

# Ryyan Safar

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Certificate Drive: Available upon request

| Education                              | Institute/School                                     | Year    | CGPA      |
|--|--|---------|-----------|
| B.Tech., Electronics and Communication | Rajagiri School of Engineering and Technology, Kochi | 2023–27 | 8.60      |
| CS50 Introduction to Computer Science  | HarvardX   | 2024    | 10        |
| ISWDP (Full Course Completion)         | IISc Bangalore, Samsung Semiconductor, Synopsys      | 2025    | Completed |
| Class 12, CBSE                         | Naipunya Public School, Thrikkakara                  | 2020–22 | 8.7       |
| Class 10, CBSE                         | Rajagiri Public School, Kalamassery                  | 2019–20 | 10        |

## CAREER OBJECTIVE

- Aspiring Electronics and Communication Engineer with a passion for building automation systems and intelligent machines. Seeking opportunities to apply technical knowledge in robotics, embedded systems, Chip Design and motion control while driving impactful innovations. Eager to contribute to collaborative projects, optimize real-world solutions, and grow as a tech leader in the intersection of hardware and software.

## PROFESSIONAL EXPERIENCE

- Research Intern** | *AugsenseLab* May 2025 – Jun 2025
  - Built real-time IMU + GNSS sensor fusion system using Kalman Filter, achieving centimeter-level positioning accuracy.
  - Developed Flask-based dashboard for visualizing live sensor streams and weather data using NetCDF models.
  - Designed precipitation prediction tool integrating proprietary sensing data with forecast models.
  - Enhanced rapid prototyping and debugging skills across embedded–software interfaces.
- Technical Coordinator & Social Media Manager** | *TeamApt Academy LLP* Sep 2024 – Present
  - Designed, built, and maintain **teamapt.in** using Flask, HTML, CSS, and JavaScript.
  - Built and deployed **teachers.teamapt.in** as student management portal for attendance and academic records.
  - Implemented monthly report downloads and automatic status updates upon completion of fixed class targets.
  - Manage official social media channels, content scheduling, and engagement analytics.
- Vice President** | *SOCIAL – Student Open Collaboration for Innovative Applications* Nov 2023 – Jan 2025
  - Led technical and outreach initiatives for campus-wide innovation programs.
  - Organized workshops and speaker sessions on social entrepreneurship and tech-for-good.
  - Contributed to content creation for student newsletter "**Chronicles**", featuring student-led innovations.
- Campus Ambassador** | *Perplexity AI – Comet Program* Oct 2025 – Dec 2025
  - Represent Perplexity AI across university networks, promoting responsible AI adoption.
  - Generated verified outreach leads and provided user feedback to improve campus engagement.
- Millennium Fellow, Class of 2025 (Alumni)** | *UN Academic Impact & Millennium Campus Network* Aug 2025 – Dec 2025
  - Selected from 60,000+ global applicants, representing APJ Abdul Kalam Technological University.
  - Led "**Overflow Ends With Us**" – semester-long sustainability initiative on smart waste disposal.
  - Engaged in leadership webinars to strengthen project management, budgeting, and strategic planning.
  - Earned completion certificate from United Nations Academic Impact and Millennium Campus Network.

## TECHNICAL SKILLS

- Programming Languages:** C, C++, Python, Embedded C, Verilog HDL, SystemVerilog, Java, SQL, HTML, CSS, JavaScript.
- Hardware Platforms:** Raspberry Pi, ESP32, Arduino, NodeMCU, 8051 Microcontroller, FPGA (Xilinx), IMU/GNSS sensors, Actuators (Servo, Stepper, DC Motors).

- **Tools & Frameworks:** Flask, Next.js, Node.js, OpenCV, TensorFlow, NumPy, Matplotlib, NetCDF4, wrf-python, ROS2, Git, Docker.
- **Databases:** MySQL, MongoDB, Supabase, Firebase, PostgreSQL.
- **Operating Systems:** Linux (Ubuntu, Arch, Raspberry Pi OS), macOS, Windows.
- **Domains of Interest:** Embedded Systems, Robotics, Sensor Fusion, Linux Systems and Kernel, Data Visualization, Cloud Computing, Chip Design.

## POSITIONS OF RESPONSIBILITY

- **Co-Section Student Representative | IEEE Kerala Section** *Jan 2025 – Dec 2025*
  - Representing over 20,000 IEEE student members across Kerala.
  - Coordinating statewide LINK initiatives and student engagement programs.
- **LINK Representative | IEEE RSET Student Branch** *Jan 2025 – Dec 2025*
  - Liaison between IEEE LINK and RSET Student Branch for technical event coordination.
- **Technical Coordinator | IEEE RSET Student Branch** *Mar 2024 – Jan 2025*
  - Provided technical assistance for workshops; automated certificate workflows using Google AutoCrat.
- **Technical & Professional Development Coordinator | IEEE India Council** *Apr 2024 – Dec 2024*
  - Assisted in organizing AISWYLC'24 and R10 Code-a-thon; contributed to technical content and outreach.
- **3D Printer In-Charge & Mentor | TinkerSpace Kochi** *Jan 2026 – Present*
  - Manage and maintain Bambu Lab P1S and A1 mini printers for community prototyping.
  - Mentor for Tink-Her-Hack 4.0 and regular sessions on CS fundamentals and hardware introduction.
  - Built `tinkerspace-3d-printing-queue.vercel.app` to streamline print requests.

