

# ALIMUL HAQUE KHAN

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## EXPERTISE

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• Embedded System Design • IoT, IoMT • Analog Circuit Design • Schematic and PCB • Design, development, debugging, troubleshooting • Sensor • Hardware, Firmware and Software

## SKILLS

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- Programming and scripting tools: C, C++, Python, MATLAB
- Web: HTML, CSS, SQL, PHP, NodeJS
- Embedded Platform: Arduino, NodeMCU, ESP, Raspberry Pi, STM32
- PCB Design: Proteus Professional, Fritzing
- OS: Linux, Windows, MacOS
- Version Control: Git, GitHub

## RELEVANT PROFESSIONAL EXPERIENCE

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**Research Intern: Mitacs- Thermanalysis, University of Saskatchewan: July 2024 – October 2024**

**Project: Automatic Temperature Monitoring System**

- Developing an automatic temperature monitoring system for restaurant kitchens using IoT and thermal cameras for non-invasive, contactless temperature measurement.
- Integrating data transmission to a database via NestJS API for real-time monitoring.
- Conducting testbed setup, experimental runs, and raw data collection.
- Applying machine learning techniques for sensor calibration to enhance accuracy.

**Research Assistant: [PhD student] University of Saskatchewan, SK, Canada January 2023 –**

- Developing autonomous sensors for remote areas, focusing on environmental sensing and forest fire detection.
- Implementing ambient energy harvesting techniques to power sensors, minimizing the need for regular maintenance and eliminating the need for frequent transport or human intervention to replace or recharge batteries.
- Designing and deploying wireless sensor networks to ensure effective data collection and transmission.

**Research and Development Associate: WIoT Inc. SK, Canada Oct 2020—December 2022**

- Designed and developed hardware for a Level Tracker sensor for hazardous environments in the mining and energy industry.
- Successfully developed and deployed firmware for microcontrollers such as STM32, NodeMCU, and Arduino, resulting in improved product performance and reduced debugging time.
- Created and tested multiple sensor test beds, conducting rigorous testing and validation of firmware and PCB designs to achieve compliance with industry standards and ensure high reliability.
- Implemented remote sensor deployment strategies, resulting in efficient data collection and analysis.
- Actively engaged with external vendors and suppliers for technical evaluations and recommendations.

**Research Assistant: University of Saskatchewan, SK, Canada May 2016 – Apr 2018**

- Developed iSensor for capsule endoscopy using Arduino, Raspberry Pi, MATLAB, and Python.
- Collaborated with 3rDi Inc. to design a game controller for individuals with disabilities, controlled by head movement and eye blinking.

- Assisted supervisor in preparing technical documents, journal articles, and funding applications.
- Demonstrated a solid understanding of analog and digital circuit design principles, ensuring reliable and efficient hardware functionality.
- Published articles in conferences and journals, showcasing research findings and contributions.

#### **Lecturer: Bangladesh University, Dhaka, Bangladesh Jun 2010 - Apr 2016**

- Coordinated training courses on PCB design, MATLAB, and microcontroller programming, ensuring a strong focus on deliverables and the ability to plan work.
- Supervised embedded system projects for students and provided technical support, further showcasing my understanding of interdisciplinary dependencies related to the discipline.
- Fostered teamwork, critical thinking, and problem-solving skills among students.

#### **Technical Consultant: Advanced Micro Energy Inc., Dhaka, Bangladesh Oct 2012 - Aug 2013**

- Developed and installed rooftop solar systems, irrigation pumps, and smart buildings, demonstrating my ability to review technical deliverables.
- Provided technical support to sales teams, vendors, and customers through email, phone, and on-site visits, demonstrating my excellent interpersonal and communication skills.
- Conducted troubleshooting and resolved customer issues.
- Developed project-specific engineering procedures to enhance the efficiency of project execution.

#### **Design Engineer: Pulser Semiconductor Device, Dhaka, Bangladesh Feb 2010 - Jun 2010**

- Designed circuits for various applications, including IPS, USP, solar charge controllers, and industrial status meters.
- Provided application and design support for protection relays, leveraging knowledge of industrial power distribution and control systems.
- Conducted product training presentations, created technical materials, and performed competitor analysis.
- Gathered customer feedback and contributed to the development of new product specifications

### **EDUCATION**

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- MSc in Electrical Engineering, University of Saskatchewan, Saskatoon, SK, Canada, May 2018.
- BSc in Electrical and Electronic Engineering, Bangladesh University of Engineering and Technology, Dhaka, Bangladesh, Mar 2009.

### **MEMBERSHIP and TRAINING**

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- APEGS • IEEE • IEB
- Mental Health First Aid (MHFA) certificate • Safety Resource course • Laboratory Safety Course
- Programming of PLC for Industrial Automation, Maintenance, and Troubleshooting
- Embedded system design by FPGA and microcontroller • VFD Drives- Franklin Electric.

### **VOLUNTEERING and COMMUNITY INVOLVEMENT**

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- Currently serving as General Secretary of Bangladeshi Community Association Saskatchewan.