Siratul Islam

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Education

Shahjalal University of Science and Technology **Aug. 2023 – Aug 2027**
Bachelor of Science (Hons) in Physics *Sylhet, Bangladesh*

Experience

Linux Foundation - Zephyr RTOS Project **Remote**
Biometrics Subsystem Maintainer, Zephyr Maintainers Team *Feb. 2026 – Present*

- Promoted to subsystem maintainer after authoring Zephyr's biometrics subsystem (PR #100139), the first biometric authentication framework in the RTOS, enabling fingerprint-based security for embedded applications
- Designed complete subsystem architecture including public API interfaces, device abstractions, driver framework, and Kconfig integration for biometric sensors
- Implemented reference drivers for ZFM-x0 & GT-5x optical fingerprint sensors
- Establish technical standards and review all community contributions to the biometrics subsystem
- Technologies: Zephyr RTOS, Embedded C, Subsystem Architecture, Device Drivers, Device Tree, Git

Contributor (Triage), Zephyr Contributors Team *Jun. 2025 – Present*

- Accepted into official Zephyr Contributors Team following 15+ merged PRs expanding hardware ecosystem across ARM, RISC-V, and Xtensa platforms
- Develop device drivers and board support packages serving 5000+ embedded developers globally
- Review community contributions and provide technical guidance on driver architecture and device tree bindings
- Maintain official documentation for display subsystems and 9+ board support packages in Zephyr upstream

Shahjalal University of Science and Technology **Jun 2025 – Present**
Research Assistant - Department of Electrical and Electronic Engineering *Sylhet, Bangladesh*

- Developing IoT-enabled smart control systems and radar-based occupancy detection for government energy optimization
- Building RFID-based attendance management systems for rural educational institutions in Bangladesh
- Building STM32F4 control system, implementing ROS2 nodes, developing OpenCV vision algorithms, and establishing communication protocols between microcontroller and Jetson Orin

Hackules Inc. **Jun. 2024 – Jun. 2025**
Software Engineer *Remote*

- Led full-stack development for educational platforms (Opedemy, Teachers Today) serving 1000+ active users
- Optimized SSR/static rendering reducing load times by 50%, implemented 200+ API integrations
- Conducted technical interviews for engineering positions and mentored junior developers

Selected Projects

Autonomous Vehicle Navigation System | *ROS2, C++, Jetson Orin, STM32F4* **ongoing research**

- EEE department-funded project: ROS2-based autonomous navigation with LiDAR fusion and OpenCV computer vision
- Developed STM32F4 vehicle control system for real-time actuator management and motor control with sensor fusion

ESP32 Radar Smart Switch for Energy Optimization | *C, ESP32, ESP-IDF* **source code**

- Intelligent occupancy detection using mmWave radar for automated lighting/HVAC control in government buildings
- Implemented ESP32-based relay control with Google Sheets data logging for real-time energy consumption analysis

ESP32-S3 Biometric Attendance System | *C++, ESP32-S3, BLE* **source code**

- Low-cost RFID attendance system for rural schools with offline-capable storage and synchronization features
- Addresses educational infrastructure challenges in Bangladesh through accessible fingerprint recognition technology

Technical Skills

Embedded Systems: Embedded C/C++, Rust, STM32 HAL, ESP-IDF, Embassy-rs, Embedded Linux, ROS2
Microcontrollers: STM32 (H7, H5, F4 Series), ESP32 (C3, C6, S3), Jetson Orin, nRF52840, Raspberry Pi 5, RISC-V
RTOS & Protocols: Zephyr RTOS, FreeRTOS, CMSIS-RTOS, GPIO, I2C, SPI, UART, MQTT, Wi-Fi, BLE, LoRa
Development Tools: STM32CubeIDE, CMake, PlatformIO, ESP-IDF, OpenOCD, GDB, KiCAD, Git, OpenCV
Full-Stack Web: TypeScript, SvelteKit, Next.js, Django, Express.js, MongoDB, Firebase, Docker

Awards & Recognition

Bronze Medal - International University Physics Competition: Top 15% among 1000+ international teams (2024)
Published Research: ResearchGate publication on space station air evacuation mathematical modeling (2024)
IT Secretary: CAM-SUST - Led website development, coordinated Summer School on Astronomy 2025
Pre-University: 1st Place Inter Cantonment IT Festival; 3rd Place Notre Dame Science Festival (2021)