FAHIM AHMAD

+880 172 517 4166 fahimahmad.work@gmail.com linkedin.com/in/fahim-ahmad sites.google.com/view/fahimahmad

Research Profile

Field robotics engineer with demonstrated experience delivering autonomous-capable robotic systems from design through military-grade field deployment. Led the full mechanical development of Jontro Soinik 1.0, an EOD ROV delivered to the Bangladesh Army and deployed on UN Peacekeeping Missions in Mali and the Democratic Republic of Congo. Hands-on background in 6-DOF manipulator kinematics, FMEA-driven design validation, MIL-STD compliance, ANSYS structural simulation, and system integration across EOD ROVs, AGVs, UAVs, and planetary rovers. Research interests centred on autonomy, decision-making under uncertainty, and multi-robot systems for unstructured and hazardous environments.

Education

- **Ahsanullah University of Science and Technology (AUST)** Dhaka, Bangladesh
  B.Sc. in Industrial and Production Engineering — CGPA: 3.51 / 4.00 *January 2019 – May 2023*
  Relevant Courses:
  - Advanced Manufacturing Process
  - Product Design & Development
  - Modern Machining
  - Computer Integrated Manufacturing
  - Industrial and Business Management
  - CNC & Robotics
  - Operations & Project Management
  - Production Planning & Control
  - Mechanical Design

  Affiliated Organizations:
  - AUST Innovation & Design Club
  - AUST Mars Rover
  - AUST Rocketry
  - AUST CIM Lab

Research Interests

- Field Robotics & Autonomous Systems
- Robot System Design for Autonomy
- Multi-Robot & Swarm Systems
- Simulation-to-Reality (Sim2Real) Validation
- Space & Hazardous Environment Robotics
- Human-Robot Interaction

Research Experience

- **Undergrad Thesis:** Investigation of Ceramic Component Mechanical Properties Fabricated with FDM Process
  Supervisor: Md. Ashiquzzaman Nipu, Assistant Professor, Dept. of Industrial and Production Engineering, AUST.
  - Fabricated Zirconium Silicate (ZrSiO4 60%, PLA 40%) specimens via FDM; evaluated toughness and flexural strength across parametric variations in layer height, nozzle diameter, and infill density
  - Integrated ML-based prediction models (KNN, Linear Regression, Random Forest) to study process-property relationships and quantify prediction errors
  - Developed research rigor in experimental design, statistical validation, and error analysis directly applicable to robotics systems research

- **Industrial R&D:** Jontro Soinik 1.0 – Man-transportable EOD ROV with 6-DOF Robotic Arm
  Supervisor: Md. Rashed Mujib Noman, CEO, Cybernetics Hi-Tech Solutions (Pvt.) Ltd.
  - Conducted kinematic and dynamic analysis of a 6-DOF robotic manipulator; derived workspace envelopes and torque requirements for field operational profiles
  - Performed ANSYS structural simulation to validate chassis and arm reliability under operational and shock loads consistent with MIL-STD-810H requirements
  - Designed and iterated 30+ mechanical components in SolidWorks with GD&T, achieving ±0.1mm manufacturing tolerance across structural and actuation assemblies
  - Applied FMEA methodology across 10+ formal design reviews; risk mitigation actions reduced late-stage design changes by 15%
  - Optimized robot mass distribution, packaging, and thermal management to support autonomous operation profiles

Publication

- R.S.Karim, **F.Ahmad**, S.Z.Hasan, S.Shakur, Dr. M.A.Rahman, Dr. M.S.Bhuiyan, **"Investigation of Ceramic Component Mechanical Properties Fabricated with Fused Deposition Modeling Process."**
  Proceedings of the 5th International Conference on Industrial & Mechanical Engineering and Operations Management (IMEOM 2022), Dhaka, Bangladesh, December 26–27, 2022, pp. 568–569.

Professional Experience

- **Cybernetics Hi-Tech Solutions (Pvt.) Ltd.** Dhaka, Bangladesh
  Engineering Project Manager, Robotics & Automation *Dec 2025 – Present*
  Portfolio: EOD ROV | AGV | UAV | Smart Energy Meter | Industrial 3D Printer | Automation Systems

- Directed **6 concurrent hardware product lines** across a **25 Crore BDT portfolio**, with full accountability for milestones, deliverables, and stakeholder reporting from R&D through field delivery
- Managed **25 cross-functional engineers** across defense, energy, and industrial automation programmes
- Reduced delivery lead time by **25%** through procurement restructuring and supply chain optimisation
- Achieved **12% cost reduction** through BOM rationalization, vendor negotiation, and finance process control

- **Walton Digi-Tech Industries Limited** — Dhaka, Bangladesh
  First Senior Assistant Director, Mechanical Designer — *Sep 2025 – Dec 2025*
  - Led **end-to-end mechanical design development** for IT products including monitors, speakers, and access control systems
  - Conducted **design reviews, simulations, and performance validation** to ensure product reliability and structural integrity
  - Optimized designs for **manufacturability (DFM)**, improving assembly efficiency and reducing production costs
  - Prepared **CAD models, engineering drawings, and mass manufacturing documentation** for cross-functional handover

- **Cybernetics Hi-Tech Solutions (Pvt.) Ltd.** — Dhaka, Bangladesh
  Lead, Mechanical Engineer — *July 2024 – Sep 2025*

