

Manish Man Shrestha

Embedded Sensing and Cyber-Physical Systems Researcher | Precision Agriculture | Secure IoT | Robotics and Data Analytics

Researcher and embedded-systems engineer with 15+ years of experience in real-time sensing, edge computing, sensor networks, embedded control, robotics, and data-driven agricultural and environmental monitoring.

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Profile Summary

- ▶ Ph.D. in Agricultural and Biosystems Engineering with interdisciplinary research spanning embedded sensing, precision agriculture, environmental monitoring, and secure cyber-physical systems.
- ▶ More than 15 years of research and engineering experience in embedded systems, real-time sensing and control, sensor networks, robotics, edge computing, and signal processing.
- ▶ Developed embedded and cyber-physical systems across ARM, STM32, ESP32, Raspberry Pi, and related platforms, including device interfacing, wireless communication, real-time control, data acquisition, and system integration.
- ▶ Conducted research in agricultural and environmental monitoring, soil-moisture and nutrient sensing, greenhouse and hydroponic systems, ultrasonic structural health monitoring, and robotic systems.
- ▶ Applied R and Python for time-series analysis, statistical modeling, machine learning, experimental data analysis, and model validation.
- ▶ Published peer-reviewed research in agricultural IoT, secure edge computing, nitrogen sensing, and structural health monitoring, and served as PI and Co-PI on externally funded projects.
- ▶ Experienced in teaching, student mentoring, manuscript reviewing, proposal development, interdisciplinary collaboration, and presenting research findings at conferences and stakeholder-oriented meetings.



Education

- ▶ Ph.D. in Agricultural and Biosystems Engineering, South Dakota State University, Brookings, South Dakota, USA, 2026
- ▶ Graduate Certificate in Data Science, South Dakota State University, Brookings, South Dakota, USA, 2025
- ▶ M.E. in Mechatronics Engineering (EQF Level 7), Jeonbuk National University, Jeonju, South Korea, 2016
- ▶ B.E. in Electronics and Communication Engineering (EQF Level 6), Cosmos College of Management and Technology, Nepal, 2010



Skill Set

Embedded Systems	Sensor Network Deployment	Secure IoT
Machine Learning	R/Python Data Analysis	Statistical Modeling
Design, Research & Development	Robotics and Controls	Research Project Management



Areas of Expertise

- ▶ **Cyber-Physical Systems & IoT:** Real-time sensing, embedded sensor networks, edge computing, secure telemetry, cloud-connected monitoring, and decision-support systems.
- ▶ **Embedded Systems:** Embedded C/C++, FreeRTOS, ESP32/ESP-IDF, STM32/ARM Cortex-M, device drivers, board bring-up, interrupts, DMA, ADC/DAC, PWM, GPIO, UART, SPI, I2C, and Modbus/RS-485, CAN.
- ▶ **Edge DSP & Instrumentation:** Real-time signal acquisition, embedded DSP, FFT, IIR/FIR filtering, Butterworth filter design, sensor calibration, ultrasonic sensing, environmental sensing, nutrient sensing, and structural health monitoring.
- ▶ **Secure Edge Intelligence:** MQTT/MQTTS, TLS, AES, ChaCha20-Poly1305, Kyber, Dilithium, post-quantum IoT security, C#/.NET backend processing, and ASP.NET visualization.

- **AI, Data Analytics & Statistical Modeling:** R/Python, time-series analysis, data cleaning, feature engineering, classification, regression, mixed-effects modeling, model validation, and visualization.
- **Robotics, Automation & Mechatronics:** ROS 2/micro-ROS, Raspberry Pi robotics, STM32/FreeRTOS telemetry, actuator control, servo/DC motor control, teleoperation, and hardware-software integration.
- **Hardware, Debugging & Development Tools:** JTAG/SWD, oscilloscopes, logic analyzers, serial debugging, firmware trace analysis, Git, Keil MDK, MPLAB, Visual Studio, Altium Designer, Eagle, KiCad, OpenSCAD, Azure IoT Hub, and Raspberry Pi.

