



FOR THE CODER • WALKED THROUGH SLIDE BY SLIDE

THE THESIS

**One person + AI copilot + a Meshy
3D pipeline
equals a small studio.**

*Twenty apps live • one shared asset library • Cloudflare Pages + Netlify + Cloudflare Workers •
Supabase for the commercial rail-planning tools.*

WHAT'S INSIDE

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The background is a dense, hand-drawn illustration of a workspace. It features several laptops, some open and some closed, scattered across the scene. There are multiple notebooks and sketchbooks, some with drawings and text. Several potted plants of different sizes and types are placed around the desk. A variety of stationery items, including pens, pencils, erasers, and a 'To-do List' note, are visible. There are also some small toys, like a teddy bear and a piggy bank, and a desk lamp. The overall style is warm and artistic, with a soft color palette.

Under the Hood

Architecture, pipeline, shared code

Architecture at a glance



CLIENT

single-file HTML per app (~400KB each) · vanilla JS · three.js r128 · localStorage/IndexedDB · no build step for most apps



PROXY

shared/api-keys-helper.js (Node) + per-app Cloudflare Pages Functions (functions/api/*) — API keys never leave the server



APIs

Meshy (3D generation) · Anthropic Claude (notes, translation) · Replicate Whisper (STT) · Higgsfield (renders) · Todoist (out)



STORAGE

Cloudflare KV (couple sync, own-device mirror) · Supabase (rail-planning) · localStorage/IndexedDB (Scribe)



EDGE

Cloudflare Pages · Cloudflare Workers · Netlify (lovepapadavid) — deploy via wrangler; TLS everywhere; one config repo

The Meshy 3D pipeline — drawing to dollhouse

1

Source art

Higgsfield 2K images (~2cr each) when image→3D beats text→3D. Or a photo of Arianna's drawing.

2

Image → 3D t-pose

Meshy image-to-3D (~20cr). Preview mode first; keep the reroll buffer.

3

Remesh + rig

Remesh to 120k tris. Rig h=1.2m so scale matches Story House 3D's grid.

4

Animate

3 anims per character: wave/sit/dance (~10cr). Reused via shared library.

5

Ship to phone

glTF-transform resize 512 + draco → ~0.3–1.5 MB GLB. Test on a real phone.

Fully animated character total: ~40–55 credits. 10k/month = ~200 characters or 300–400 props.

Credit economics — where the pipeline actually spends

40-55

cr per animated character

image→3D + remesh + rig + 3
anims

25-35

cr per textured prop

text→3D preview + refine

~2

cr per source image

Higgsfield when image→3D
wins

10k

credits/month on Meshy
MAX

≈ 200 characters or 300 props

Reversed the old "minimise Meshy spend" posture — the pool is meant to be spent.

Deploy stack — kept boring on purpose

CLOUDFLARE-FIRST

Most kids' apps ship as Cloudflare Pages sites.

Edge Functions (functions/api/*) proxy the paid APIs so the client never sees keys.

Deploy is a one-liner per app:
`cd app/ && npx wrangler pages deploy .`

KV bindings hold couple-sync and own-device-mirror state (Iskra).

WHERE IT DIVERGES

lovepapadavid hub is on Netlify — historical.

Workers (kitchen, suitcase, scribe) for anything that needs a token-gated cookie/API proxy at `david-c73.workers.dev` .

Supabase (project bokrkzyksnutlyzabpxp) is the spine of the commercial rail-planning tools — all commercial data has stayed inside Postgres.

The one file every app calls: `shared/api-keys-helper.js`

Single Node helper that abstracts every paid API.

Each app imports one function; environment variables handle secrets.

