



## Phase 1 - Initial Architecture (in progress)

### Layer-By-Layer Explanation:

1. Flutter mobile/web app - User scans ID, uploads NTI certificate, sees Sand Dollar wallet ( Firestore SDK realtime )
2. ReadID SDK ( OCR MRZ + QR ) - returns signed payload; app POSTs to IssueToken()
3. Cloud Function - id (issuetoken) - verifies payload, mints FIREbase Custom Token → user authenticated.
4. Firebase Auth - stateless provider; enforces firestore rules.
5. Cloud Function - tasks (verifyCert, awardTokens, redeem) - business logic layer.
6. Firestore DB (Hub) - users, wallet, tasks, taskLogs, storeItems. - Realtime streams to app & dashboard.
7. Flask Admin CMS - staff CRUDS tasks/store via REST to Firestore.
8. React Dashboard - streams KPI docs for live charts ( read- only)
9. Reward Layer - HTTP endpoint returning voucher PINs; CF redeems tokens here

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## Phase 2 - SSI Layer

1. Keycloak - Identity + access management → User auth
2. Veramo - Verified credentials + Decentralized Identity management
3. ACA-PY - Digital wallet for DID management

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