

Dewi Implementation Plan

Dewi: Product Architecture Specification v2.0

“Learning that hits different.” — Dopamine-driven education for the scroll generation.

Meet the Dewi Duo 🐧🐧



The Dewi Duo

```
! [Seal - "Comfort"]  
(/Users/HyperX/.gemini/antigravity/brain/b6fe1a37-1eb1-4d10-adce-
```

8f85441ce587/seal_mascot_1769995350384.png)

The Baby Seal – Represents *Comfort*
Chubby, cozy, always vibing. Lies on UI elements, rolls around happily, balances loading spinners on its nose.
<!-- slide -->
![Penguin – "Focus"]
(/Users/HyperX/.gemini/antigravity/brain/b6fe1a37-1eb1-4d10-adce-8f85441ce587/penguin_mascot_1769995364178.png)

The Tiny Penguin – Represents *Focus*
Determined, studious, always on task. Waddles across progress bars, reacts with shock to wrong answers, dances for streaks.

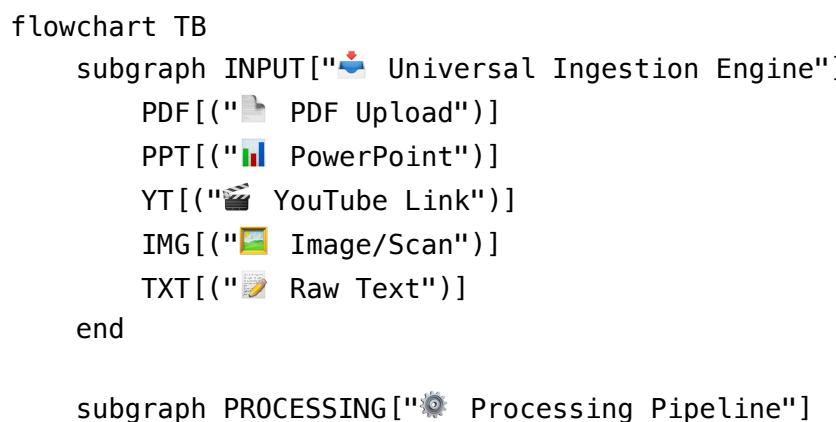
Design System: “Arctic Minimal”

| Token | Value | Usage |
|--------------------|---------|---------------------------------|
| --arctic-white | #FAFBFC | Primary background |
| --soft-gray | #E8EAED | Secondary surfaces |
| --seal-gray | #8E9AAF | Seal mascot, muted text |
| --penguin-charcoal | #2D3436 | Penguin mascot, headings |
| --accent-mint | #A8E6CF | Seal’s scarf, success states |
| --accent-lavender | #DCD6F7 | Penguin’s book, learning states |
| --accent-coral | #FFB5A7 | Hearts, blush, likes |

Typography: Nunito (headings) + Poppins (body) — Rounded, friendly fonts

UI Elements: - Border radius: 16px (small), 24px (medium), 9999px (pill) - Shadows: Soft, diffuse (0 4px 20px rgba(0,0,0,0.08)) - Outlines: 2-3px thick, friendly “sticker” style

