# NAHID AHMED SHIHAB

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## EXPERIENCES

**Samsung R&D Institute Bangladesh (SRBD), SAMSUNG** — Dhaka, Bangladesh
R&D Intern, Innovation and IP, Samsung Research. (Full-time) — April 2025 – Present

- Working with various Samsung research and patents
- Prior Arts, Technical Reports, Technical Analysis, Survey Reports, Research analysis
- Managing Sessions, Seminar and workshops.

**Vendy LTD.** (Vending Machine manufacturer Company) — Dhaka, Bangladesh
Engineer, IoT and Electronics, Full-time (Hybrid) — May 2024 – March 2025

- Developed IoT-based control systems for vending machines, improving operational efficiency.
- Designed and implemented PCBs (Altium & KiCAD) and circuits, reducing production time and enhancing system reliability.
- Implemented Sqlite3 database system integration of RFID/NFC into ESP based PLCs for fully offline machines.

**Student Tutor, Department of EEE, BARC University** — Dhaka, Bangladesh
EEE282 & EEE383 — May 2024 – Sept 2024

- EEE282 - Numerical Techniques & EEE383 - Electronic System Design
- Taught student Printed Circuit Board (PCB) using Altium, and Project management.
- Taught Student about different numerical techniques, and use of MATLAB

**Zeroozen** (Full-stack energy company) — Dhaka, Bangladesh
Hardware Engineer, Intern — Oct 2023 – Feb 2024

- Designed and developed PCBs using Altium, KiCAD, and EasyEDA, improving hardware design workflows.
- Integrated IoT systems with Thingspeak, streamlining data monitoring and control processes.
- Programmed firmware for microcontrollers, enhancing the functionality of EV systems.

## EDUCATION

**BRAC University** — Dhaka, Bangladesh
Bachelor of Engineering — October 2024

Major in Electrical and Electronic Engineering
Cumulative GPA: 3.35/4.0;
Relevant Coursework: Research, Innovation, Power systems, Power electronics, robotics, machine learning, image processing, Energy conversion.

**Aspire Institute Inc. & Harvard Business School** — Massachusetts, US
Aspire Leaders Program (ALP'24), Cohort-01 — Jan 2024 - Apr 2024
Fully funded professional and leadership development program(remote)

## RESEARCH PUBLICATIONS

1. **A Low-Cost Satellite Kit to Bridge the Educational and Technological Gap in Developing Countries** [Accepted for Presentation at 76th International Astronautical Congress, IAC25, Sydney, Australia. International Astronautical Federation (IAF), 29 September 2025]
2. **Efficiency Analysis of LLC Resonant Converter with 7kW & 10kW Loads for 3-Phase Distribution Using Transient, Power, and Monte Carlo Methods: Simulation-Based Approach**, 13th ICECE, 18th Dec 2024.
3. **Catalyzing Space Technology Development in Bangladesh: A Space System Engineering Training Initiative**, IAF, IAC-24, 31st IAA Symposium on Small Satellite Missions.

4. **Transformation and Future Trends of Smart Grid Using Machine Learning and Deep Learning**, International Journal of Applied Power Engineering (IJAPE), Indexed in Scopus and Elsevier, Vol. 13, No. 3. September 2024
5. **Sizing an Off-Grid Photovoltaic System for a Regular East African Residence**, 6th EICT'23, IEEE Explore, November 2023.

## THESIS/FYDP (Final year Design Project)

1. **Meat Quality Grading and Contamination Identification to Avoid Foodborne Infection and Food Quality Control**.
    - Developed a smart meat quality grading and contamination detection system using IoT sensors and machine learning algorithms.
    - Developed flutter based mobile application for real-time monitoring of meat quality and environmental factors, ensuring accurate data collection.
    - Embedded C programmed microcontroller for data processing and communication between sensors and the web interface.
    - Applied machine learning (DensNet121, TensorFlow, CNN) to classify meat quality and contamination levels, enhancing food safety and quality control.
    - Designed and automated a vacuum chamber, ensuring precise environmental control for accurate testing results.

## TECHNICAL SKILLS

| | |
|---|---|
| Software | MATLAB, Proteus, Altium: PCB Design, KiCad, EasyEDA, Blender, Unreal engine 4 & 5, Fusion 360, AutoCAD, Excel, machine learning algorithms (DensNet, Tensorflow, CNN, KNN, OpenCV), Embedded system development. |
| Hardware | PCB Designing, Mechanical Design, Complex Circuit design and implementation, Soldering and Welding, testing & research, Developing operational plans, Oscilloscopes, Data collection and analysis, Troubleshooting |
| Programming | C, C++, Python, HTML, CSS, Embedded C (Atmega & PIC) |
| Professional | Project Management, Presentation making and Pitching, Numeracy, Effective Research, Technical Report, Critical Analysis |
| Soft-Skills | Leadership, Quick learner, Teamwork and Collaborative mindset, Discipline, Problem-solving, Communication |

## RESEARCH/INNOVATION PROJECTS

**1. BRACU Duburi – Underwater Autonomous Vehicle** Sep 2020 - Dec 2023

- Worked as Senior member of Mechanical and Electronics sub-team.
- Contributed to electrical and mechanical designs in a multidisciplinary team, worked with machine vision to allow real-time camera feed to Unreal engine.
- Runner-up in RoboSub 2023, California, USA, as Bangladesh's first underwater autonomous vehicle project.

**2. Nano-Satellite Training Kit – DIPTO** Sep 2023 - Present

- Working as the Team Lead for this project
- Built a nano-satellite model for educational purposes, featuring telemetry, digipeater, and weather forecasting capabilities.
- Gained recognition for contributing to STEAM education and satellite technology awareness.

