

Shakil Tanvir

House 6, Block D, Road 5, Sector 1, Aftabnagar, Badda – Dhaka 1212, Bangladesh

☎ +8801732196047 • ✉ shakiltanvir99@gmail.com

🌐 sites.google.com/view/shakiltanvir

Profile

Embedded Systems & Robotics Engineer 4+ years of experience with proven leadership and project success in robotics and automation, secure hardware, smart energy, cryptography, thermal printing and Internet of Things for real-world control systems. **Founder** of EdTech lab Creative Factory. Skilled in mentoring, tech content creation, and building high-performing teams that shape the next generation of engineers.

Professional Experience

Spectrum Engineering Consortium Ltd. / Cybernetics Hi Tech (Pvt) Ltd **Dhaka**
Lead Embedded Systems Engineer *Mar 2024–Present*

- Led embedded R&D for robotics, automation, IoT, and energy projects.
- Engineered multi-protocol control systems (Modbus TCP/RTU, DLMS/COSEM, STS/CTS)
- Promoted for technical and leadership excellence.

Spectrum Engineering Consortium Ltd. / Cybernetics Hi Tech (Pvt) Ltd **Dhaka**
Embedded Systems Engineer *Dec 2023–Feb 2024*

- Developed embedded firmware and control algorithms for robotics platform(EOD ROV).

THT-Space Electrical Company Ltd. **Uttara EPZ, Nilphamari**
Embedded Software Engineer *Apr 2023–Dec 2023*

- Developed firmware for USB, BT, BLE, and WiFi thermal printers (RISC-V, SoC).
- Maintained and tested firmware for new hardware in bulk production.

ADN Telecom Ltd. **Dhaka**
Trainee Engineer (IoT Solutions) *Nov 2022–Mar 2023*

- Developed IoT-based monitoring for data centers and PoPs (EMS, TCP/IP, MQTT, SNMP).
- Worked in data centers, network operation centers

Education

Ahsanullah University of Science & Technology (AUST) **Dhaka, Bangladesh**
B.Sc. in Electrical and Electronic Engineering *Mar 2017 – Jan 2022*

CGPA: 3.15/4.00

Thesis: Extremely Ultra Flattened Negative Dispersion SPAH-PCF for the Employing of RDC

Saidpur Government Technical School & College **Saidpur, Nilphamari, Bangladesh**
Secondary and Higher Secondary Education (SSC & HSC) *2013 – 2016*

GPA: SSC 5.00/5.00, HSC 5.00/5.00

Key Projects

Technical Lead **Spectrum / Cybernetics Hi Tech**
Smart Energy Meter *Dec 2024–Present*

- Working on developing global-standard smart meter firmware.
- Working with standards like STS, DLMS/COSEM etc and certifications IEC, ISO, MID etc.
- **Project Details:**
 - Encrypted communication prepaid functions.
 - Tamper detection and long-term reliability.
 - Focus on hardware cryptography and anti-tamper.

Technical Lead

Air-Gapped Hardware Wallet

XDC Network

Feb 2025–Present

- Designed secure, multi-coin hardware wallet .
- Secure signing using Cryptographic Co Processor(ATECC608A).
- **Project Details:**
 - Fully air-gapped QR-based signing for blockchain assets.
 - Python desktop UI for interaction.
 - Focus on hardware cryptography and anti-tamper.

Technical Lead

Speed Breeding Automation System

Bangladesh Wheat and Maize Research Institute

May 2025–Present

- Designed System and application for controlling day time and dark time, temperature, humidity and other parameters in greenhouse system.
- Worked closely with Agricultural Scientific Officers to develop the research application

Lead Firmware Engineer

Dynamic Ignition System for Multi-Cylinder Engines

EBabutzky GmbH, Lenningen, Germany

April 2024–December 2024

- STM32-based real-time firmware for 4 stroke engine ignition.
- **Key Contributions:**
 - Precise ignition timing, coil charging, and dynamic dwell control.
 - Engine RPM measurement via high-resolution encoder.
 - Multi-cylinder support and dynamic embedded software.