1. System Architecture Diagram



```

    direction TB
    PARSER["🔍 Document Parser<br/><i>LangChain + OCR</i>"]
    LLM["🧠 Claude 3.5 Sonnet<br/><i>Content Analysis</i>"]
    ATOMIC["⚛️ Atomic Fact Extractor<br/><i>Smallest Learning
Units</i>"]
    VECTORDB[("🗄️ Vector Database<br/>
<i>Weaviate/Pinecone</i>")]
end

subgraph GENERATION["🎬 Brainrot Video Generator"]
    direction TB
    SCRIPT["✍️ Script Writer<br/><i>Gen Z Slang + Hooks</i>"]
    TTS["🎤 ElevenLabs TTS<br/><i>Viral Voice Synthesis</i>"]
    VISUAL["🎨 Visual Assembler<br/><i>Kinetic
Typography</i>"]
    BG["🎮 Background Selector<br/><i>Satisfying Footage</i>"]
    RENDER["🎥 Video Renderer<br/><i>10–20s Loops</i>"]
end

subgraph FEED["📱 The Feed"]
    direction TB
    ALGO["📈 SRS Algorithm<br/><i>Invisible Spaced
Repetition</i>"]
    PLAYER["▶️ Full-Screen Player<br/><i>Infinite Scroll</i>"]
    DUO_UI["🎧 Chat<br/><i>Dewi Duo Overlay<br/>Contextual AI
Chat</i>"]
end

subgraph ACTIONS["👉 User Gestures → SRS Signals"]
    SWIPE["👉 Quick Swipe<br/><i>→ Hard (😢 sad)</i>"]
    LOOP["⌚ Watch 3+ Loops<br/><i>→ Learning (👏 claps)</i>"]
    SAVE["💾 Long Press/Save<br/><i>→ Mastered</i>"]
end

%% Flow connections
PDF & PPT & YT & IMG & TXT --> PARSER
PARSER --> LLM
LLM --> ATOMIC
ATOMIC --> VECTORDB

VECTORDB --> SCRIPT
SCRIPT --> TTS
SCRIPT --> VISUAL
BG --> VISUAL
TTS & VISUAL --> RENDER

RENDER --> ALGO
ALGO --> PLAYER

```

```

PLAYER --> ACTIONS
ACTIONS --> ALGO

VECTORDB <--.-> DUO_UI
PLAYER --> DUO_UI

style INPUT fill:#E8F5E9,stroke:#A8E6CF,stroke-width:2px
style PROCESSING fill:#E3F2FD,stroke:#90CAF9,stroke-width:2px
style GENERATION fill:#FFF3E0,stroke:#FFCC80,stroke-width:2px
style FEED fill:#F3E5F5,stroke:#DCD6F7,stroke-width:2px
style ACTIONS fill:#FCE4EC,stroke:#FFB5A7,stroke-width:2px

```

Architecture Key Components

| Layer | Technology | Purpose |
|-------------------------|-------------------------------|--|
| Frontend | Flutter / React Native | 60fps native video scrolling, cross-platform |
| Backend API | Python FastAPI | Robust async processing, LangChain integration |
| AI/LLM | Claude 3.5 Sonnet | Content parsing, script generation, duo chat |
| Voice Synthesis | ElevenLabs API | High-speed viral TTS voices |
| Vector Storage | Weaviate / Pinecone | RAG retrieval for contextual learning |
| Video Processing | FFmpeg + Custom Pipeline | Kinetic typography, background layering |
| Storage | S3-compatible (Cloudflare R2) | Video assets, user uploads |

2. User Flow: First-Time PDF Upload

```

journey
  title First-Time User: PDF Chapter Upload
  section Onboarding
    Open App: 5: User
    See Seal sleeping on logo: 5: Seal
    Penguin taps Seal awake: 5: Penguin
    Duo waves together: 5: Duo
  section Upload
    Tap floating "+" button: 5: User
    Seal balances button on nose: 5: Seal
    Select PDF from device: 4: User
    Penguin catches file: 5: Penguin
  section Processing

