MD. Shahnauze Ahsan

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Work Experience

Institute of Chemical Research of Catalonia *Tarragona,Spain*

Doctoral Researcher ••• [JLF Group] Nov. 2025 - Continuing

- Designing and developing an AI-driven autonomous flow photoreactor for catalyst development and reaction optimization.
- Building a self-driving lab (SDL) for catalysis development through Robotics, HTE, Agentic AI, and closed loop control.

Research Software Engineer ••• C/C++, KiCad, Git, STM32, ESP32, Linux June 2024 - Oct 2025

- Designed and developed software, protocols, and electronic systems for an innovative parallel photoreactor (up to 1.2 kW at 450 nm)
- Implemented STM32F4/ESP32/Rpi-based control board and intuitive touchscreen UIs for seamless operation and intensity control.

Sanmina SCI *Grenoble, France*

Electrical Engineering Intern ••• MATLAB, Simulinlk March 2024 - May 2024

- Developed Electrochemical Cell Equations for Aluminum Air Battery in Matlab-Simulink, capable to simmulate upto 2KW
- Developed SOC, current Estimation, and thermal model for Aluminum Air Battery Cell.

Schneider Electric *Grenoble, France*

Electronic Design Engineer Intern ••• C/C++, KiCad, MATLAB, Git, FreeRTOS, Arduino Cloud Feb. 2023 - Jul. 2023

- Spearheaded R&D to integrate LTE-M & ADS131M08-based data acquisition with a data rate of 4ksps into an ARM Cortex-M0 processor.
- Developed embedded firmware, PCB, and real-time OS (FreeRTOS) for data acquisition and cloud configuration which is 30% more efficient.

Sincos Automation Technologies Ltd. *Dhaka,Bangladesh*

Automation Support Engineer ••• Cognex, Universal Robot, Machine Vision, SolidWorks Mar. 2021 - Jun. 2021

- Conducted industrial visits to demonstrate Cognex Machine Vision systems and operate Universal Robot UR-10.
- Actively contributed to Industrial Machine Vision System R&D and proficiently handled project proposal documentation.

Robot Company *Chattogram,Bangladesh*

R&D Engineer ••• Proteus, Arduino, C++, Python, ESP32, Embedded Linux, CAD Mar. 2019 - Sep. 2020

- Led the design and production of groundbreaking products, including a Disinfection Chamber, Vegetable Washing Machine, IoT touch Switch board, Water Pump Controller, and a functional Humanoid Security Guard Robot.

Professional Skills

Programming	Embedded C, Python, VHDL, MATLAB, PLC, ROS.
Circuit Design & Simulation	Multisim, Proteus, Altium, Xilinx Vivado, MatLab, KiCad, EasyEDA.
Microcontroller Families	ARM Cortex-A9, Artix-7, ATmega328P, STM32, RISC-V
Communication Protocols	SPI, I2C, RS-232, USB, UART, BLE 5.0, RS-485, WiFi, MQTT, GSM, MODBUS, Ethernet.
Others	AutoCAD Electrical, Solidworks Mechanical, Photoshop, Illustrator, Office, LaTeX.
Soft Skills	Proven communication, Team supervision, Analytical, Presentation, Leadership & Managerial skills.

Publications

[1] **M. S. Ahsan**, M. I. Uddin*, "Telekit: An IoT Based Wearable Health Assistant With Machine Learning Approach," *Int'l Conference on Bangabandhu and Digital Bangladesh (ICBBDB-2021)* [Link]

[2] N. Tabassum, **M. S. Ahsan**, I. Chowdhury and U. Basu "IoT based Automated Examination Management System with Biometric Portal," *2022 International Conference on Innovations in Science, Engineering and Technology (ICISET), Chittagong, Bangladesh, 2022, pp. 52-55*, doi: 10.1109/ICISET54810.2022.9775923[Link]

[3] **M. S. Ahsan**, S. Das and H. Mobarak "Android App based Bluetooth controlled Low-cost Cloth Folding Machine," *2020 IEEE Region 10 Symposium (TENSYMP), Dhaka, Bangladesh, 2020, pp. 170-173*, doi:10.1109/TENSYMP50017.2020.9231012.[Link]

