





# ARIVAZHAGAN R

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## SUMMARY

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Electronics and Communication Engineer with expertise in VLSI, Embedded Systems, and digital circuit design. Proficient in VHDL, Verilog, Embedded C and simulation tools, with additional skills in web design and UI/UX. Passionate about integrating hardware and software solutions for innovative technology development and interested in Real Time Operations.

## EDUCATION

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**Indian Institute of Information Technology Kottayam**

April 2026

B.Tech. Electronics and communication engineering

## COURSEWORK

VLSI Design: CMOS Design, FPGA Implementation; Digital Signal Processing: Fourier Transforms, Filter Design; Embedded Systems: Microprocessors and microcontrollers; Internet Of Things and Wireless sensor Network

## SKILLS

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**Languages:** C, Embedded C, Verilog , MATLAB editor , VHDL , HTML/CSS

**Tools:** GitHub, VS Code, Figma , MATLAB , EDA Playground, Keil ,LT SPICE

**Protocols:** SPI, UART, I2C, USB, CAN

**Hardware:** Arduino, Raspberry PI, LPC1768, 8085 Microprocessor, Vega Processor

## EXPERIENCE

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**Hardware Intern** | *VVDN Technologies*

June 2024 – July 2024

- Gained hands-on experience in creating detailed electronics product documentation, including specifications, BOM analysis, and component selection strategies tailored to cost-efficiency and manufacturability.
- Developed working knowledge of communication protocols such as SPI, UART, and I<sup>2</sup>C, contributing to integration support in prototype development and debugging phases.

**ELIX Club** | *Documentation Lead*

Sept. 2023 – Present

Electronics Club of IIIT KOTTAYAM

- Developed comprehensive documentation strategies that improved communication clarity among team members, resulting in a 30 % increase in participation rates for club activities and events within four months.
- Initiated and led a feedback mechanism for workshop participants, gathering actionable insights that improved future events, resulting in a 100% satisfaction rate among attendees and solidifying a commitment to ongoing professional development.

**Intern-EMERTXE** | *Embedded Internship*

Feb 2024 – April 2024

- Foundational Programming Skills in C & Micro-Controllers
- SDLC Based Project Building in Embedded Systems
- Collaborated in both individual and team-based projects with a strong emphasis on problem-solving, system debugging, and iterative prototyping.

**ALU Implementation using Verilog** | *Verilog HDL, Simulation and Testing, EDA Playground*

2025

- \* Designed and implemented a 4/8/16-bit Arithmetic Logic Unit (ALU) using Verilog HDL, capable of performing a range of arithmetic and logical operations, optimized for simulation and hardware testing.
- \* Developed a modular and parameterized ALU in Verilog HDL, supporting core operations like addition, subtraction, AND, OR, XOR, NOT, shift operations, and comparison.
- \* Demonstrated understanding of RTL design, datapath architecture, and digital circuit fundamentals.

**IoT-Based Elderly Monitoring System** | *Personal Project, Arduino, IoT*

2025

- \* Designed and implemented a wearable IoT device for elderly care that tracks step count, detects falls, and monitors environmental conditions (temperature, pressure, humidity, and rainfall).
- \* Enabled 100% wireless data transmission via Bluetooth to mobile apps for real-time monitoring and alerts.
- \* Integrated sensors with Arduino to capture real-time data and used a Bluetooth module for wireless transmission to a mobile application, safety and quality of life for elderly users through proactive health and environment tracking.

**Smart Home Automation System** | *Arduino, Bluetooth (HC-05), Embedded C, IoT*

2025

- \* Built a smart home system using Arduino to monitor temperature, humidity, fire, and rain, achieving over 90% accuracy in environmental detection.
- \* Integrated 4+ sensors with Bluetooth-based control via a custom Android app, enabling real-time alerts for safety and weather conditions.
- \* Programmed efficient embedded C code for sensor data handling, reducing system latency to  $\leq 1$  second for critical notifications.
- \* Achieved a modular and scalable design, reducing hardware complexity by 30% and enabling easy future sensor expansion.

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**CERTIFICATIONS**

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**MATLAB Onramp** | *MathWorks*

March 2024

**VLSI for Beginners** | *NIELIT Calicut*

March 2024

**DIR-V Vega Processors Workshop** | *IIIT Kottayam C-DAC Trivandrum***Languages:** Tamil(Native), English, Telugu