```

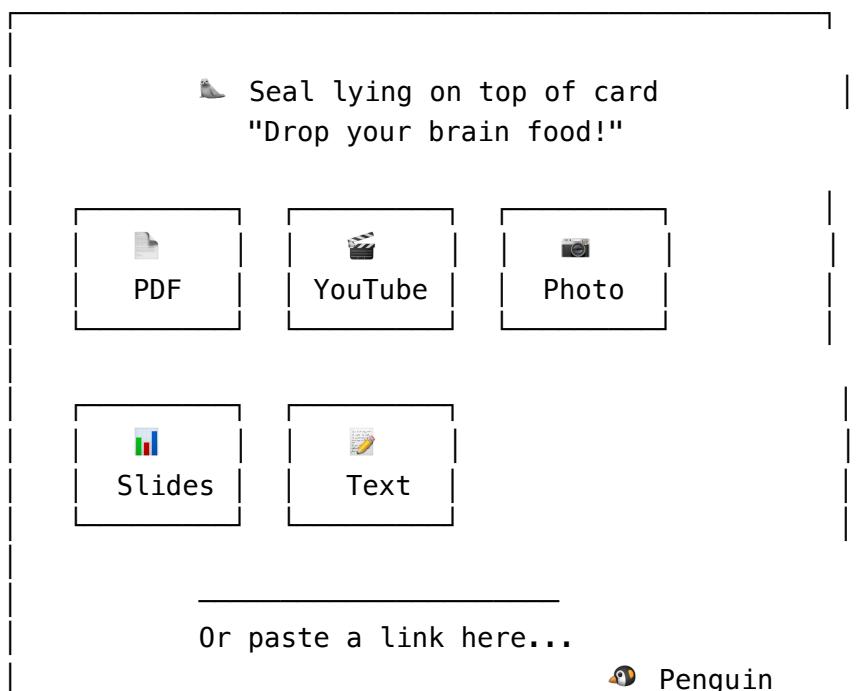
Seal balances loading spinner: 4: Seal
 Penguin reads document: 5: Penguin
 Progress bar with Penguin walking: 4: User
 Both celebrate completion: 5: Duo
 section First Feed
 First video auto-plays: 5: User
 Duo minimizes to corner FAB: 4: Duo
 User swipes through videos: 5: User
 Seal claps at engagement: 5: Seal

Detailed Step-by-Step Flow

Phase 1: First Launch & Onboarding (~30 seconds)

| Step | Screen | Mascot Action | User Action |
|------|------------------|---------------------------------------|-----------------|
| 1 | Splash Screen | Seal sleeping on the "D" in Dewi logo | Tap anywhere |
| 2 | Wake Animation | Penguin waddles in, gently taps Seal | Watches |
| 3 | Tutorial Slide 1 | Seal stretches, both wave | Swipe right |
| 4 | Tutorial Slide 2 | Penguin demonstrates swiping | Swipe right |
| 5 | Tutorial Slide 3 | Both jump with excitement | Tap "Let's Go!" |

Phase 2: Content Upload (~15 seconds)



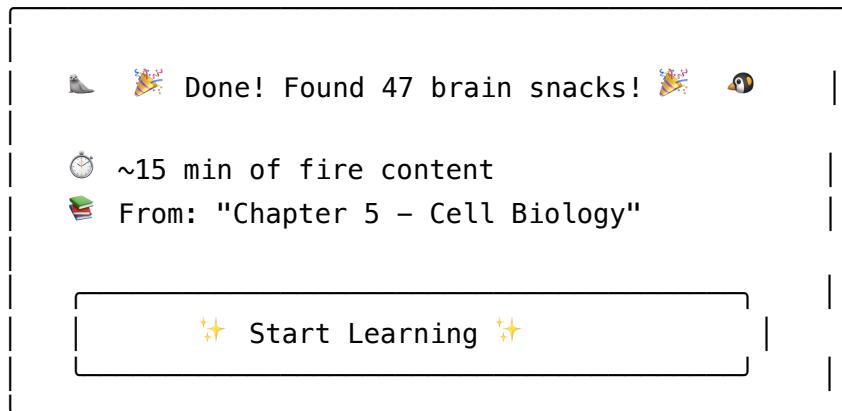
waiting

Phase 3: Processing Magic (30-90 seconds)

[!TIP] The loading experience is critical. The Dewi Duo keeps users entertained!