Same helper works locally and inside Cloudflare Pages Functions.

```
callMeshyCreate(payload)    → wraps Meshy image-to-3D / text-to-3D
callMeshyTask(id)           → polls Meshy job status
callClaudeNotes(transcript, model) → Scribe's summariser (Haiku/Sonnet/Opus)
callWhisper(audio_url)      → Replicate Whisper (pinned version hash)
callHiggsfield(prompt, aspect_ratio) → marketing renders
callTodoist(items, token)   → push action items out from Scribe
```



The Portfolio

Twenty apps sharing one warm studio

20 apps, one grid, one visual language



Story House 3D



Story House 2D



Sleeping Isles



Magic Shop



Café



Kapibara Book



Capybara Boom



Maths Quest



Travel Map



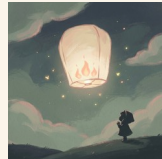
The Hollow



Garden of Words



Walkabout



Lantern Keeper



Firefly Reader



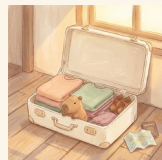
Arianna's Bookshelf



Arianna's Kitchen



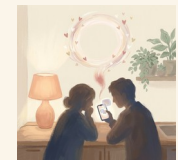
Adventure Jar



Suitcase



BriTannia'State



Iskra · Искра

Every app • category • tech • live URL

App	Category	Tech	Lives at
Story House 3D	kids • flagship 3D	three.js r128 • Meshy pipeline	story-house-3d.pages.dev
Story House 2D	kids • 2D dollhouse	vanilla JS • postbox + Keepsake	story-house.pages.dev
Sleeping Isles	kids • point-and-click	vanilla JS • inventory + NPCs	:8788 (dev)
Magic Shop	kids • business sim	vanilla JS • ledger	:8766 (dev)
Café	kids • cooking	vanilla JS • nutrition rules	:8768 (dev)
Kapibara Book	kids • picture book	vanilla JS • dress-up + camera	:8780 (dev)
Capybara Boom	kids • card game	vanilla JS • card engine	:8791 (dev)
Maths Quest	kids • pedagogy maths	vanilla JS • 6 regions	:8771 (dev)
Travel Scratch Map	kids • geography	vanilla JS • SVG world	:8769 (dev)
The Hollow	kids • cozy	vanilla JS • listening game	:8782 (dev)
Garden of Words	kids • slow-play	vanilla JS • real-day cadence	:8781 (dev)
Iskra • Искра	couples • RU/EN	vanilla JS • KV sync • i18n	iskra.pages.dev
Papa's Magic Workshop	3D • drawings→toys	three.js • Meshy image-to-3D	magic-workshop.pages.dev
Scribe	utility • voice	Cloudflare Worker • Whisper	scribe.david-c73.workers.dev
Arianna's Build World	3D • build space	three.js r128 • touch orbit	prototype
railplanning.tools	commercial • rail ops	Supabase • Postgres • multi-app	railplanning.tools



App Deep Dives

The six that show the range

APP • DEEP DIVE

Story House 3D

A walkable painterly dollhouse for phones and tablets.

LIVE

LIVE at story-house-3d.pages.dev

`code/walkabout-3d/index.html` • `single-file three.js app`

STACK

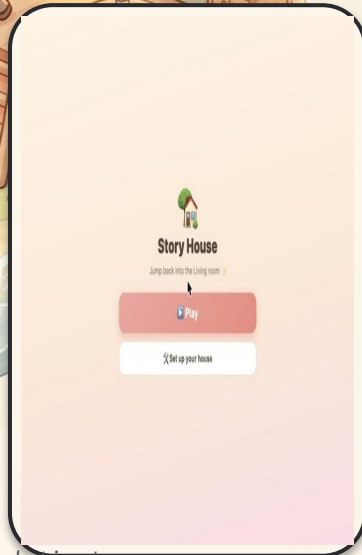
three.js r128 • custom touch-orbit camera • GLB assets • draco compression • Cloudflare Pages

HARDEST PROBLEM SOLVED

Making 38 friend-character GLBs load lazily without blowing the phone budget. Solved with a lazy Friends picker + a shared instanced prop library + gltf-transform draco.

NOVEL CHOICES

Custom animated water + lapping foam waterline in fragment shader (verified across day/sunset/night). Party button that emotes all present characters at once. Single-file HTML app — no bundler.



hero render + live screenshot inset

LIVE

The shared 3D asset library — the reason the pipeline pays off

One capybara, one tree set, one food set, one furniture set — reused across Story House 3D, Café, Magic Shop, Kapibara, Sleeping Isles.

