AMOGH H

Full-Stack Mobile, AI & Embedded Systems Engineer

9108555712

amogh.harsha2501@gmail.com

Mysore Karnataka

Portfolio Website

EDUCATION

B.E. in Electronics and Communication Engineering

National Institute of Engineering (NIE), Mysuru

2022 - 2026 (June)

STRENGTHS

- Rapid prototyping & problem solving
- Strong debugging ability (firmware & software)
- End-to-end product development
- Clean architecture & scalable design
- Self-driven, fast learner, execution-focused

About Me

Engineer skilled in AI, computer vision, Android development, and embedded systems. Experienced in building real-time detection systems (YOLO, DeepSORT) and production-ready mobile apps using Kotlin/Flutter. Strong at designing deployable full-stack and embedded solutions end-to-end.

PROJECTS

TimerX App Screen Time Management App

Kotlin, Jetpack Compose, Firebase, Google Analytics, Next.js

→ Built a production-ready Android productivity app to manage screen time using timers, overlays, wait locks, and app-usage tracking.

→ Implemented Firebase Analytics to study user behaviour and optimise usage flows.

→ Published on Play Store with consistent updates and feature rollouts.

Play store link: TimerX

Vodel – Cross-Platform Day Counter & Habit Tracker

Flutter, Firebase Auth, Firestore, Next.js, AdMob

→ Developed a full-stack, cross-platform day counter and habit-tracking app for Android and Web, backed by Firebase services.

→ Implemented real-time sync using Firestore, secure authentication, and platform-consistent data structures.

→ Built and deployed a responsive Next.js web app on a custom domain with routed navigation and SEO-friendly pages.

Play Store: Vodel | Web App: Vodel Web App

AI-Powered Behaviour Detection System

YOLOv8, DeepSORT, MediaPipe, PyTorch, OpenCV

→ Building an intelligent surveillance system capable of detecting abnormal actions like running, fighting, and loitering.

→ Implemented a multi-object tracking pipeline using YOLOv8 + DeepSORT with stable ID association.

→ Integrated pose estimation for behaviour classification and event pattern detection.

→ Target output includes an alerting dashboard with incident snapshots and downloadable video clips.

SKILLS

- **Languages:** Python, C/C++, Kotlin, Dart, JavaScript, Embedded C, Java
- **Frameworks**: OpenCV, PyTorch (inference), MediaPipe, Flask, Streamlit, Next.js, Flutter, Jetpack Compose
- **AI & CV Tools:** YOLOv5/YOLOv8, OpenCV DNN, DeepSORT, NumPy, Pandas, Matplotlib
- **Mobile & Cloud:** Firebase (Auth, Firestore, Analytics, AdMob), Jetpack Compose
- **Embedded & Hardware:** ESP32, Arduino, LPC1768 (ARM Cortex-M3), Sensors (DHT22, MQ135, DS18B20), BLE GATT
- **Tools:** Git, Figma, Blender, Jupyter/Colab

Real-Time Object Detection Using YOLO

Python, OpenCV, YOLOv5/YOLOv8, NumPy

→ Implemented real-time object detection pipelines for images and live video using YOLO models.

→ Performed preprocessing, inference, post-processing, and bounding-box visualisation using OpenCV.

→ Achieved ~20–30 FPS on webcam with YOLOv5s while exploring speed–accuracy tradeoffs and model scaling.

→ Evaluated CPU/GPU performance and tuned inference for deployment use cases.

IoT-Based Real-Time Environmental Monitoring System

ARM Cortex-M3 (LPC1768), DHT22, MQ135, UART, ADC

→ Designed and developed an embedded environmental monitoring system capable of measuring temperature, humidity, and air quality in real time.

→ Implemented 12-bit ADC interfacing for MQ-135 to compute CO_2 ppm values and a UART communication layer for serial data output.

→ Programmed precise timing-based data acquisition for the DHT22 sensor (start pulse, response phases, 40-bit data sequence).

→ Demonstrated accurate environment readings with real-time alerts for threshold breaches.

WORK EXPERIENCE

Embedded & Mobile Software Intern — Genius Industrial Services (Ongoing — Ending Soon)

Sep 2025 – Present | Mysore, Karnataka | Hybrid

→ Developed Flutter app with BLE GATT for real-time heater control and sensor monitoring.

→ Built ESP32 firmware with WiFi, DS18B20 sensing, and relay-based control, improving stability and reducing BLE drops.

→ Collaborated with hardware + product teams to integrate mobile, firmware, and backend components for pilot deployment.

Skills: Flutter, BLE GATT, ESP32, Firmware, Firebase

Embedded Systems Intern — 3Zero

Jul 2024 – Jan 2025 | Mysore, Karnataka | On-Site

→ Delivered embedded solutions involving sensor interfacing, PCB debugging, actuator control, and microcontroller firmware.

→ Supported prototype-to-production work across mechanical, electrical, and software teams.

→ Strengthened embedded C/C++, hardware debugging, and real-world system integration skills.

Skills: Embedded C/C++, Microcontrollers, Sensors, Actuators, PCB Debugging