Work Experience

Jan'23-Present South Dakota State University, as Graduate Research Assistant

Key Responsibilities:

- Conduct interdisciplinary research on real-time agricultural and environmental monitoring, with emphasis on soil moisture, nutrient dynamics, water management, and controlled-environment agriculture.
- Design integrated sensing, communication, experimental, and data-processing architectures for greenhouse and hydroponic research.
- Plan and conduct controlled experiments involving nitrate, chloride, soil moisture, temperature, humidity, irrigation behavior, nutrient leaching, and cyanobacteria-based moisture retention.
- Develop and validate embedded sensor networks, data-acquisition systems, secure telemetry pipelines, and visualization tools for continuous environmental monitoring.
- Analyze time-series and experimental datasets using R and Python, including data cleaning, exploratory analysis, statistical modeling, machine learning, treatment comparison, model validation, and visualization.
- Document research findings, prepare manuscripts and conference presentations, collaborate with interdisciplinary teams, and support laboratory experimentation and student research.

Significant Accomplishments:

- Designed and deployed distributed ESP32-S3 and FreeRTOS-based monitoring systems for continuous measurement of soil moisture, nitrate, chloride, temperature, humidity, and related environmental variables.
- Integrated electrochemical nutrient sensors, Modbus/RS-485 devices, ADC-based sensors, and environmental sensors into multi-node monitoring platforms.
- Developed automated hydroponic control functions for water pumps and grow lights by combining real-time sensing with embedded control logic.
- Built reliable wireless telemetry systems using MQTT/TLS, fault-handling mechanisms, exponential backoff, sensor validation, and cloud-connected data transmission.
- Developed C#/.NET applications for telemetry retrieval, data verification, decryption, and processing, along with ASP.NET dashboards for real-time visualization.
- Implemented AES, ChaCha20-Poly1305, Kyber, and Dilithium on resource-constrained embedded devices and evaluated their computational, communication, and real-time performance.
- Designed a general-purpose environmental IoT datalogger architecture supporting both Modbus/RS-485 and analog sensors for agricultural, water-quality, and environmental-monitoring applications.
- Applied R and Python to quantify treatment effects, soil-moisture drydown behavior, nitrate trends, crop responses, environmental conditions, and system performance.
- Designed and 3D-printed experimental components, including sensor mounts, leak-resistant enclosures, drainage ports, hose interfaces, and leachate-collection structures.
- Published peer-reviewed research on distributed agricultural IoT, nitrate and soil-moisture monitoring, nitrogen sensing, secure edge computing, and controlled-environment experiments.

Jan'23-Dec'25 South Dakota State University, as Teaching Assistant

Key Responsibilities:

- Assisted in teaching Engineering Properties of Biological Materials Lab, supporting experimental setup, data analysis, and student guidance.

Aug'17-Dec'22 Cosmos College of Management and Technology, as Assistant Professor

Key Responsibilities:

- ▶ Taught undergraduate courses in *Industrial Electronics and Drives*, *Digital Communication*, *Control Systems*, and *Embedded Systems*.
- ▶ Played a key role in establishing and advancing the Cosmos Research Management Cell (Cosmos-RMC).
- ▶ Served as Co-Principal Investigator (Co-PI) for the project *Development of a Multi-Channel Intelligent Ultrasonic Device for Damage Detection of Metallic Structures*, funded by Pokhara University Research Centre (PURC) (April 2018 – January 2020)
- ▶ Served as Principal Investigator (PI) for the project *Development of IoT based Multichannel Low-cost Ultrasonic Device for health monitoring of a metallic structure*, funded by University Grants Commission, Nepal (UGC), as a part of Small Research Development and Innovation Grant 2076-77, Award No.: SRDIG-76/77-Engg-1.
- ▶ Served as Principal Investigator (PI) for the project *The Urgency of STEAM Education for Driving KMC as an Innovation Hub*, funded by the Kathmandu Metropolitan City – City Planning Commission (Mayor's Research Fellowship 2020–2021).
- ▶ Reviewer and editor of the journal *Advances in Engineering and Technology: An International Journal*, published by Cosmos College of Management and Technology.

Significant Accomplishments:

- ▶ Published multiple conference and journal papers in IoT, ultrasonic sensing, and structural health monitoring.
- ▶ Designed and developed an intelligent ultrasonic device for damage detection of metallic structures.
- ▶ Founding member of the Research Management Cell at Cosmos College of Management and Technology.