Ship more games for less. The library is the moat.

Characters

38 friends · papa · Arianna · capybara · dog · emotes: wave (28f), sit (32f), dance (596f)

Props

hero-palm · hero-gardentree · hero-rocks · hero-hedge · food · furniture · vehicles

Places

bedroom · kitchen · living room · garden · beach · park (day/sunset/night)

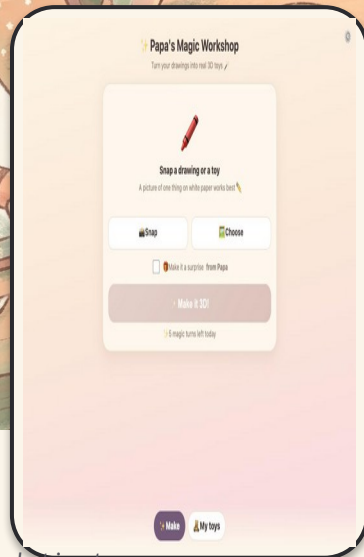
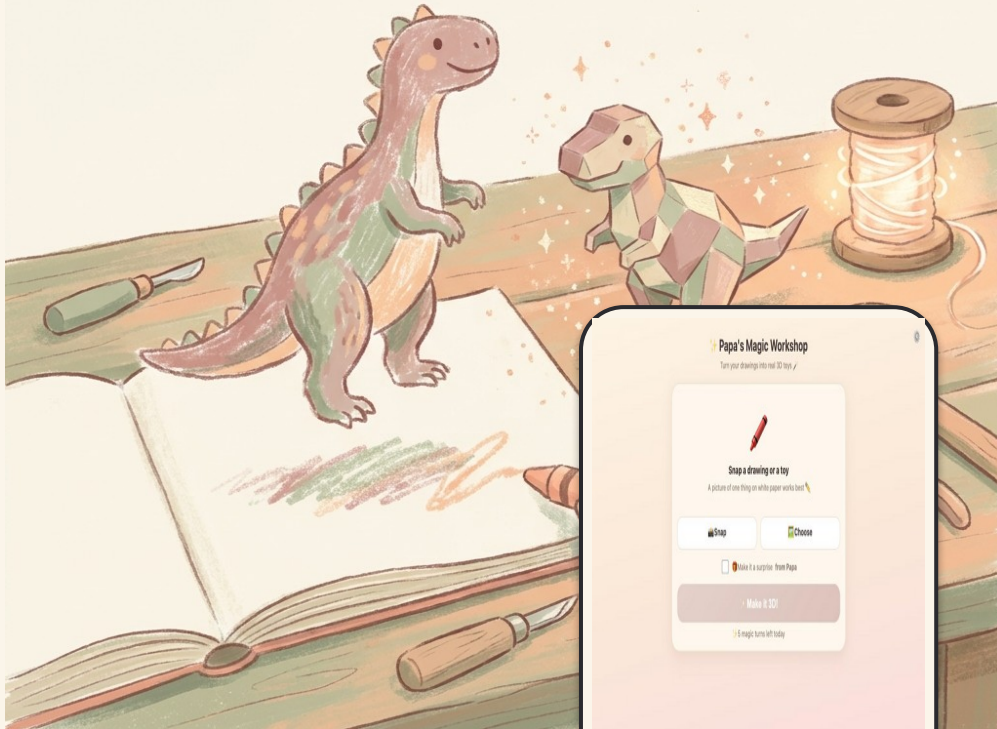
Wardrobe

dress-up v1 outfits (parent-paid packs candidate)

APP • DEEP DIVE

Papa's Magic Workshop

A drawing → 3D toy magician for phones. Print-ready STL/OBJ included.