Lead Firmware Architect

Military-Grade ROV System EOD

Spectrum / Cybernetics Hi Tech

November 2023–April 2024

- Designed and deployed multi-node ROV for military EOD use.
- **Key Features:**
 - RS485 and TCP/IP bridge for seamless remote operation among distributed nodes.
 - Real-time multi-node feedback and control.
 - Fully tested and delivered for defense application.

Lead Firmware Engineer

Modbus TCP/RTU Dynamic Industrial Controller

EBabutzky GmbH, Lenningen, Germany

May 2023–November 2023

- Developed dynamic Modbus TCP/RTU stack on bare-metal STM32/W5500.
- **Highlights:**
 - Dynamic mapping, register assignment, and live device discovery.
 - Industrial deployment for energy and automation.

Embedded Systems Engineer

Ship Simulator for Bangladesh Army

Bangladesh Military

Jan 2022–Apr 2022

- C++ firmware and hardware integration for military training simulators.

Trainee Engineer

Industrial IoT for Data Center & PoP

ADN Telecom Ltd.

Nov 2022–Mar 2023

- Designed, implemented, and visualized real-time data from industrial devices.

Publications

ICCIT 2024: *Optimizing Master-Slave Broadcast Communication in Multi-Node Networks Using RS485 Standard*

BIM 2023: *ESP32-based IoT Architecture for Multi-Data Center Monitoring with MQTT & Node-RED Analytics*

ICSCT 2021: *Extremely Ultra Flattened Negative Dispersion SPAH-PCF for the Employing of RDC (DOI: 10.1109/ICSCT53883.2021.9642573)*

Technical Skills

MCU/SoC: STM32, ESP32, RISC-V, ARM Cortex, AVR, Jieli,Hi-Trend

Protocols: Modbus RTU/TCP, STS/CTS, DLMS/COSEM, UART, SPI, I2C, CAN, CAN, CANOpen BLE, MQTT

Programming: Embedded C, C++, Python

Firmware/Platform: Embedded Linux, FreeRTOS, STM32CubeIDE, ESP-IDF, JL Toolchain
Design/Simulation: Altium, Eagle, AutoCAD, Proteus, Tinkercad, PSpice, Comsol Multiphysics, Visio
Network/IoT: MQTT, SNMP, SMTP, DHCP, REST API, WebSocket, AT command
Other: Content Creation, Project Management, Documentation, Training/Mentoring

Leadership & Entrepreneurship

Creative Factory of Robotics & Embedded System

Founder & CEO

2022–Present

Founded and scaled R&D company for Automotive/Blockchain/EdTech. Mentored engineers/interns, produced public STEM content (YouTube: Embedded Insider).

Certifications

- : Introduction to IoT (Cisco/Grameenphone)
- : Introduction to Cybersecurity (Cisco/Grameenphone)

Awards & Recognition

ICCIT 2024: Best Paper Presenter & Best Paper Award

ICSCT 2021: Certificate of Appreciation

- : Delivered Military ROV to Bangladesh Army
- : Developed and taught “Embedded C with STM32” (lab + online classes)
- : Mentored 50+ interns/engineers in embedded/IoT

Content Creation & Extracurricular

YouTube: Robotics and embedded tutorials (Embedded Insider, Creative Fac)

Documentaries: Inspired by National Geographic/Discovery

Blockchain: Smart contract developer (Solidity, Ethereum, cryptography)

Media: Filmmaking, editing, Illustrator, Premiere Pro

Languages

Bangla: Native

English: Professional

References

Rashed Mujib Noman: Managing Director, Cybernetics Hi Tech Ltd

✉ noman@spectrum-bd.com +1 (425) 0615-2151

Md Farhad, PhD : Senior Scientific Officer, Bangladesh Wheat and Maize Research Institute

✉ md.farhad@bwmri.gov.bd +8801719666933

Russel Reza Mahmud, Phd: Professor, EEE, Ahsanullah University of Science and Technology

✉ r.r.mahmud.eee@aust.edu +8801734986129