Md. Tanjim Mahmud Tuhin

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Summary — Graduate in Electrical, Electronic, and Communication Engineering from MIST with strong passion for Robotics, AI, Nano Satellites, and UAVs. Experienced Embedded Software Engineer with expertise in automation, advanced robotics, and IoT solutions. Former VP of MIST Robotics Club with proven leadership in technical projects and team management.

Skills

Programming	Python, C/C++, MATLAB, C#	**Development**	Qt Creator, Unity Engine, Blender
Microcontrollers	Arduino, ESP-32, STM-32, Raspberry Pi	**Systems**	Windows, Linux, AutoCAD, MySQL
Tools & Software	Proteus, Cisco Packet Tracer	**Specializations**	IoT, Robotics, Embedded Systems

Experience

Cybernetics Hi Tech Solutions — **Feb 2025 – Present**
Embedded Software Engineer

– Developed and tested firmware for IoT devices using C/C++ on Arduino, ESP-32, STM-32 and Raspberry Pi platforms
– Optimized network configurations using Cisco Packet Tracer for improved system performance
– Collaborated with engineering team to deploy 5G network prototypes and communication protocols
– Designed innovative control and communication solutions for industry and military applications
– Worked on automation, advanced robotics, embedded systems, drones, and IoT projects
– Designed and fabricated **Printed Circuit Boards (PCBs)** for AGV and mini drone, handling everything from schematic design and component selection to layout, assembly, and final testing.

Tele-talk Bangladesh Limited — **Jan 2023 – Feb 2023**
Engineering Intern

– Gained hands-on experience in telecommunications systems and network operations
– Worked with industry-standard telecommunication equipment and protocols

Bangladesh Telecommunication Regulatory Commission (BTRC) — **Feb 2023**
Engineering Intern

– Exposed to telecommunications regulatory frameworks and compliance standards
– Observed regulatory processes and telecommunication policy implementation

Education

Daffodil International University (DIU) — **Jan 2025 – Present**
Master of Science in Cyber Security

Military Institute of Science and Technology (MIST) — **Feb 2020 – Mar 2024**
Bachelor of Science in Electrical, Electronic and Communication Engineering

Achievements

5th Position - Anatolian Rover Challenge (ARC'23) — **Jul 2023**

– Achieved 5th place worldwide in prestigious international robotics competition
– Led team in designing and building autonomous rover for Mars simulation tasks

TryHackMe Platform — **Ongoing**

– Achieved Top 2% ranking on TryHackMe cybersecurity learning platform

Robotics Competition Results

– Quarter finalist in Cosmo-robot section at Tech-fest IIT Bangladesh Regional, DUET (Nov 2022)
– Semi-finalist in Line follower segment at IUBAT robotics competition (Oct 2022)
– Participated in EEE day at KUET (Nov 2023) and Esonance at IUT (Nov 2023)

Key Projects

Secure Token Generation System for SIM Recharge   **Ongoing**

– Developed advanced authentication system for mobile recharge and energy meter token generation
– Implemented custom AES encryption algorithm for secure token encoding and decoding processes
– Designed MCU-compatible system using ESP-32 microcontroller for real-time token processing
– Integrated GLCD display and keypad interface for enhanced user experience and system interaction
– Created randomized token generation mechanism that ensures unique authentication even with identical recharge amounts and validity periods

Digital Communication Protocol Upgrade for Mars Rover   **Apr 2023**

– Modernized wireless communication system for Mongol Barota rover from analog to digital protocol
– Upgraded receiver system from PWM-based analog protocol to high-performance S-BUS digital protocol
– Implemented Radio Master TX16 controller for improved connectivity and reduced communication latency
– Optimized channel utilization by efficiently managing 12 out of 18 available communication channels
– Enhanced overall system reliability and response time for critical rover operations

6 DOF RoverNet IoT System   **Ongoing**

– Building comprehensive IoT system for rover control via Android application
– Designed robotic arm using Blender and integrated design in Qt Creator with QML and C++
– Developed desktop and Android applications with custom communication protocols

Manipulation of Robotic Arm   **Jul 2023**

– Created conveyor-belt production line robot with automated object sorting capabilities
– Implemented 7DOF robotic arm using Raspberry Pi, Arduino Mega, and mobile camera
– Used MobileNet-SSD machine learning model for real-time object detection and classification
– Programmed complete system using Python and C++ for seamless hardware-software integration

Other Notable Projects

– **PCB Design for Mars Rover Wheel Control** - Custom PCB design using Proteus and JLC PCB manufacturing
– **IoT Gas and Fire Alarm System** - Real-time monitoring with ESP-32/8266 and ThingSpeak integration
– **Slime Between Us Game** - Unity engine game developed for IUT competition with AI-generated music
– **Cosmo-Clench Robot** - Remote-controlled robotic arm on mobile platform using Arduino and ESP-8266
– **Digital Image Processing** - Pseudo coloring conversion from grayscale to RGB with wavelet transform
– **Line Follower + Soccer Bot** - Autonomous robots with mecanum wheels for omnidirectional movement

Leadership & Activities

MIST Robotics Club (MRC)   **Apr 2023 – Mar 2024**
Vice President

– Led club activities and coordinated technical projects for 50+ members
– Organized robotics workshops and coding sessions for skill development
– Managed inter-university competition teams and represented MIST in national events

MIST Innovation Club (MIC)
Head of Video Editing

– Managed multimedia content creation and documentation of technical projects
– Produced educational videos and promotional materials for club activities

Research & Publications

Undergraduate Thesis
A Comparative Study of Inorganic Lead Halide Perovskites

– Analyzed electrical, optical and mechanical properties of perovskite materials
– Published research findings with IEEE conference paper

IEEE Publication
A Generalizing Violence Detection with a New Near-Real-World Violence Dataset

– Co-authored research paper on machine learning applications for security systems
– Developed novel dataset for improving violence detection algorithms