Apr'17--Dec'22 Samadhan Engineering, as CTO / Technical Consultant

Key Responsibilities:

- ▶ Led firmware and hardware R&D, focusing on STEAM education and hydroponics agriculture systems.
- ▶ Implemented real-time motor-control firmware using PWM, timers, ADC feedback, and RTOS scheduling under strict timing constraints.
- ▶ Developed embedded control systems involving actuator control, sensor interfacing, communication protocols, and hardware-software integration.
- ▶ Designed and reviewed PCB layouts using Altium Designer for embedded sensing and control systems, supporting board bring-up, testing, and hardware–firmware debugging.
- ▶ Designed and taught courses in Artificial Neural Networks, IoT, embedded systems, and robotics-related applications.
- ▶ Established Git-based version control and YAML-based CI/CD workflows using Docker images to generate repeatable firmware builds and manage release artifacts for embedded systems.

Significant Accomplishments:

- ▶ Implemented MQTT, SNTP, MODBUS-RTU protocols on RTOS.
- ▶ Developed a multi-axis servo-controlled robotic arm using hardware-timed PWM generation, I2C-based actuator control, calibrated servo motion, and coordinated multi-joint movement.
- ▶ Developed a teleoperated mobile robotic system integrating DC motor control, wireless input handling, live video streaming, and real-time motion-control logic.
- ▶ Developed KIOSK system using Raspberry PI and Java Programming language.

Mar'16-Mar'17 Measurement Robotics & Diagnostic AI Lab, KAIST as Research Scientist

Key Responsibilities:

- ▶ Developed real-time embedded firmware on dual-core ARM Cortex-M4 (LPC4370) for ultrasonic signal generation, synchronized sensing, and high-speed data acquisition for structural monitoring applications.
- ▶ Implemented FFT, IIR, and FIR filtering algorithms directly on ARM Cortex-M4, enabling real-time embedded signal processing and on-device structural response analysis.
- ▶ Built high-throughput data acquisition and wireless communication pipelines using lwIP TCP/IP stack.

Significant Accomplishments:

- ▶ Designed and validated an embedded wireless ultrasonic sensing platform for aircraft structural health monitoring.
- ▶ Integrated embedded DSP, high-speed data acquisition, and Wi-Fi/TCP-IP communication into a complete real-time monitoring system.
- ▶ Published a peer-reviewed journal article based on this work.

Aug'13–Feb'16 with Jeonbuk National University, South Korea as Research Assistant

Key Responsibilities:

- Developed a laser-based excitation and sensing system for structural diagnostics, integrating actuator control, signal acquisition, and data processing.
- Used LabVIEW for ultrasonic experimental-data analysis and visualization.
- Developed a custom Qt/C++ application for laser control, data acquisition, signal processing, and waveform visualization.
- Used MATLAB/Simulink for system modeling and analysis.
- Prototyped and validated signal-processing algorithms, including FFT, IIR, and FIR filtering, in MATLAB before integrating them into custom software for near-real-time analysis and visualization.
- Developed embedded firmware for high-speed ultrasonic signal acquisition using PZT sensors, ensuring reliable and synchronized data capture.
- Implemented wireless communication using the lwIP TCP/IP stack for real-time data transmission to host systems.
- Worked across hardware, firmware, and software layers to design and deploy a complete sensing and control system.

Significant Accomplishments:

- Built an integrated wireless ultrasonic sensing system combining laser excitation, PZT-based sensing, embedded signal acquisition, and Wi-Fi-based data transmission.
- Developed control and visualization software for structural diagnostics and ultrasonic response analysis.
- Presented this work at international structural health monitoring and aerospace-related conferences.

Mar'11–Aug'13 with Real Time Solutions Pvt. Ltd., Nepal as Design Engineer

Key Responsibilities:

- Developed embedded C/C++ firmware for ARM, PIC, and 8051 microcontrollers, including device drivers, communication stacks, and RTOS-based task scheduling.
- Implemented Protothreads-based cooperative multitasking on 8051 and PIC microcontrollers and developed custom bare-metal schedulers for resource-constrained embedded systems.
- Implemented communication protocols including UART, SPI, Modbus RTU, and cellular telemetry using AT commands.

Significant Accomplishments:

- Developed MODBUS/RTU communication protocol from scratch.
- Developed firmware for industrial and field-deployed systems including panel meters, MPPT solar battery chargers, queue management systems, and flood early-warning devices.