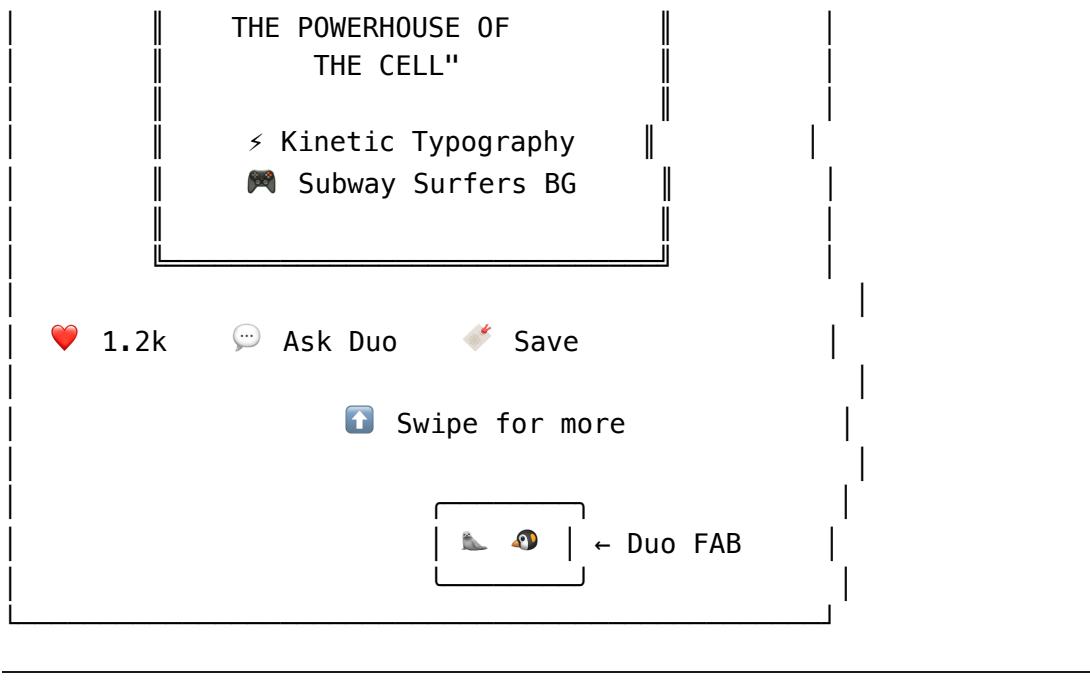
| Progress | Seal Action | Penguin Action | Message |
|----------|--|--|------------------------------|
| 0-20% | Balances spinner on nose  | Reading first pages  | “Scanning your doc...” |
| 20-40% | Rolls around happily | Highlighting text  | “Finding the good stuff...” |
| 40-60% | Claps flippers | Writing notes  | “Making it hit different...” |
| 60-80% | Watches excitedly | Directing scene  | “Cooking up some videos...” |
| 80-100% | Bouncing with joy | Dancing in celebration  | “Almost ready to vibe!” |

Completion Toast:



Phase 4: First Feed Experience





3. Generated Video Script Examples

Input Fact:

| “Mitochondria is the powerhouse of the cell”

Script A: “The Energy Factory Arc” ⚡

Duration: 14 seconds | **Vibe:** Hype/Educational

| Timestamp | Audio (TTS - Fast Male Voice) | Visual | Mascot Action |
|-----------|---|--|-----------------------------------|
| 0:00-0:02 | “Okay class, pop quiz—” | Black screen, desk slam sound | 🐧 Penguin slams tiny flipper |
| 0:02-0:05 | “What’s making your cells NOT die right now?” | Question marks flying | 👉 Seal looks confused, tilts head |
| 0:05-0:08 | “THE MITOCHONDRIA BESTIE!” | Word explosion, Subway Surfers BG starts | 🐧 Points dramatically |
| 0:08-0:11 | “It’s literally the POWERHOUSE of the CELL” | Kinetic typography, factory animation | 👉 Claps flippers excitedly |

| Timestamp | Audio (TTS - Fast Male Voice) | Visual | Mascot Action |
|-----------|------------------------------------|--------------------------|------------------|
| 0:11-0:14 | "Powerhouse. Cell. Remember that." | Words pulse rhythmically | Both nod in sync |

Audio Notes: - Background: Phonk beat (bass-heavy, trending) - Hook phrase repeats: "Powerhouse of the cell" ×3 in rhythm - Sound effects: Factory sounds, power-up chime

Visual Stack:

- Layer 1: Subway Surfers gameplay (cropped center)
- Layer 2: Dark vignette overlay (55% opacity)
- Layer 3: Kinetic typography (Bebas Neue Bold)
- Layer 4: Mascot corner reactions (bottom-left)
- Layer 5: Factory/power plant visual elements