hero render + live screenshot inset

LIVE

LIVE

LIVE at magic-workshop.pages.dev

`Nova Code/magic-workshop/ · functions/api/meshy-*`

STACK

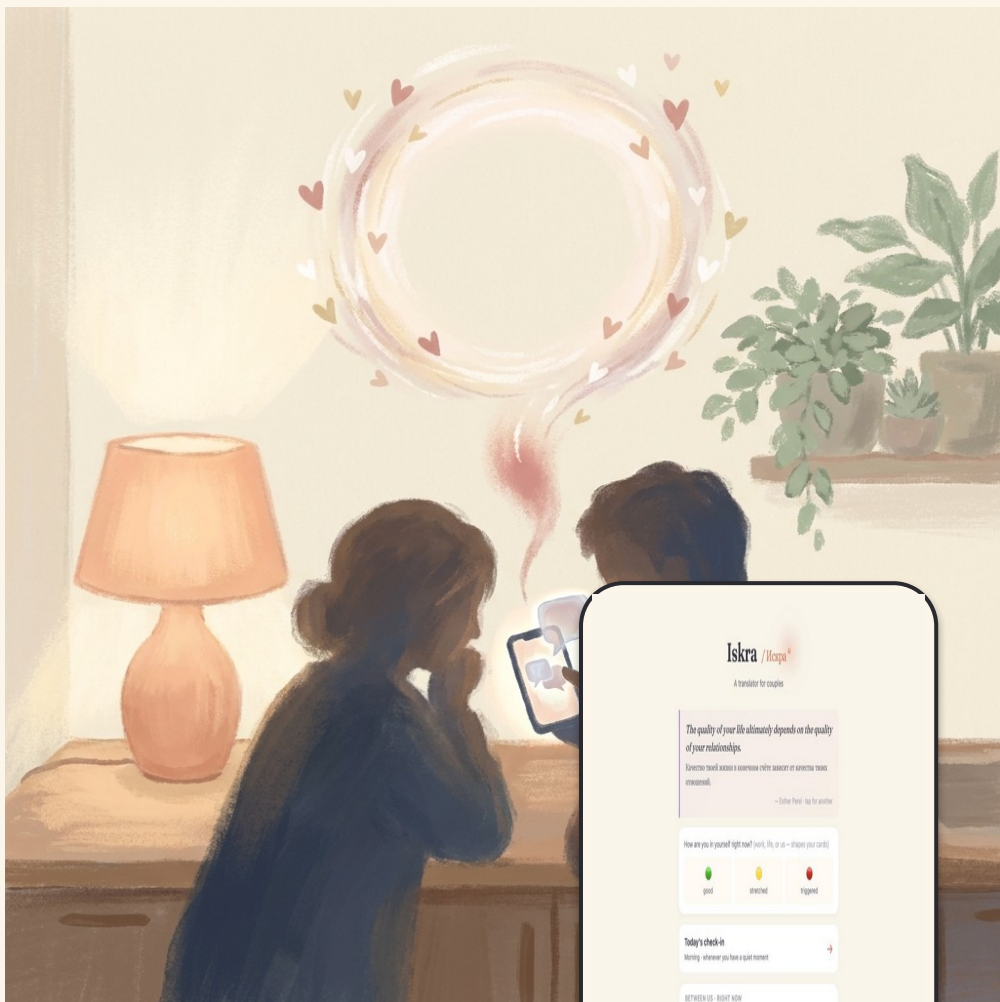
single-file HTML · three.js viewer · Meshy image-to-3D via Cloudflare Pages Functions · toy-box IndexedDB gallery

HARDEST PROBLEM SOLVED

Hybrid child-safety flow: Arianna generates instantly with a daily magic-turn cap, PLUS a 'surprise from Papa' toggle. Parent-gated settings behind a kid-resistant math gate.

NOVEL CHOICES

Two paths to production: local Node server calling shared/api-keys-helper.js; live Cloudflare uses functions/api/meshy-image-to-3d + meshy-task. Same client either way. Print-ready STL/OBJ export ties into the father-daughter 3D-printing thread.



hero render + live screenshot inset

LIVE

APP • DEEP DIVE

Iskra · Искра

Bilingual RU/EN couples app — translator, cards, together mode.