**3. Steam Training Kit – ICT-KIT01** Feb 2024 - Present

- Contributing as the Team Lead for this project

- Designed an interactive kit to promote hands-on learning in science, technology, engineering, arts, and mathematics (STEAM).
- Developed tools and resources to make STEAM education more accessible.

4. **Smart Surveillance Rover – MechaRank**
   - Created an IoT-based rover with real-time monitoring capabilities for surveillance applications.
   - Integrated sensor data with local and cloud servers for enhanced accessibility and reliability.
5. **Autonomous Drone & Unmanned Ground Vehicle (UGV), A project under LaSSET (Laboratory of Space System Engineering & Technology), BRAC University** Jan 2023 - Present
   - Working as the Sub-Lead of Electronics and Sensory integration Team.
   - Built autonomous navigation systems for drones and UGVs for versatile real-world applications.
   - Enhanced sensory and power systems for long range missions.
6. **Cognysis – Personal Voice Assistance** Mar 2022 - Present
   - Automated Speech Recognition (ASR) systems for converting auditory signals into textual data.
   - Natural Language Processing (NLP) pipelines for semantic parsing and context inference.
   - Text-to-Speech (TTS) synthesis leveraging deep neural networks for lifelike vocal output.
   - Ontology-based knowledge representation for structured data retrieval and reasoning.
   - Application Programming Interface (API) orchestration for seamless integration with external services.
   - Voice activity detection (VAD) algorithms for precise start and stop signal recognition
7. **Game Level Design, Unreal engine 5 & Unity**
   - Design level or environment for games or cinematics
   - Design levels for AR/VR
8. **First-person view autonomous drone – Racing Drone** Apr 2023 - Present
   - Working as the Lead of Electronics & Machine vision.
   - Designed and tested a highly agile drone capable of complex maneuvers and high-speed operations.
   - Implemented robust flight controls for precision handling.
9. **ROBOTIC ARM (3DoF)** Jan 2021 – Sep 2021
   - Designed and prototyped a robotic arm with gesture recognition and automation capabilities.
   - Used Forward kinematics for arm motions
10. **Smart Home Automation System – IoT based Project** Dec 18, 2020 – Mar 28, 2021
    - Home automation system with integrated gesture recognition and NFC security.
    - Controlled appliances and secured access using IoT protocols.

## Training/Courses/Workshops

1. **Disaster Risk Monitoring Using Satellite Imagery, NVIDIA** October 6, 2024
2. **Developing an AI Background Generator With NIM, NVIDIA** September 22, 2024
3. **AI on Jetson Nano, NVIDIA** September 13, 2024
4. **Assemble a Simple Robot in Isaac Sim, NVIDIA** July 9, 2024
5. **Basics of Computer Vision for ROBOTICS, LASSET** May 29- June 13, 2024
6. **Basics of IOT and Embedded system, LASSET** May 28 - June 19, 2024
7. **MICROSFOT AZURE's Ambassador challenge Natural Language Processing (NLP**) May12– 16,2024
8. **Embedded System, BUEEC** Jan 27 – 31, 2024
9. **PCB Design and Fabrication in IoT Perspective, BRACU Optics and Photonics Lab** Mar 28 – 31, 2022
10. **Lorawan & Industry Automation, DoxPro Robotics Pvt. LTD** Nov 15 – Dec 18, 2022
11. **Industrial PCB and System Design, IEEE Robotics & Automation Society** Oct 27 – Oct 28, 2021
12. **Robot Operating System (ROS), IEEE Robotics & Automation Society** Oct 15 – 16, 2021
13. **Python Programming, USA Embassy of Bangladesh and Arduino community BD** June 20 – 24, 2021
14. **3D printing, HP Life and HP Foundation** July, 2021
15. **Design Thinking, HP Life and HP Foundation** July, 2021

16. **Energy Efficiency, HP Life and HP Foundation** June, 2021

## LANGUAGE PROFICIENCY

- **IELTS Band Score: 7.0**

## AWARDS

1. **VC's Recognition Awards for Extraordinary volunteering work**
2. **5th Position in Sheikh Jamal Innovation Grant 2024 for Team DIPTO by IDEA And ICT Division**
3. **Pre-Seed fund winner at University Innovation Hub 2024, Cohort – 1, By ICT Division & World Bank**
4. **4th Place in Robo Nokshar Ashor 2022**
5. **Guinness World Record, Participant in the largest 10 km run organized by VirtualRunners (2021).**
6. **9-Time National Taekwondo Champion, 4 International Certifications and Awards 19 Gold, 7 Silver, 4 Bronze Medals.**
7. **International Black Belt (2nd DAN) in Taekwondo, World Taekwondo Federation (WT), Seoul, South Korea.**

## EXTRA-CURRICULAR ACTIVITIES

1. **DIPTO – Project Lead** Sep 2023 - Present
   - A Nano Satellite Training Kit. STEAM training kit
   - Satellite based solutions
2. **LASSET - Sub Team Lead (Electronics & Power)** Jan 2023 – Present
   - Laboratory of Space System Engineering & Technology - LaSSET.
   - Autonomous Drone and Unmanned Ground Vehicle
3. **Robotics Club of BRAC University (ROBU) – Secretary** Sep 2020 - Mar 2024
   - Research and Project management (RPM)
4. **BRACU Electrical and Electronic Club(BUEEC)–Director & Assistant Director** Oct 2020 – Nov 2024
   - Director of Graphics and Photography
   - Assistant Director of Research and Development
5. **BRACU DUBURI – Underwater Autonomous Vehicle** Sep 2020 - Dec 2023
   - Senior member of Mechanical & Electronics team
6. **Taekwondo, Korean Martial Arts – Black Belt 2nd DAN** Dec 2012 – Present
   - Player of Bangladesh Taekwondo Federation (BTF)