

# NAHID AHMED SHIHAB

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## EXPERIENCE

- Samsung R&D Institute Bangladesh (SRBD), SAMSUNG** Dhaka, Bangladesh  
Research and Development Intern, Samsung Research. (Full-time) April 2025 – Present
- Working with various research and patents.
- 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: Power systems, Power electronics, robotics, machine learning, image processing, Energy conversion.
- Aspire Institute Inc.** Massachusetts, US  
Aspire Leaders Program (ALP'24), Cohort-01 Jan 2024 - Apr 2024  
Fully funded professional and leadership development program(remote)

## RESEARCH PUBLICATIONS

- Efficiency Analysis of LLC Resonant Converter with 7kW & 10kW Loads for 3-Phase Distribution Using Transient, Power, and Monte Carlo Methods: Simulation-Based Approach** [Accepted for presentation at the 13th ICECE 2024].
- Catalyzing Space Technology Development in Bangladesh: A Space System Engineering Training Initiative**, IAF, IAC-24, 31st IAA Symposium on Small Satellite Missions.
- 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
- 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)

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### 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.

## 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
Soft-Skills	Leadership, Quick learner, Teamwork and Collaborative mindset, Discipline, Problem-solving, Communication

## Language

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- IELTS Band Score: 7.0

## PROJECTS/Works

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- 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.
- 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.
- 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 STEM 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/Course & Workshops

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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

## AWARDS

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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

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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. **BRAC university 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 2<sup>nd</sup> DAN** Dec 2012 – Present
  - Player of Bangladesh Taekwondo Federation (BTF)