LIVE

LIVE at iskra.pages.dev

single-file HTML ~400KB · STR parity 560/560

STACK

vanilla JS · localStorage 'spark.v1' · Cloudflare Pages Functions · KV binding ISKRA_KV · en/ru STR parity 560/560

HARDEST PROBLEM SOLVED

Three sync channels, all client-encrypted: couple link (per-slot outbox in KV), own-device mirror ('Self' full-store newest-wins by `_selfRev`), and two-device live engine (host deals, guest follows, liveReconcile locks both phones to one card).

NOVEL CHOICES

Cycle/rhythms feature stays opt-in and sensitive: AI is never allowed to attribute the cycle. Brand-spark state dot: the green/amber/red 'how are you' collapses into a pulsing Iskra dot; tap to reopen. Names via `getName('partner')` — never hardcoded.



hero render + live screenshot inset

LIVE

APP • DEEP DIVE

Scribe

Otter-style voice capture for rail work, events, and personal memos.

LIVE

LIVE at scribe.david-c73.workers.dev

Cloudflare Worker · token-gated ?k= · 1-year cookie

STACK

Cloudflare Worker (Nest template) · Anthropic Claude proxy · Replicate Whisper (pinned hash) · localStorage/IndexedDB · Todoist push

HARDEST PROBLEM SOLVED

Whisper via Replicate: had to pin an incredibly-fast-whisper version hash — the model-path endpoint 404s for community models. Hidden model-picker (Haiku→Sonnet→Opus) means notes can be cheap or thorough.

NOVEL CHOICES

Local-first by design: audio + captures live in IndexedDB on the device; only the transcription API round-trips. Noted-style timestamped markers; tap a [mm:ss] to seek. Action-items export → Todoist. Cookie keeps you in for a year after one ?k= visit.



hero render (drop a live screenshot in via SWAP-GUIDE.md)

APP • DEEP DIVE

Arianna's Build World

A 3D browser build space — a soft Minecraft made by her papa.

PROTOTYPE

ariannas-build-world.html • self-contained single file

STACK

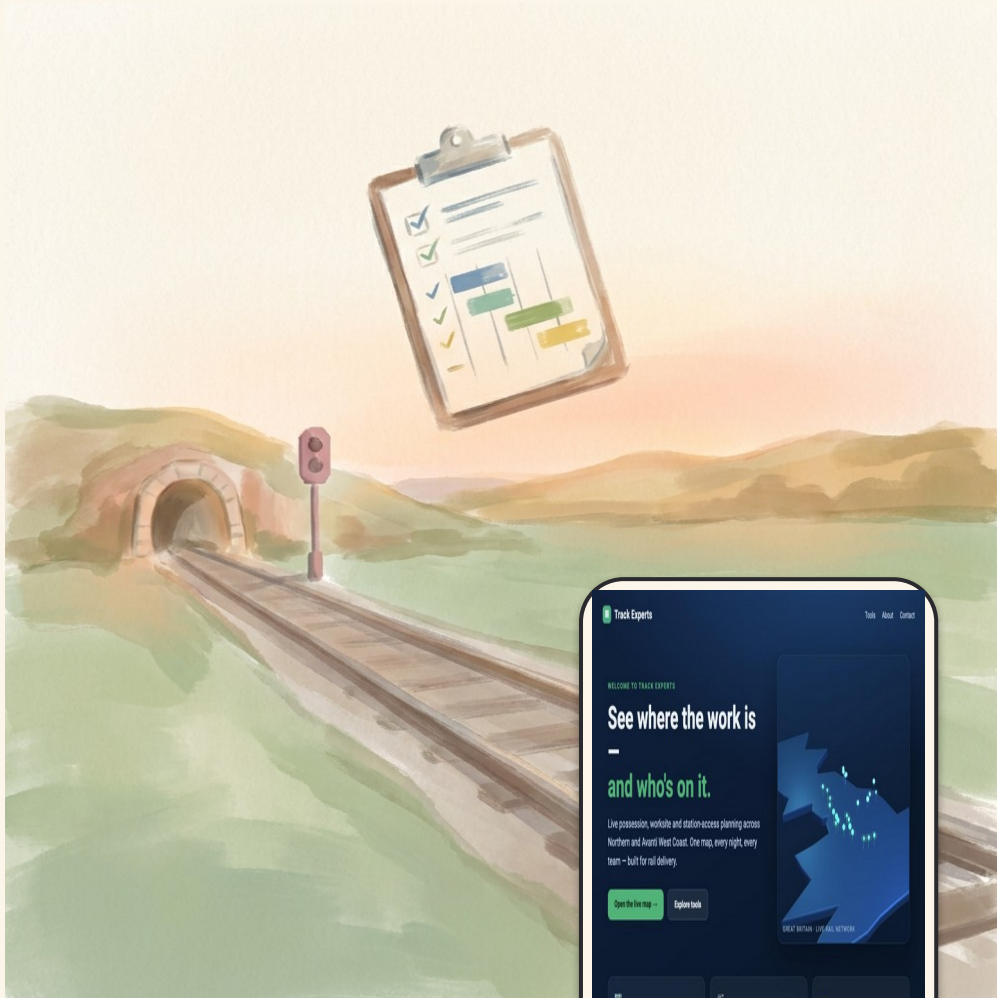
three.js r128 • custom touch-friendly orbit camera (no OrbitControls) • WebAudio synth
SFX • 16×16 integer grid + face-normal stacking

