

HARISHMARAN M

EMBEDDED SYSTEM & IOT ENGINEER

CONTACT

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SUMMARY

Motivated and detail-oriented Embedded Systems Engineer with one year of hands-on experience at NTCPWC- IIT Madras. Proven ability to design, develop, and test microcontroller-based systems, IoT solutions, and robotics platforms. Strong foundation in hardware interfacing, PCB design, real-time systems, and sensor integration. Eager to apply cutting-edge technology in solving real-world challenges in Embedded, IoT, and Robotics domains.

CORE SKILLS

- Embedded Systems:** Arduino, ESP32, NodeMCU, PIC16F877A, Raspberry pi, STM32
- Programming & Tools:** C, Python, MATLAB/Simulink, Arduino IDE, KiCad, Proteus, AutoCAD
- Protocols:** I2C, SPI, UART, MQTT
- IoT Development:** Sensor interfacing, wireless communication, cloud integration
- Robotics:** ROS2, Motor control, obstacle avoidance, bipedal mechanisms
- PCB Design:** Schematic capture, PCB layout, prototyping
- Debugging & Testing:** Logic analysis, signal tracing, real-time debugging

EDUCATION

- B.E. Electronics and Communication Engineering
- Shanmuganathan Engineering College, Tirumayam (Anna University)
- CGPA: 7.67 | 2020 – 2024

TECHNICAL

COMPETITIONS

- AVINYA 2023 – II Prize, State-Level Project Expo – KCG College of Technology, Chennai
- INTERPRONIX'23 – Special Prize, National Project Contest – KRCE, Trichy
- TECHBIZZARD 2022 – I Prize, Circuit Debugging – Kings College of Engineering
- National Tech Exhibition – Participant – Dr. Ambedkar Institute of Technology, Karnataka

LANGUAGES

- English (Professional)
- Tamil (Native)

PROFESSIONAL EXPERIENCE

Embedded Systems & IoT Engineer

National Technology Centre for Ports, Waterways and Coasts (NTCPWC)- Indian Institute of Technology, Madras (IITM) – Oct 2024 – Present

- Developed vision-based and LIDAR-enabled autonomous systems for robotics applications.
- Built IoT-enabled hardware for real-time monitoring and automation in research setups.
- Integrated face recognition and voice assistant modules for smart robot interaction.
- Designed, debugged, and deployed embedded hardware prototypes for project testing.

PROJECTS

Saagar – Autonomous Service Robot

- Designed and implemented a smart indoor robot featuring autonomous navigation, face recognition, and voice-based interaction. Integrated camera and LIDAR sensors for obstacle detection and path planning. Enabled wake-word activation and AI chatbot responses using Picovoice and Google Gemini API.

Advanced Safety Head Shield for Bike Riders

- Smart helmet using Arduino with accident detection and emergency alerts for rider protection.

Artificial Bipedal Prosthetic Robot

- Built a robotic leg system mimicking bipedal motion to assist leg-disabled individuals.

CERTIFICATIONS & COURSES

- Embedded Systems & IoT – NSIC Technical Services Centre, Chennai
- MATLAB & Simulink Onramp – MathWorks
- IoT using Python & Raspberry Pi – TOP ENGINEERS at IIT Madras
- Embedded Real-Time Applications (PIC & Arduino) – SEC

DECLARATION

I hereby declare that all the details furnished above are true to the best of my knowledge