who can use this device only with their fingers.
- **Color detection and Length Measurement:** Using digital logic devices build a prototype for color detection and length measurement.

PUBLICATIONS

- **Conference Paper:** A [Conference Paper](#) published in IEEE WISPNET 2019 held in Chennai, India titled *A Cyber-Secured MQTT based Offline Automation System*.

AWARDS

- **Battle of Hardware (IoT):** Champion at Battle of Hardware (IoT) in "CSE Festival 2018" organized by Department of CSE, BUET.
- **CISCO Hackathon, BD:** Honorable mention at the Hackathon of the Internet of Things (IoT) organized by CISCO, Bangladesh in 2018.
- **Intra Hall Chess Championship:** Champion at "Intra Hall Chess Championship" organized by "BUET Chess Club".

PROFESSIONAL TRAINING

- **IC Chip Processing and Fabrication:** Received training based on current technological trends of the semiconductor industries in Japan and IC chip processing methodology.
- **IC Layout and Physical Design:** Implemented standard cell in custom design and made analog layout and circuit design of PLL, oscillator and switching regulator.
- **Front End Verification:** Developed analog models for schematics in verilog-AMS and done front-end verification of different ASIC designs.