HARDEST PROBLEM SOLVED

A touch-friendly camera that reliably works on tablet fingers without dependency on OrbitControls, plus face-normal detection so she can tap a block's side or top to stack walls and towers.

NOVEL CHOICES

Deliberately no localStorage in the prototype (misbehaves in the Claude preview window). Chunky UI tuned for an 8-year-old's hands. Roadmap: swap primitives for Meshy-generated GLB models — she requests a creature, Papa generates it, it becomes a build piece.



hero render + live screenshot inset

LIVE

APP • DEEP DIVE

railplanning.tools

Commercial rail-access planning for Greater Anglia (CSS station maintenance).

COMMERCIAL

LIVE at railplanning.tools

Supabase project bokrkzyksnutlyzabpxp • TypeScript

STACK

Supabase Postgres • TypeScript apps • station_access_tags • possession_stations matcher • registers (ORF/ERAF, quote/PO)

HARDEST PROBLEM SOLVED

Modelling the three-section access hierarchy (S4/S5/S7) as opportunities vs bookings; deduping cancelled protection-staff rows; keeping human-in-the-loop with 'edited' flags on auto-extracted station lists.

NOVEL CHOICES

EAS/ARP + Network Rail week arithmetic (start Saturday) is a national NR construct — adding a new route is just loading its S4/S5/S7 sources against the same schema and tagging the stations. Rail is the quiet commercial track record funding the play studio.

The background is a dense, hand-drawn illustration of a desk. It features several laptops in various orientations, some open and some closed. There are multiple notebooks and sketchbooks, some with drawings and text. Tablets and smartphones are scattered throughout. The desk is also decorated with several potted plants of different types, a desk lamp, a mug, and various stationery items like pens, pencils, erasers, and a 'To-do List' notepad. The overall style is soft and artistic, with a warm color palette.

Reusable Pieces

The things that travel between apps

Deploy scripts & tooling

SCRIPTS THAT MATTER

scripts/deploy-3d.sh — one-liner Cloudflare Pages deploy of Story House 3D + friends/ + props/

scribe/cloud/deploy.sh — Worker deploy w/ pinned Whisper hash

code/walkabout-3d/FRIENDS-BUILD.md — the runbook. New friend? Follow the recipe: image→3D t-pose → remesh 120k → rig h=1.2 → animate.

VERIFICATION

Iskra deploy has a parse-and-STR-parity check: extract the `<script>`, new `Function()` to catch syntax errors, compare `Object.keys(STR.en)` vs `Object.keys(STR.ru)`.