Publications

- Shrestha, M. M., Wei, L., & Sher, M. (2026). A Distributed IoT System with Post-Quantum Cryptography in Real-Time Monitoring of Nitrate and Soil Moisture in Corn Production. *Smart Agricultural Technology*, 102335. <https://doi.org/10.1016/j.atech.2026.102335>
- Alam, S. M. S., Wei, L., Wu, Y., Ozor, T., Rubel, R. I., Cidreira, A., & Shrestha, M. M. (2026). Synergetic effects of biochar and biofertilizer on corn production under greenhouse conditions. *Communications in Soil Science and Plant Analysis*, 1–17. <https://doi.org/10.1080/00103624.2026.2683124>
- Shrestha, M. M., & Rajbamshi, S. (2026). Secure IoT-enabled edge computing ultrasonic device for structural health monitoring in inaccessible metallic structures. *Engineering Research Express*, 8, 135306. <https://doi.org/10.1088/2631-8695/ae792e>
- Shrestha, M. M., & Wei, L. (2024). Review—Perspectives on the roles of real-time nitrogen sensing and IoT integration in smart agriculture. *Journal of The Electrochemical Society*, 171(2), 027526. <https://doi.org/10.1149/1945-7111/ad22d8>
- Shrestha, M. M., Ropakheti, B., Bhattarai, U., & Shakya, A. (2022). Development and implementation of portable ultrasonic sensor circuit with USB interface and signal processing to detect damages in the mild steel structure. *Advances in Engineering and Technology: An International Journal*, 2(01), 123–130. <https://doi.org/10.3126/aet.v2i01.50462>
- Shrestha, M. M., Ropakheti, B., Bhattarai, U., Adhikari, A., & Thakur, S. (2021). Digital ultrasonic sensing device with programmable frequency: Development and analysis. *Advances in Engineering and Technology: An International Journal*, 1(1), 33–45. <https://doi.org/10.3126/aet.v1i1.39658>
- Shrestha, M. M., Ropakheti, B., Bhattarai, U., Adhikari, A., & Thakur, S. (2021). Intelligent wireless ultrasonic device for damage detection of metallic structures. *Scientific World*, 14(14), 31–36. <https://doi.org/10.3126/sw.v14i14.34979>

- Choi, M., Shrestha, M. M., Lee, J. R., & Park, C. Y. (2018). Development of a laser-powered wireless ultrasonic device for aircraft structural health monitoring. *Structural Health Monitoring*, 17(2), 145–155.
<https://doi.org/10.1177/1475921716686963>



Manuscripts Under Review

- Nawaz, T.†, Shrestha, M. M.†, Gu, L., Sher, M., Zahid, A., Wei, L., & Zhou, R. (2026). Real-time assessment of biofilm-forming cyanobacteria on soil moisture dynamics via IoT-integrated sensors. *Smart Agricultural Technology*. Manuscript under review.
† Equal contribution.
- Shrestha, M. M., & Wei, L. (2026). Post-quantum security for hydroponic IoT monitoring using Kyber512, ChaCha20-Poly1305, and Dilithium2. *Information Processing in Agriculture*. Manuscript under review.



Government-Published Research Chapter

- Shrestha, M. M. (2022). *The Urgency of STEAM Education for Driving KMC as an Innovation Hub*. In **MRF Research 2020/21** (pp. 107–133).
Published by: City Planning Commission, Kathmandu Metropolitan City (ISBN: 978-9937-1-1305-2).
This chapter contributed to KMC's education policy discussions and evidence-based planning.



Published Conference Proceedings

- Shrestha, M. M., & Wei, L. (2025). Integrating IoT and secure data transmission in a crop monitoring system. 2025 ASABE Annual International Meeting, Paper No. 2500564. <https://doi.org/10.13031/aim.202500564>
- Chong, S. Y., Shrestha, M. M., & Lee, J. R. (2014). Development of wireless ultrasonic propagation imaging system for in-situ aircraft inspection. *Proceedings of the 7th European Workshop on Structural Health Monitoring (EWSHM 2014)*, 1025–1031



