BIKASH SHRESTHA

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SOFTWARE DEVELOPER

Detail-oriented software developer with 2 years of proven track record in embedded software development, delivering robust and efficient solutions. Excel in translating complex technical requirements into innovative software designs. Hands-on experience working with real-time systems, firmware development, and low-level programming particularly utilizing the ESP32 microcontroller and ESP-IDF framework in C/C++. Additionally, a year of academic experience in full-stack web development using React JS in the front-end, Java Spring Boot in the back-end, and database such as MySQL, MSSQL, MongoDB .

Embedded Systems • Product Development • Efficiency Improvement • SOLID • Database Management
Data Structure and Algorithm • Object Oriented Programming (OOP) • Test Driven Development

Languages: C/C++, Python,Java
Web: HTML, CSS, JavaScript, React JS
Web Services: REST
Web/App Servers: Apache, Tomcat
Frameworks: ESP-IDF, FreeRTOS, Hibernate, Spring Boot
Databases: MySQL, MS SQL, SQL Server
Design Patterns: Singleton, Observer, State, Command
SDLC: Waterfall, V-Model, Agile
Communication Protocols: WiFi, Bluetooth(BLE), I2C, UART, SPI, !2S
Tools: VS Code,IntelliJ, Eclipse, PlatformIO, Maven,Postman,Swagger, GitHub, GitLab, Docker, Star UML
Platforms: Windows, Linux

PROFESSIONAL EXPERIENCE

CAREER NOTE: *Completed on-campus studies and currently taking distance education courses to complete a* ***Master's Degree in Computer Science*** *(Available for full-time, W-2 employment).*

MACHINEER TECHNOLOGY PVT. LTD., Kathmandu, Nepal • 02/2021 – 03/2023
embedded software development company.

Embedded Software Developer (06/2021 – 03/2023)
Built firmware for the embedded systems.

1. Created a Jewelry Rate Display System with Micropython, ESP32, and 7-segment display board, achieving a 25% cost reduction through optimized hardware and software. Enhanced user satisfaction and system performance with efficient data display and tailored functionalities.
2. Engineered a Three Phase Voltage Monitoring system using C, ESPIDF, ESP32 and SIM800 module, integrating web interfaces for threshold management and WiFi connectivity, resulting in a comprehensive monitoring solution with a real-time SMS alerts and improved system reliability.
3. Implemented OTA (Over the Air) update functionality for the transformer Monitoring system using C, ESP32 and ESPIDF, enabling remote firmware installations and enhancing system flexibility and maintenance capabilities, ensuring uninterrupted power supply through enhanced monitoring mechanisms.
4. Designed and optimized a Solar Dryer Control System (SDCS) using ESPIDF and ESP32, incorporating LVGL for GUI interface to display data, facilitating precise temperature and humidity control using SHT20 temperature and humidity sensor. Achieved 30% improvement in drying efficiency and performance.
5. Integrated C and Micropython functionalities to SDCS, ensuring efficient resource utilization, and seamless user configuration through web interface.

Technologies Used: *ESPIDF, C, C++, Python, JavaScript, Git.*

Embedded Software Developer Intern (02/2021 – 06/2021)
Built firmware for the embedded systems.

1. Spearheaded the development of an experimental Solar Dryer system leveraging Micropython, ESP32, and ESP-IDF. Achieved a remarkable 40% reduction in drying time compared to traditional methods, enhancing efficiency and productivity.
2. Innovated a comprehensive library in C to streamline WiFi and Hotspot connection setup. Resulted in a 30% decrease in setup time, optimizing connectivity and enhancing user experience.
3. Pioneered the creation of a robust module for seamless server communication and data exchange between the web server and the system. Achieved a 50% increase in data transfer speed, improving system responsiveness and reliability.
4. Designed and implemented a user-friendly webpage enabling users to set thresholds, configure WiFi credentials, and control fan on/off duration for the Solar Dryer system. Resulted in a 25% reduction in setup complexity, providing easy access and customization options for users.

Technologies Used: *ESP32, ESPIDF.*

ACADEMIC PROJECTS

Maharishi International University (2024) – Attendance System: Group project on attendance system using Java Spring Boot in the back-end. Used MySQl as the database system, OAuth2.0 authentication, ActiveMQ for messaging.

Maharishi International University (2024) – Real state website: Group project on real state website development which can be used for buyng and selling propertiesUsed React.js in the front-end along with Tailwind CSS ,utilized Java Spring Boot for the backend and MySQL as the database.

Maharishi International University (2023) – Library Management System: Worked in a group of two to create a Library Management system implementing Java interfaces, Single factory pattern, Data Transfer Objects (DTOs), all studied in Modern Programming Practice (MPP) course. Utilized Java

EDUCATION

Master of Science in Computer Science
(In progress via distance education; expected completion 04/2026)
Maharishi International University, Fairfield, Iowa

Key Courses: Web Programming, Algorithms, Web Application Architecture, Enterprise Architecture

Postgraduate Diploma in Robotics in Robotics
Middlesex University, London, UK (2019)

Bachelor of Science in Computer Science and Information Technology
Orchid International College, Kathmandu, Nepal (2015)