Hussien Ahmed Fahmy

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Summary

Mid-Senior Android Engineer with **4+ years** building production applications for leading **e-commerce** brands, a **UK government transport authority**, a **European telecom**, and secure communication systems for a **government defense client**. **Kotlin, Jetpack Compose, and KMP/CMP**, with hands-on work across **cameras and on-device ML, GPS and maps, SIP calling, XMPP messaging, hardened mobile security**, and **Ktor** backends.

I build end to end and learn whatever the idea needs. Alongside Android, I designed and built a **BLE wearable solo**: custom **4-layer PCB**, embedded firmware, **Compose Multiplatform** app, and backend, self-taught through **electronics, PCB design, and 3D CAD**. Currently extending to **iOS** through KMP.

Experience

Mid-Senior Android Engineer Nov 2024 – Present
Robusta Studio - RTG *Cairo, Egypt · Hybrid*

- Optimized checkout performance achieving **83% reduction** in loading time (from 12-15 seconds to 2-4 seconds) by analyzing and enhancing GraphQL queries and refining business logic.
- Led complete migration of e-commerce application from **Epoxy/XML** to **Jetpack Compose**, implementing **MVI pattern** with custom state management while supervising team members and conducting code reviews.
- Developed complex features including **Loyalty** and **Gift Card** systems with backend-configurable toggles and custom animated UI components using **Compose Canvas**.
- Integrated payment gateways: **Payfort** via native SDK and **Paymob** via a centralized WebView implementation.
- Participated in **KMP (Kotlin Multiplatform)** refactoring code reviews, analyzing shared data and business logic modules across platforms.
- Performed cross-project **code reviews** for secondary e-commerce applications and a picker app.
- Contributed actively to weekly Android team sessions: teaching colleagues Android internals and new libraries, sharing hands-on experience, and championing **AI-assisted development** workflows that accelerate feature delivery and debugging.

Android Developer (Freelance) Oct 2022 – Oct 2024
UK Transport Authority *Remote*

- **Sole Android developer**: designed, developed, and maintained Android, **Android Auto**, and **Android Automotive** applications for intelligent transport systems, using **Kotlin, XML, and Jetpack Compose**.
- Architected an Android & Automotive in-vehicle signage app delivering warnings directly to a **Polestar** head unit (**Android Automotive OS**), successfully tested at **Warwick University** and featured in an LCRIG **press article**.
- Created a road safety app (**Google Maps, Mapbox**, real-time comms via **MQTT** and **SignalR**) delivering radar-detected pedestrian warnings in-car, demonstrated at the **LCRIG Innovation Festival** and by the **Transport Technology Forum**.
- Trained and deployed a **TensorFlow Lite** model processing **CameraX** frames to detect vehicles for a driver safety measuring app.
- Developed a city safety app displaying live **location** of all road user types (cyclists, cars, buses, pedestrians), with **SOS** alerts and road hazard warnings for nearby users.

Android Developer (Freelance) May 2024 – Oct 2024
Informatika projekt d.o.o. – Telecom, Croatia *Remote*

- **Sole developer of the entire system** (Android app and backend): architected **multi-module Clean Architecture** with a shared Kotlin module for type-safe API contracts between the Android client and **Ktor** server, across Data, Domain, and Presentation layers.
- Implemented a **7-layer security system**: Talsec RASP for root/debugger/emulator detection, custom **C++ native module** for Frida detection via process scanning and memory analysis, hardware-backed **AES-256 encryption** with Android Keystore, **SQLCipher** database encryption, ProGuard/R8 obfuscation, LSParanoid string encryption, and **certificate pinning**.

- Engineered system-level **call/SMS interception** using CallScreeningService and high-priority BroadcastReceiver meeting Android's **5-second** response window, with real-time reporting, network state awareness, and retry handling.
- Integrated **SIP** calling through Android's **PhoneAccount / ConnectionService** APIs so calls are placed and received in the **native dialer**, with registration, call state handling, audio routing, and **call recording**.
- Built a production **Ktor REST API backend** with **MySQL** and Exposed ORM, HTTP Basic Authentication, Koin dependency injection, and **Docker** containerization with multi-stage builds and Docker Compose.
- Built a device **telemetry system** (WiFi/GSM signal strength, battery, GPS with a **multi-tier fallback** across fused, GPS, and network providers down to last-known location) using parallel **coroutines**, plus an **OTA APK update** mechanism with remote version checking and automatic installation.

Junior Android Developer Nov 2023 – Oct 2024
Inova *Cairo, Egypt*

- Developed a secure **XMPP** chat application in Java and **RxJava** (with Kotlin) for a **closed-network government client in the defense sector**, featuring message/file **encryption**, voice recording, **CameraX** photo/video capture, root detection, and USB debugging prevention, with custom UI for **tablet** and phone.
- Achieved **30% CPU** and **80% memory usage** improvements by monitoring performance metrics, identifying bottlenecks, and implementing targeted optimizations.
- Modernized a **legacy** Java codebase by refactoring to **MVVM** with **Single Activity architecture** and **Jetpack libraries** (Navigation, LiveData, Room, Hilt) for improved maintainability.
- Collaborated with cross-functional teams to define, design, and ship features, provided **technical guidance** to colleagues, and maintained technical **documentation** for knowledge sharing.
- Gained exposure to **MDM (Mobile Device Management)** solutions, working on an app deployed to managed devices in a closed-network environment.