Conference

- Shrestha, M. M., & Wei, L. (2024, July 29). Integrating IoT and secure data transmission in greenhouse monitoring: Effects on radish growth in controlled environments. Presented at the ASABE 2024 Annual International Meeting. Oral presentation.
- Shrestha, M. M., & Wei, L. (2023, July). Develop an activated biochar-based biosensor for detection and monitoring of nitrogen nutrients in water and soil. Presented at the ASABE Annual International Meeting. Oral presentation.
- Shrestha, M. M., Ropakheti, B., Bhattarai, U., Adhikari, A., & Thakur, S. (2019, November 18). Development of intelligent ultrasonic device for damage detection of metallic structure. Presented at the Third International Conference on Resilient Infrastructures for a Better Tomorrow, SCAEF. Oral presentation.
- Shrestha, M. M., Ropakheti, B., Bhattarai, U., & Adhikari, A. (2019, December 29). Development of actuator interface circuit for portable device for health monitoring of metallic structure. Presented at the Fourth International IT Conference on ICT with Smart Computing, Kathmandu, Nepal. Oral presentation.
- Shrestha, M. M., & Lee, J. R. (2016, August 24). Development of Wi-Fi based wireless ultrasonic device for structural health monitoring for aircraft structure. Presented at Advances in Structural Health Management and Composite Structures 2016, Jeonju, Republic of Korea. Oral presentation.
- Shrestha, M. M., & Lee, J. R. (2015). Development of wireless ultrasonic propagation imaging system. Presented at the 2015 Fall Conference of the Korean Society for Aeronautical and Space Sciences, Jeju, Republic of Korea.
- Shrestha, M. M., & Lee, J. R. (2015, November 20). Development of wireless ultrasonic device. Presented at the 2015 Fall Conference of the Korean Society for Aeronautical and Space Sciences, Jeju, Republic of Korea. Oral presentation.
- Shrestha, M. M., Chong, S. Y., & Lee, J. R. (2015, September 1). Development of wireless ultrasonic propagation imaging system. Presented at the 10th International Workshop on Structural Health Monitoring, Paper No. 2552, Stanford University, USA. Oral presentation.

- ▶ Shrestha, M. M., & Lee, J. R. (2014, August 27). Multiple-channel PZT-excited active sensing based on a wireless ultrasonic device for damage detection. Presented at Advances in Structural Health Management and Composite Structures 2014, Jeonju, Republic of Korea. Oral presentation.



Poster

- ▶ Shrestha, M. M., & Wei, L. (2025, April 3). Develop a smart crop monitoring system for hydroponics. Poster presented at the South Dakota American Society of Agricultural and Biological Engineers Section Meeting, Brookings, SD, United States.
- ▶ Shrestha, M. M., & Wei, L. (2024, July 25). Bioeconomic implications of enhanced security in IoT greenhouse monitoring: Soil and environmental analytics with AES and TLS. Poster presented at the S-1075 Multistate Project Annual Meeting and Symposium on Science and Technology Driving the Bioeconomy, Kansas City, MO, United States.
- ▶ Shrestha, M. M., & Wei, L. (2024, April 11). Integrating IoT and secure data transmission in greenhouse monitoring: Effects on radish growth in controlled environments. Poster presented at the ASABE North Central Regional Section Meeting, Brookings, SD, United States.
- ▶ Shrestha, M. M., & Wei, L. (2023, August 31). Advancing water quality management through IoT-based nitrogen monitoring and secure data communication. Poster presented at the South Dakota Student Water Conference, Brookings, SD, United States.
- ▶ Shrestha, M. M., & Wei, L. (2023, July 13). Real-time monitoring and management of soil moisture in agriculture using an Azure IoT platform. Poster presented at the S-1075 Multistate Annual Meeting and Symposium on Science and Technology Driving the Bioeconomy, Ames, IA, United States.
- ▶ Shrestha, M. M., & Wei, L. (2023, April 5). Opportunities and challenges in nitrogen sensing and IoT integration for food security. Poster presented at the MNIFT-Great Plains Subsection Poster Competition, Minneapolis, MN, United States.



Awards

- ▶ ASABE Travel Scholarship (2025) – Awarded by the SDSU Department of Agricultural & Biosystems Engineering to support participation in the 2025 ASABE Annual International Meeting, Toronto, Canada.
- ▶ NSF Travel Award (2023) – Supported attendance at the USDA Multistate Meeting.



Selected Data Science Experience

- ▶ Built end-to-end data-analysis workflows in R using agricultural, biological, behavioral, and forensic datasets, including data cleaning, preprocessing, exploratory analysis, feature engineering, model development, validation, and interpretation.
- ▶ Applied statistical and machine-learning methods including linear and logistic regression, mixed-effects modeling, nonlinear regression, LDA, QDA, k-nearest neighbors, support vector machines, and model-based classification.
- ▶ Evaluated predictive models using training/testing splits, leave-one-out and k-fold cross-validation, confusion matrices, residual diagnostics, AIC, ANOVA, and post-hoc comparisons.
- ▶ Addressed class imbalance through resampling and class weighting and used standardized features for distance- and margin-based models.
- ▶ Developed hierarchical classification workflows and generated predictions for unknown datasets to support practical, domain-specific decision-making.



