

PROFILE

Student engineer and researcher working across robotics, autonomous systems, embedded electronics, computer vision, marine systems, aerial systems, and experimental hardware. Hands-on experience spans competition robotics, a Bangladesh Army drone platform, RoboBoat 2026, agricultural robotics, and custom particle-detector hardware. Recognized in international and national engineering/science competitions, with experience leading technical teams and building systems from prototype through field testing.

SELECTED ENGINEERING & RESEARCH EXPERIENCE

- Bangladesh Army Drone Platform** 2026
Electrical Lead
- Led electrical work and hardware integration for a drone platform developed with the Bangladesh Army.
 - Worked across system integration, electronics, wiring, testing, and troubleshooting as the project's electrical lead.
- DoB Joljan - Autonomous Surface Vehicle** 2026
Mechanical Lead | RoboBoat 2026
- Led mechanical development, structural integration, and the physical platform for an autonomous surface vehicle developed for RoboBoat 2026.
 - Coordinated mechanical decisions with the wider autonomous-system requirements of the vehicle.
- Custom Particle Detector** 2025-26
Lead Developer / Researcher | Beamline for Schools
- Designed and built experimental particle-detector hardware, including hand-wired electronics, fabrication, and iterative testing.
 - Led a team shortlisted in the 2025 Beamline for Schools international particle-physics competition.
- AgroDoctor - Intelligent Agricultural Rover** 2025
Electrical Team Member & Website Lead | Team BUBT
- Contributed to a Raspberry Pi-based agricultural rover combining sensing, automation, AI/computer vision, and cloud-connected control.
 - Supported electrical development and led the project website; the project received WICE Gold and Special Award recognition.
- WRO Future Engineers Autonomous Car** 2026
Robotics / Computer Vision / Embedded Systems
- Developed an Ackermann-steered autonomous robot using Raspberry Pi 4, RPLIDAR C1, USB camera, encoder feedback, motor control, and servo steering.
 - Implemented wall following, sharp-turn handling, obstacle/pillar navigation, color-based passing logic, and button-triggered competition startup.

LEADERSHIP & TECHNICAL COMMUNITY

- WICE Bangladesh**
Organizer
- Helped organize a large national innovation competition program involving more than 1,500 participants.
 - Led and collaborated with student teams in engineering competitions, including Beamline for Schools.

AWARDS & RECOGNITION

- Beamline for Schools** 2025
Shortlisted - international particle-physics competition
- World Invention Competition and Exhibition (WICE)** 2025
Gold Award + Special Award
- Innovation World Cup** 2026
Gold Medal
- International Science and Innovation Fair (ISIF)** 2025
Bronze Medal
- Best Innovators Award** 2026
Innovation / engineering recognition
- National Science & Robotics Competitions** 2024-26
Winning results including EWU National Science Fair, Ismail Al-Jazari Robotics Fest, National Robotics Championship, and the 47th National Science Fair
- Arena FIDE Master (AFM)**
FIDE-recognized chess title
- DU Campus Chess Tournament**
Winner
- English Olympiad 2026** 2026
Grand Finalist

EDUCATION

Higher Secondary Certificate (HSC) Science Bangladesh Expected graduation 2027 Current Class 12 student; Bangla-medium academic background.	Expected 2027
Secondary School Certificate (SSC) GPA 5.00 / 5.00 Scored 90%+ in Mathematics, Physics, Chemistry, and Biology.	Completed
Duolingo English Test Overall score: 120	

TECHNICAL SKILLS

PROGRAMMING	Python, C/C++, JavaScript, HTML/CSS, React
ROBOTICS	Autonomous mobile robots, Ackermann steering, sensor integration, motor/servo control, navigation logic
EMBEDDED / HARDWARE	Raspberry Pi, ESP32 / ESP32-S3, LiDAR, USB cameras, motor drivers, sensors, prototyping, fabrication
SOFTWARE / PLATFORMS	OpenCV, Firebase Realtime Database, Git/GitHub, web interfaces
RESEARCH	Experimental hardware, iterative testing, technical documentation, engineering research, particle-detection concepts

SELECTED ADDITIONAL PROJECTS

ROV Research Prototype & Pool Testing Marine Robotics / Experimental Platform - Built and tested an ROV platform in repeated pool deployments, combining mechanical integration, operator control, and multi-parameter sensor acquisition. - Completed seven pool tests with a longest continuous deployment of 1 minute 43 seconds and no reported leaks or hardware failures during the test series.	2026
ESP32-S3 Web-Controlled Rover Embedded Systems / IoT Developed a Firebase-connected rover platform with dual motor drivers, multi-DOF arm control, GPS integration, and camera-streaming work.	2026
ESP32 Chess Engine Embedded Computing Built an embedded chess-computing project as part of a broader portfolio of microcontroller and software experiments.	
Fish-Farm Monitoring System Sensors / IoT Developed a monitoring-oriented project for aquaculture, combining sensing and connected-system concepts.	
Custom Chat App & AI Integration Web / Software Built a custom chat application and experimented with integrating AI capabilities into the platform.	

ACTIVITIES & FOCUS AREAS

Competitive Chess: Arena FIDE Master; winner of the DU Campus Chess Tournament, with broader national competition experience.

Engineering Focus: Electrical engineering, software engineering, autonomous systems, robotics, particle physics, experimental instrumentation, and marine robotics.

References: Available upon request.