

AKSHADA WAGHMODE

Embedded Engineer

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📍 Pune, India

SUMMARY

Embedded Systems Engineer with hands-on experience in **automotive embedded development and firmware design**. Skilled in **Embedded C, STM32, ESP32, and CAN communication** with practical experience in **sensor integration, ECU-based control systems, and real-time embedded applications**. Contributed to **automotive safety and transmission automation systems** currently under **government patent process**.

EDUCATION

PG Diploma in Embedded System and Design

Sunbeam Institute of Information Technology, Pune- Karad

📅 03/2024 - 08/2024 📍 Pune

Bachelor of Technology in Electrons and telecommunication (BTech ETC)

DKTE'S Textile and Engineering Institute - An Autonomous Institute

📅 2019 - 2023 📍 Ichalkaranji

Maharashtra State Board of Secondary and Higher Secondary Education

A.K. Jr College of Science Atpadi

📅 2017 - 2019 📍 Atpadi

PROFESSIONAL EXPERIENCE

Setco Auto Systems Pvt. Ltd.

Research & Development Graduate Engineer Trainee

📅 11/2025 – Present 📍 Baner, Pune

Project: Alcohol Detection & Engine Locking System (Automotive Safety)

- Developed an embedded vehicle safety system that prevents engine start when driver BAC exceeds the defined threshold.
- Integrated **MQ3 alcohol sensors** for real-time alcohol detection near the driver cabin.
- Implemented **ECU-based engine locking logic** to disable engine cranking under unsafe conditions.
- Designed a **real-time alert system** with buzzer notifications during alcohol detection.
- Implemented **speed restriction logic (40 km/h)** with automatic hazard light activation.
- Integrated **GPS-based emergency alert system** to send location notifications to emergency contacts.
- Contributed to a **government patented automotive safety system**.

Research & Development Intern

📅 May 2025 – Oct 2025 📍 Baner, Pune

Project: Manual to Automatic Transmission Conversion System

- **Worked on** project, a system that converts manual transmission vehicles to automated clutch operation.
- **Developed** plug-and-play embedded control unit **mounted on the clutch pedal without modifying OEM wiring**.
- **Integrated** brake pedal and gear position sensors **to detect driver inputs**.
- **Acquired vehicle parameters like** speed, RPM, and gear position via OBD communication.
- **Implemented** embedded control logic for intelligent clutch actuation.
- **Assisted in** vehicle-level testing, debugging, and real-time validation.
- **Contributed to a** government patented transmission automation system.

PROJECTS

Vehicle Automation System Using CAN Protocol

📅 Jun 2024 – Jul 2024 | Pune

Platform: Embedded C

- Designed a **CAN-based vehicle automation system** using STM32 and MCP2551 CAN transceiver.
- Implemented **sensor data communication between CAN nodes**.
- Controlled actuators based on received CAN messages.
- Displayed system status using **LCD interface**.

SKILLS

Programming Language:

Embedded C, C++

Communication Protocols:

CAN, I2C, SPI, UART

Embedded Platforms:

STM32, ESP32, Arduino, Raspberry Pi

Development Tools:

STM32CubeIDE, Arduino IDE

Core Concepts:

Embedded Systems, Sensor Interfacing, ECU Logic, OOP, DSA

TRAINING / COURSES

- Internship Certification – Edgate Technology Pvt. Ltd.
- Internship Certification – Setco Auto Systems Pvt. Ltd.