Additional Selected Research & Engineering Projects

- ▶ **MPPT-Based Solar Battery Charger (PIC MCU):** Developed embedded firmware for a solar battery charging system implementing an MPPT algorithm using ADC-based voltage/current feedback and PWM control for efficient energy conversion under varying solar conditions.
- ▶ **Panel Meter with Energy Accumulation and Modbus RTU (NXP Cortex-M0):** Built firmware for a panel meter with LCD and push-button interface, implementing a 4th-order Butterworth IIR filter for stable signal conditioning and precise energy accumulation. Designed a custom Modbus RTU slave to interface with external dataloggers.
- ▶ **Multichannel Ultrasonic Structural Health Monitoring Device (STM32 Cortex-M4 + ESP32):** Developed real-time firmware for signal generation, synchronized sensing, high-speed data acquisition, and wireless communication. Implemented FFT/IIR-based DSP pipelines and a dual-MCU architecture separating deterministic STM32 processing from ESP32

communication and display functions. Integrated a custom I2C SSD1306 OLED display driver for local device status and measurement feedback, and performed hardware bring-up/debugging using oscilloscopes, logic analyzers, and serial tools.

- ▶ **Distributed IoT Monitoring System with Post-Quantum Security (ESP32-S3, FreeRTOS):** Developed a distributed embedded telemetry system for real-time nitrate monitoring using multiple IoT nodes, secure MQTT/TLS communication, and post-quantum cryptography. Implemented sensor interfacing, encrypted data transmission, signature verification, and backend integration for reliable monitoring and visualization.
- ▶ **Secure IoT Hydroponics Controller (ESP32-S3, FreeRTOS):** Built embedded firmware for secure hydroponic monitoring using Modbus RTU nitrate/chloride sensing, DS18B20/DHT drivers, MQTT/TLS telemetry, and post-quantum cryptography (Kyber, Dilithium). Added OTA readiness, sensor validation, and fault handling.
- ▶ **Flood Early-Warning Node (ARM Cortex-M0):** Built firmware for a rugged remote monitoring node with environmental sensors, digital filtering, low-power operation, and fault-tolerant telemetry for early warning and diagnostics.
- ▶ **Raspberry Pi Robotic Arm Control Platform:** Developed a robotic arm control system using Raspberry Pi and an external PCA9685 PWM driver over I2C to generate stable servo-control signals. Implemented actuator range calibration, multi-axis motion coordination, and timing control for smooth and repeatable movement.
- ▶ **Teleoperated Mobile Robot with Camera and Motor Control:** Built a Raspberry Pi-based mobile robot integrating H-bridge DC motor control, GPIO-based direction control, Bluetooth input-event handling, and live camera streaming. Debugged control-response timing and hardware/software interaction issues for reliable teleoperation.
- ▶ **Queue Management System with Audio Announcement and Distributed Counter Nodes (NXP ARM Cortex-M4 + 8051):** Developed embedded firmware for a distributed queue management system using an NXP ARM Cortex-M4 master controller and multiple 8051-based Modbus slave counter nodes. The system generated customer token numbers, triggered ticket printing, monitored counter availability, assigned customers to available counters using load-balancing logic, controlled 7-segment counter displays with blinking call indication, and played WAV audio announcements for token and counter numbers through a speaker.
- ▶ **ROS 2 / micro-ROS Sensor Telemetry Prototype (Raspberry Pi + STM32):** Built a prototype to implement ROS 2 and micro-ROS communication between an embedded edge node and a Raspberry Pi. Configured a Raspberry Pi micro-ROS Agent, developed a Python ROS 2 subscriber using rclpy, and implemented an STM32 micro-ROS C publisher within an RTOS task using rcl executor/timer logic over UART. Published simulated temperature telemetry to a ROS 2 topic at 1 Hz to understand embedded-to-ROS data flow.



Personal Details

Languages Known: English, Hindi, Nepali, Newari

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References

- ▶ Prof. Lin Wei, South Dakota State University, USA, Email: Lin.Wei@sdstate.edu
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- ▶ Prof. Pappu Yadav, South Dakota State University, USA, Email: Pappu.Yadav@sdstate.edu
- ▶ Prof. Jung-Ryul Lee, Korea Advanced Institute of Science and Technology (KAIST), South Korea, Email: leejrr@kaist.ac.kr