[4] **M. S. Ahsan**, H. Mobarak and K. N. Chy "Design and Construction of a Radio Controlled Floating Waste Collector Robot," *2020 11th International Conference on Electrical and Computer Engineering (ICECE), Dhaka, Bangladesh, 2020, pp. 105-108*, doi: 10.1109/ICECE51571.2020.9393077.[Link]

[5] **M. S. Ahsan**, M. S. Munna and A. Nayeem "Design and Implementation of a Drain Cleaner Robotic Vehicle," *2019 3rd International Conference on Electrical, Computer & Telecommunication Engineering (ICECTE), Rajshahi, Bangladesh, 2019, pp. 268-271*, doi: 10.1109/ICECTE48615.2019.9303536. [Link]

Academic Credentials

Universitat Rovira i Virgili (URV) *Tarragona, Spain*

PhD Student Nov. 2025 - Continuing

Doctoral School: Nanosystems, Bioengineering and Energy **Research Line:** Power Electronics, Energy Conversion and Control Engineering

Thesis: AI driven Robotics for catalyst development.

Institut Polytechnique de Grenoble (Grenoble INP-UGA) *Valence, France*

Master in Integration Security & TRust in Embedded System [Transcript Link] Sep. 2022 - Aug. 2023

Project: Quadcontrol: Experimental validation of a controller for multiple drones with Qualisys Track Manager **GPA : 13.1/20**

Premier University *Chattogram, Bangladesh*

Bachelor of Science in Electrical and Electronic Engineering [Transcript Link] Jan. 2015 - Jun. 2019

Project: Design and Implementation of a Drain Cleaner Robotic Vehicle **GPA : 3.33/4**

Awards and Honors

July 2025	**Fellowship**: "ICIQ FULLY-FUNDED PhD PROGRAMME 2025"	*Tarragona*
Jun. 2022	**Scholarship**: "Grenoble INP Foundation International Excellence Scholarship"	*Grenoble*
Jun. 2019	**Contest**: 1st Runner-Up at "Premier University IT Fest"	*Chittagong*
Jun. 2018	**Contest**: Champion at "BUET EEE day Inter-University Project Presentation"	*Dhaka*
Jun. 2018	**Contest**: Champion at "5th Divisional Science and Technology Fair"	*Chittagong*
Jun. 2018	**Elected**: General Secretary at "Premier University Robotics Club"	*Chittagong*

Licenses and certifications

June 2024	**Online Training**: "Embedded Systems Software and Development Environments" [Credential]	*Coursera*
June 2024	**Online Training**: "Robotics: Aerial Robotics" [Credential]	*Coursera*
Oct. 2023	**Online Training**: "Raspberry Pi Essential Training" [Credential]	*Linkedin*
Oct. 2023	**Online Training**: "IoT Foundations: Operating Systems Fundamentals" [Credential]	*Linkedin*
Oct. 2023	**Online Training**: "Additive Manufacturing: Optimizing 3D Prints" [Credential]	*Linkedin*
Oct. 2023	**Online Training**: "Cisco Networking Foundations: Fundamentals of Cisco Networking" [Credential]	*Linkedin*
Oct. 2023	**Online Training**: "SOLIDWORKS: Design for Mechatronics" [Credential]	*Linkedin*
Oct. 2023	**Online Training**: "VHDL for an FPGA Engineer with Vivado Design Suite" [Credential]	*Udemy*
Sep. 2023	**Online Training**: "IoT Foundations: Low-Power Wireless Networking" [Credential]	*Linkedin*
Mar. 2021	**Online Training**: "Universal Robot e-series PRO track" [Credential]	*U-Robots*
Dec. 2019	**Offline Training**: "Machine Learning: An Introduction to Artificial Intelligence" [Credential]	*IUT*
Oct. 2018	**Offline Training**: "Industrial Technology on Electrical Engineering & Instrumentation" [Credential]	*TICI*

Leadership and Volunteering

IEEE Premier University Student Branch *ID- 95083458*

Student Member Nov. 2018 - May. 2019

PUC Robotics Club *Premier University*

General Secretary Sep. 2018 - Aug. 2019

- Presented several talks and took workshops on Robotics in club, local school and colleges.
- Mentored at IUB Line Follower Contest 2018 and Chittagong University Science Carnival 2019
- Organized Robo-Cricket League and Poster Presentation 2018

References

Available on request.