Browser verify = real renders and real taps — not synthetic `.click()`. This is a rule for every app.

'`.reveal-who` is CSS uppercase → assert `textContent/innerHTML`, not `innerText`' — the kind of gotcha we now write down.

Phone + tablet guardrails — non-negotiable

~10-30k

tris per prop after remesh

characters up to 120k → draco

512px

texture size across the board

keeps GLBs 0.3-1.5 MB each

~40-60MB

total scene budget on load

instance repeated props · lazy-load like the Friends picker

real phone

every performance change gets tested here

not desktop preview, not synthetic clicks

Shared 3D asset library — one asset, five games

1

Design once

Meshy image→3D + remesh + rig on a shared spec (h=1.2m human, ~10-30k tris prop).

2

Store once

Draco-compressed GLBs in a shared props/ + friends/ tree used by all apps.

3

Read many

Story House 3D, Café, Magic Shop, Kapibara, Sleeping Isles all import the same GLBs.

4

Version

hero-* naming pattern per world (hero-palm, hero-gardentree) makes swap-and-deploy safe.

5

Sell later

Same source assets can be packaged for itch.io / Sketchfab (verify Meshy commercial licence first).

This is what turns a 20-app portfolio into a 20-app studio.



Roadmap

Open problems worth collaborating on

This month's plan — 7,000 credits budgeted

~3,500 cr

Story House 3D flagship

3-4 new places · toy/food/vehicle/furniture prop library · dress-up wardrobe v1 · new characters + hug/jump/clap emotes

~2,000 cr

Shared library + 1 cross-game pilot

Pick ONE of Café / Magic Shop / Sleeping Isles and stand up its 3D using shared assets — prove the library travels

~500 cr

Sellable-prep

One polished showcase hero room + Higgsfield marketing renders + identify 2-3 asset-pack candidates

~1,000 cr

Iteration buffer

Meshy quality varies; budget for re-gens

Open engineering problems (come play)

Cross-origin shared toy store

Magic Workshop and Story House 3D live on different origins. Need a small shared toy store the dollhouse reads so 'My toys' picker works.

Meshy output auto-compress

Raw Meshy GLBs are bigger than our draco props. Auto-compress before promoting into the dollhouse — same pipeline, one flag.

Build World save + Meshy

Add localStorage to Ari's Build World, then swap primitives for Meshy GLB pieces so she can request creatures Papa generates on demand.

Real-device perf harness

"Test on a real phone" is a manual step. A minimal capture-tap-repro harness would let a subagent verify a build without David's hands.

Multi-route rail rollout

The rail pipeline is national-NR-generic. Adding a new TOC is loading its EAS S4 PDF + Section 5 + ARP maps against the same schema. Prime for a partner.

Duet ⇌ Iskra design audit

Two apps in adjacent territory. The boundary needs an audit + verdict page — some features want to live in only one.

How this actually gets built

THE LOOP

Build → browser-verify (real renders / real clicks) → parse + parity check → deploy → confirm live.

Price the whole paid chain up front if there's a credit budget.

No invented scope. Memory files (memory/MEMORY.md and per-project *.md) carry state across threads so a new session picks up mid-build without replaying history.

THE VALUES

Made for Arianna first, money second.

No dark patterns, no ads, no streaks in kid apps.

Cycle/reproductive data is sensitive — AI never attributes it.

API keys never touch the browser or git.

Peer-group dolls (family/friends) modelled from real people, treated respectfully.

Painterly-pastel hero library

35 Higgsfield renders were generated for these decks (Studio Ghibli meets Sago Mini, painterly-pastel brand palette).

Because the sandbox couldn't reach the CloudFront CDN to inline them into the .pptx binary, the deck ships with locally-rendered brand-consistent mockups.

Every Higgsfield job ID + URL is captured in Nova Code — `Assets/higgsfield-manifest.txt` so David can pull them into the deck (or reuse them elsewhere) any time.

CLOSING

Come build in this warm studio.

The pipeline is boring, the values are firm, the aesthetic is locked. It's the perfect substrate to add another app.

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