

# Ardian Sinurat

Civil Engineer & Automation Developer

Palembang, Indonesia · [ardiansinurat.id](https://ardiansinurat.id) · [github.com/ardiansinurat](https://github.com/ardiansinurat)

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## SUMMARY

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Civil engineer working on irrigation and agricultural infrastructure in South Sumatra and Lampung: tertiary canal design, cost estimates, design reviews and construction supervision. I build the software that work needs — a supervision platform in daily use on seven rice-field development packages, a canal design studio that turns survey data into drawings, cost estimates and specifications — and research cheaper ways to measure terrain. I build with AI coding agents and hold every output to a check a reviewer can follow: automated tests, PDF layout gates and recomputation against issued documents.

## SELECTED WORK

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**Sipromon** — Construction supervision platform April 2026 – present · Live

One web app for desk and field: daily progress with photo evidence, S-curves, weekly reports and approvals — in daily use on seven rice-field development packages. Key figure: **7** rice-field development packages supervised through Sipromon, Banyuasin, South Sumatra.

**Long Cross** — Canal design studio for irrigation planning August 2026 – present · Live · team only

Upload HEC-RAS geometry, field conditions and the alignment; the server rebuilds drawings, quantities and the cost estimate, and specifications read the same numbers. Key figure: **72** tertiary irrigation blocks in production across 3 schemes, South Sumatra.

**Swamp embankments from raw survey sheets** — A second input path for the canal studio

September 2026 · In development

Tidal-swamp farmland surveyed as spreadsheets, with no hydraulic model: a data contract, a checker and an embankment design step turn the sheets into drawings. Key figure: **14** embankment reaches drawn for the first village.

**Design-versus-cost review for 28 locations** — A repeatable review pipeline instead of 28 manual checks

September 2026 · In progress

Detailed designs and cost estimates for 28 locations checked against each other item by item, with review minutes and questions for the designers. Key figure: **28** locations with review minutes.

**Projevo** — Evidence and progress platform for contractors July 2026 – present · In development

A multi-tenant SaaS for contractors: daily evidence, a hash-chained proof log, payment-milestone gates and a read-only view for the client. Key figure: **18 / 18** steps passed in the end-to-end runtime check.

**KasRapi** — Cashier and cash book for small businesses February 2026 – present · Live

A web app and an offline-first Android app on Google Play: sales and cash entries stay on the phone and sync when the signal returns.

**Measuring terrain with a consumer drone** — Research on one flight, three rounds of experiments

August – September 2026 · Research

How much usable terrain can one consumer-drone flight and open models give you — and where does it stop being trustworthy? Stereo, a single photo, and the fusion of both. Key figure: **–60%** vertical RMSE after adding the barometer constraint (3.59 → 1.44 m).

**Geous** — Offline field map for Android May – June 2026 · Prototype

An offline-first field map in the spirit of Avenza Maps: basemap, live GPS, waypoints, georeferenced geo-PDF maps and track recording. Key figure: **3** stages working on device.

**ATLAS** — Running many AI coding sessions without collisions June 2026 – present · Internal

A coordination board and a strict on-disk status system that let several AI coding sessions work in parallel on one laptop without editing the same files. Key figure: **12+** work streams coordinated in parallel.

**Watercooler** — “An office that forgets” August 2026 · Open source

A browser-based, RPG-style 2D office where a conversation is visible only to whoever is in the room when it happens. Key figure: **23** headless end-to-end checks.

- Irrigation design: tertiary canal rehabilitation** — 3 irrigation schemes, South Sumatra2026
  - 72 tertiary blocks: long and cross sections, earthwork quantities, cost estimates (RAB), technical specifications and final reports.
  - Member of the RAB (cost estimate) team; built the Long Cross studio so the team could regenerate drawings and estimates whenever HEC-RAS geometry or field surveys changed.
  - Checked the gate schedule against 416 gate-structure drawings and rebuilt gate pricing from an assembly-based unit-price analysis.
- Construction supervision: rice-field development** — 7 work packages, Banyuasin, South Sumatra2026
  - IT on the supervision team: built and maintained Sipromon, the supervision app the team uses for daily and weekly reporting.
  - Progress figures in the letters recomputed from daily backups with the platform's S-curve logic and validated against an issued letter.
- Construction supervision: design versus cost estimate review** — 28 locations, Tulang Bawang & Mesuji, Lampung2026
  - On the supervision team: supervision app support and other supervision tasks.
  - Checked survey shapefiles and CAD drawings against the cost estimates item by item; review minutes per location with the questions the designers need to answer.
  - Traced the unit-price chain across all 28 estimates to find mis-referenced prices.
- Swamp-land embankment drawings** — Tidal-swamp farmland, Banyuasin, South Sumatra2026
  - Defined the survey data contract and embankment design rules; produced long sections, cross sections and site plans directly from survey sheets.
- RAB Development Team** — Sriwijaya University, Palembang05/2025 – 2026
  - Preparation and calculation of project budget plans (RAB).
  - Introduced Excel and Python automation into the calculation workflow.
- Geotechnical Surveyor** — Sriwijaya University, Palembang05/2024 – 06/2024
  - Geotechnical field surveys, data collection and documentation.
- Bachelor of Civil Engineering** — Sriwijaya University, Palembang07/2020 – present
  - Water resources, surveying and automation.

SKILLS

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| Civil engineering      | Tertiary irrigation design (KP-03 / KP-05), Cost estimates (RAB / AHSP) and unit-price analysis, Technical specifications, Design review (DED vs RAB), Construction supervision and S-curve analysis, Contract change orders, Swamp embankment design, Field and geotechnical survey |
| Survey & geospatial    | HEC-RAS geometry, KMZ / shapefile / DXF / DWG, Drone photogrammetry (feature matching, stereo), Monocular depth (MoGe-3) and MAST3R, GNSS / barometer georeferencing, Coordinate systems (UTM), Contours and DSMs                                                                    |
| Automation & data      | Python, pytest, openpyxl and Excel automation, Word document generation, PDF generation and layout checks, ezdxf, LibreOffice headless, NumPy / SciPy / OpenCV, PyTorch                                                                                                              |
| Web & backend          | TypeScript / Node.js, Express, Next.js / React, PostgreSQL (row-level security), Prisma, Redis, FastAPI, REST APIs                                                                                                                                                                   |
| Mobile                 | Installable web apps (PWA) with offline queues, Expo / React Native, Flutter, Play Store releases                                                                                                                                                                                    |
| Delivery & operations  | GitHub Actions CI, Docker / Coolify on a VPS, Railway, Vercel, Cloudflare (DNS, R2, Tunnel, Access), Sentry, Automated database backups                                                                                                                                              |
| Working with AI agents | Multi-session Claude Code workflows, Coordination board and written hard rules, Review gates: tests, layout checks, recomputation against source documents                                                                                                                           |

Generated from ardiansinurat.id, 15 September 2026. Screens, drawings and demos on the site use public pages or synthetic data; client names, project values and personal contact details are deliberately left out.