  Project: EOD-ROV – Man-transportable Explosive Ordnance Disposal Vehicle
  Role: Mechanical Team Lead & PM | Team: 8 Engineers | Budget: 4 Crore BDT
  - Led bid team securing government project approval: defined **120+ technical specifications and 30+ key deliverables** with full alignment to defense procurement authorities
  - Designed and validated actuation systems selecting **Harmonic and Planetary servo motors with CANBus protocols**; conducted kinematic analysis to meet torque and precision control requirements
  - Ensured compliance with **MIL-STD-810H, MIL-STD-461G, and MIL-STD-1472H** throughout design, validation, and risk assessment phases
  - **FMEA-driven design validation** reduced development cycle time by 18% and secured on-milestone field deployment

  ▶ **Jontro Soinik 1.0 – EOD ROV Field Demo (Scan or Click)**
  youtu.be/3r5VhLD1Ths

  Project: AGV System – RMG Factory Deployment
  Role: Project Manager
  - Designed **navigation logic and operational protocols** for AGV deployment in dynamic factory environments
  - Developed **emergency handling and obstacle-response strategies** aligned with autonomous operation
  - Achieved **13% reduction in material handling time** through sensor-optimised route redesign

  ▶ **Cyberfleet AGV – Bangladesh's First AGV System Demo (Scan or Click)**
  youtu.be/hJlHvlHfOaA

  Project: UAV – Multi-Payload Platform (Surveillance | Cargo 10–100 kg | Combat-Support)
  Role: Project Manager
  - Coordinated development of **autonomy-capable UAV platforms** across multiple payload classes
  - Managed **stakeholder engagement for 5+ clients** including Bangladesh Army and Border Guard Bangladesh
  - Reduced project costs by **10%** through BOM optimisation and resource allocation

- **Spectrum Engineering Consortium (Pvt.) Ltd.** — Dhaka, Bangladesh
  R&D Engineer, Mechanical — *April 2023 – June 2024*

  Project: EOD-ROV "Jontro Soinik 1.0" – Bangladesh Army & UN Peacekeeping Mission
  Role: Industrial Design and R&D Engineer | Clients: DGDP / Bangladesh Army / UN Peacekeeping Mission
  - **Delivered 3 field-deployed EOD ROVs** to DGDP for Bangladesh Army's Bomb Disposal Unit, accepted against military-grade criteria; units deployed on **UN Peacekeeping Missions in Mali and the Democratic Republic of Congo**
  - System formally **transferred to the Peruvian Armed Forces on 05 May 2024**, marking Bangladesh's first export of a domestically built defense robot to another nation's armed forces

- Designed **30+ mechanical components and prototypes** in SolidWorks applying GD&T, achieving ±**0.1mm manufacturing tolerance**
- Resolved **30+ cross-functional R&D blockers** spanning electronics, controls, and fabrication; reduced assembly error rate by **23%**
- Facilitated **operational and maintenance training** for UN delegates and Peruvian Armed Forces personnel

Skills

Robotics & Systems: Robot system integration, 6-DOF kinematics, field testing, FMEA, structural analysis
Simulation & Modeling: ANSYS Workbench, SolidWorks Simulation, FEA
Design & Prototyping: SolidWorks (CSWP), Fusion 360, GD&T, DFM/DFA, 3D Printing (FDM)
Standards: MIL-STD-810H, MIL-STD-461G, MIL-STD-1472H
Coding: Python, ROS (basic)
Project Management: MS Project, Jira, BOM Management, Risk Management, Stakeholder Management

Professional Certifications

- **Project Management Professional (PMP)** — Jun 2026 *(Exam Scheduled)*
  Project Management Institute (PMI)
- **Lean Project Management Yellow Belt (LeanPM®-YB)** — August 2025
  Lean Project Management Foundation
- **Lean Six Sigma White Belt (CSSC-LSSWB)** — August 2025
  The Council for Six Sigma Certification
- **SOLIDWORKS CAD Design Professional (CSWP)** — December 2024
  Dassault Systèmes

Achievements

- **1st Runner-Up** — August 2022
  Innovate, IEOM Society AUST Student Chapter
- **Winner** — June 2022
  Kambaii Bangabandhu Robotic Toolkit Design Competition, CRID Robotics Labs, USA
- **Tuition Fee Waiver, Spring 2021 Semester** — March 2022
  Department of Mechanical and Production Engineering, AUST
- **Top-5 Industrial Projects Award** — December 2021
  Mujib-100 Industrial Exhibition, IC4IR
- **1st Runner-Up** — March 2021
  TechnoCAD, Innoventure 21, AUST Innovation & Design Club

Extracurricular Activities

- **Vice President** — Nov 2022 – May 2023
  AUST Innovation and Design Club
- **Affiliate** — Nov 2022 – May 2023
  Computer Integrated Manufacturing (CIM) Lab, AUST
- **Organizer & Head of Sponsor Team** — Mar 2022 – Jul 2022
  Mindsparks 22
- **Hardware & Design Team Member** — Jan 2022 – Sep 2022
  AUST Rocketry
- **Mechanical Sub-Section Member & Design Lead** — Sep 2021 – Sep 2022
  AUST Mars Rover Team – URC 2022, USA

References

Dr. Mohammad Sarwar Morshed
Professor & Director, IQAC
Dept. of Industrial and Production Engineering, AUST
m.morshed.mpe@aust.edu

Mr. Rezaul Karim Nayeem
Assistant Professor
Dept. of Industrial and Production Engineering, AUST
rknayeem.mpe@aust.edu

Mr. Shah Md. Ashiquzzaman Nipu
Assistant Professor
Dept. of Industrial and Production Engineering, AUST
nipu.ipe@aust.edu

Md. Rashed Mujib Noman
Chief Executive Officer
Cybernetics Hi-Tech Solutions (Pvt.) Ltd.
noman@cyberneticsbd.com