## SELECTED PROJECTS

- **Tinkerbluds – Agricultural Land Validation Platform** *Python ∩ FastAPI ∩ Google Earth Engine ∩ XGBoost ∩ Supabase ∩ Leaflet*
  - Built ML-based farmland verification using Sentinel-1/2, SRTM terrain, ESA WorldCover feature fusion.
  - Implemented fraud detection using geospatial overlap logic and PASS/REVIEW/FAIL scoring pipeline.
- **OpenBreadboard (Open Source, Work in Progress)** *Web Platform ∩ Electronics Community Tools*
  - Building community platform for uploading IC/component datasheets and collaborative hardware connectivity mapping.
  - Targeting browser-based pre-purchase simulation support for electronics prototyping.
- **One-Bit Snake Game on NeoPixel LED Strip** *ESP32 ∩ ESP-NOW ∩ NeoPixel ∩ Custom Controller Hardware*
  - Built hardware game for TinkerSpace Space Carnival with falling colored bits on long LED strip.
  - Designed custom color-button remote and enclosure; used ESP-NOW for wireless communication.
- **LiDAR-to-Camera Height Matrix for Pothole Detection (WIP)** *Computer Vision ∩ Dataset Fusion ∩ Autonomous Navigation*
  - Built training pipeline mapping camera frames to point-cloud height data using IDD, KITTI, RSRD datasets.
  - Objective: generate accurate camera-only height matrices to reduce LiDAR dependency.
- **Ouroboros – Bio-Inspired Search and Rescue Bot** *Raspberry Pi Pico 2W ∩ L298N ∩ MPU6050 ∩ PIR ∩ 3D Printing*
  - Developed screw-drive snake robot with counter-rotating helical modules and 3D-printed ball-and-socket joints.
  - Integrated live telemetry and control dashboard for orientation and human-presence sensing in disaster scenarios.
- **Smart Glass Mount for the Visually Impaired** *ESP32-CAM ∩ Python ∩ YOLOv5 ∩ OpenCV*
  - Designed modular attachment for glasses providing obstacle detection and audio cues.
  - Awarded **Real-World Impact Award** at HackSus 4.0 among 55+ teams.
- **FPGA Sensor Fusion Verilog Validation** *Verilog HDL ∩ EDA Playground ∩ Testbench Development*
  - Transitioned from hardware prototyping to Verilog module validation on EDA Playground.

- Wrote and verified test cases for Kalman-filter-oriented sensor-fusion pipeline.

*Additional Projects:* AI-to-AI Conversational System, CNC Plotter for PCB Design, Raspberry Pi NAS with RAID, Overflow Ends With Us, Voting Machine, Sign Language Translator, Digital Stopwatch, Humidity Alert System, Dual Op-Amp Signal Generator, Automatic Street Light, Hospital Finder, Password Manager

## COMPETITIONS & RECOGNITIONS

- **KRuizex – Kochi Metro Problathon (First Prize)**
  - Conducted on-ground investigation to identify operational pain points in metro-linked urban workflows.
  - Won First Prize (February 2026) with actionable, evidence-backed intervention proposals.
- **Wildfire SAIfety**
  - Proposed AI-driven wildfire detection integrating satellite imagery and drone verification.
  - Shortlisted to penultimate round of TalenTime Idea Pitching Competition.
- **KSEB Smart Meter Alternative**
  - Conceptualized Bluetooth-enabled OCR camera module for automated meter readings.
  - Ranked among Top 10 entries nationwide.
- **Down Syndrome Companion App**
  - Designed supportive platform leveraging emotion recognition (Amazon Rekognition + GPT-4o).
  - Submitted for SlashKey 3.0 and IIC Ideathon.
- **Safe Sight**
  - Proposed surveillance analytics using YOLO and Mediapipe for real-time crime detection.
  - Implemented multi-tier alert system (Yellow, Orange, Red) for prioritized police response.

## REFERENCES

- **Academic Reference:**  
Mr. Nitheesh Kurian  
Professor, Department of Electronics and Communication  
Rajagiri School of Engineering and Technology, Kochi  
Email: nitheeshk@rajagiritech.edu.in  
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- **Professional Reference:**  
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## SELF DECLARATION

- I hereby declare that all the information provided above is true and correct to the best of my knowledge and belief.

*Last updated: March 2026*