Android Developer (Freelance) Oct 2022 – Oct 2024
Upwork · Top Rated, 100% Job Success *Remote*

- Completed **20 contracts** (374 hours) covering in-app purchases and subscriptions, survivable background services, GPS tracking, offline data capture, and SDK migrations, all rated **5 stars**.

Call Center Agent (Medical Representative & Outbound) Feb 2022 – Oct 2023
J-Technology – Saudi German Hospital *Cairo, Egypt*

- Handled patient inquiries and appointment scheduling, provided floor support for complex cases, and **trained and mentored new hires**, recognized for leadership, while self-learning Android development in parallel.

Projects

Soulbond – BLE Wearable *PCB Design, Zephyr RTOS, BLE, Compose Multiplatform, Ktor*

- Designed and built a BLE wearable **end to end, solo**: custom **4-layer PCB** (nRF52840, nPM1300 PMIC, capacitive touch sensing) designed in EasyEDA Pro, **Zephyr RTOS** firmware with **OTA firmware updates over BLE**, a **Compose Multiplatform (KMP)** companion app, and a **Ktor** backend.
- Implemented BLE GATT services, I2C sensor drivers, power management, a custom Zephyr board definition, and an SWD flash/debug workflow, plus hands-on **hardware prototyping** (soldering, breadboard bring-up) and a **3D-printed enclosure** designed in **Fusion 360**. **Self-taught** PCB design, embedded firmware, and CAD in months, accelerated by **AI-assisted engineering** workflows.

GPA Manager *Kotlin, Compose, Flow & Coroutines, Room, Firebase, CI/CD* Playstore | Source Code

- Published and maintain an **open-source** GPA management app with **16K+ downloads** across **80+ universities** worldwide, running on a live Firebase backend with an automated **CI/CD** publishing pipeline (GitHub Actions, Fastlane).

MeFab *Compose, Slot-API, Motion Layout, Maven Central* Source Code

- **Published UI library on Maven Central**: a draggable Floating Action Button with up to three mini actions that animate their positions to fit the screen while dragging.

Other Projects *Multi-Module Architecture, Backend, Docker*

- Calory Tracker: multi-module Compose app, each feature split into data/domain/presentation layers with per-layer Hilt modules. Ktor Chat Server: dockerized real-time chat backend with **WebSockets**.

Technical Skills

Languages	:	Kotlin, Java.
Android	:	Jetpack Compose, Coroutines & Flow, Navigation, CameraX, Room, Hilt/Koin, MVI, MVVM.
Multiplatform	:	Kotlin Multiplatform (KMP), Compose Multiplatform (CMP), iOS (in progress).
ML & Vision	:	TensorFlow Lite, on-device object detection, CameraX frame processing.
Embedded	:	Zephyr RTOS, Nordic nRF52 (nRF Connect SDK), BLE (GATT/NUS), I2C/SPI, PCB design (EasyEDA Pro), 3D CAD (Fusion 360), soldering & breadboard prototyping.
Backend	:	Ktor, Exposed ORM, MySQL, Docker, REST APIs.
Networking	:	Retrofit, GraphQL, MQTT, SignalR, WebSockets, XMPP.
Telephony	:	SIP, ConnectionService/PhoneAccount, CallScreeningService, call & SMS interception.
Security	:	Android Keystore, SQLCipher, certificate pinning, obfuscation, RASP, Frida detection, native anti-tampering.
Testing	:	Unit Testing, Integration Testing, UI Testing, Mocks & Fakes.
CI/CD	:	GitHub Actions, Fastlane (publishing pipeline).
AI Tooling	:	AI-assisted development integrated into daily work: code generation, reviews, debugging, and rapid learning of new domains (embedded, PCB design).
Others	:	Linux, self-hosted infrastructure, Firebase, Python scripting.

Education

Ain Shams University — Cairo, Egypt
Bachelor of Science · Very Good — *Sep 2017 – Aug 2021*

Certifications

- The Jetpack Compose Masterclass
- Mastering Automated Testing of Industry-Level Android Apps
- The Kotlin Coroutines & Flows Masterclass
- Building Industry-Level Apps With Multi-Module Architecture
- The Canvas Masterclass with Jetpack Compose
- Nanodegree in Advanced Android Kotlin Development

Student Activity

Summation Team — Oct 2019
Scientific Research – Team Leader & HR — *Ain Shams University*

- Led a research team on bio-plastic production from waste materials, achieving **4th place** in Ain Shams Innovates and honored in the presence of **Dr. Farouk El-Baz**.

Personal Information

Birth-date	:	Dec. 1998
Military status	:	Permanently exempted