Script B: "The Cozy Study Sesh" 🌙

Duration: 16 seconds | **Vibe:** ASMR/Calm

| Timestamp | Audio (TTS - Soft Whisper Voice) | Visual | Mascot Action |
|-----------|--|---------------------------------|---------------------------|
| 0:00-0:03 | <i>soft tapping</i> "Psst... wanna know something cool?" | Dark mode, candle flicker | Seal curled up, sleepy |
| 0:03-0:07 | "Your cells need energy to live, right?" | Gentle handwriting animation | Penguin holds tiny book |
| 0:07-0:11 | "There's this little powerhouse called... mitochondria" | Cute chibi mitochondria appears | Both look at it adoringly |
| 0:11-0:14 | "It literally powers. The. Whole. Cell." | Words glow softly, one by one | Nods slowly |
| 0:14-0:16 | "Powerhouse... of the cell..." <i>fade</i> | Gentle pulse, stars | Whispers "remember that" |

Audio Notes: - Background: Lo-fi ambient hum, rain sounds - Soft keyboard tapping ASMR throughout - Whisper repeats key phrase for memorization

Visual Stack:

- Layer 1: Dark gradient background (#1a1a2e → #16213e)
- Layer 2: Soft bokeh light particles, falling snow
- Layer 3: Handwritten font animation (Caveat)
- Layer 4: Seal sleeping in corner, Penguin reading

Script C: “The Unhinged Science Class” 😱

Duration: 15 seconds | **Vibe:** Chaotic/Meme

| Timestamp | Audio (TTS - Excited Female Voice) | Visual | Mascot Action |
|-----------|--|-------------------------------|----------------------------|
| 0:00-0:02 | “POV: You’re a cell and you’re BROKE” | Green screen, exhausted emoji | 屣 Dramatically fainting |
| 0:02-0:05 | “No ATP? No money? NO LIFE??” | Dollar bills flying away | 🐧 Shocked face, steps back |
| 0:05-0:08 | “WAIT— who’s that??” | Dramatic zoom in | Both look up hopefully |
| 0:08-0:11 | “It’s the MITOCHONDRIA rolling up like a boss” | Mitochondria with sunglasses | 🐧 Does a little salute |
| 0:11-0:13 | “The POWERHOUSE of the CELL!” | Text slams in with bass | 屣 Claps wildly |
| 0:13-0:15 | “Now you got that ATP bag 💰” | Cash register sound, confetti | Both celebration dance |

Audio Notes: - Background: Trending TikTok sound remix - Sound effects: *DING* on “mitochondria”, cash register, bass drop - Loop point: Smooth audio crossfade to start

Visual Stack:

- Layer 1: Kinetic sand ASMR footage (satisfying loops)
- Layer 2: Animated mitochondria character (with sunglasses)
- Layer 3: Meme-style captions with emoji reactions
- Layer 4: Mascots in bottom corners reacting

4. Dewi Duo Emotional States

➊ Baby Seal (Comfort)

| State | Trigger | Animation | Location |
|------------|-----------------|--------------------------------|-----------------|
| 😴 Sleeping | App idle >30min | Z's floating, gentle breathing | On logo/buttons |
| 🥰 Happy | Default state | Gentle wiggle, blushing | FAB bubble |

| State | Trigger | Animation | Location |
|--------------|-----------------------|----------------------------|-----------------|
| | Watch 3+ loops / Like | Flippers clapping | Video corner |
| | Loading states | Spins item on nose | Center screen |
| | Too many hard marks | Worried eyes, slight droop | Notification |
| | Streak / Mastery | Bouncing, confetti | Overlay |

🐧 Tiny Penguin (Focus)

| State | Trigger | Animation | Location | |
|--------------|----------------|------------------------|-----------------------|----------------|
| | Studying | Processing content | Reading with glasses | Progress area |
| | Determined | Default state | Confident stance | FAB bubble |
| | Disappointed | Quick swipe away | Sad waddle off-screen | Video corner |
| | Directing | Video generation | Holding clapperboard | Loading screen |
| | Shocked | Wrong answer | Jumps back, eyes wide | Quiz overlay |
| | Dancing | Streaks / Achievements | Happy dance | Celebration |

Together (Duo Moments)

| Moment | Trigger | Animation |
|-----------------------|--------------------|---------------------------|
| High Five | Daily goal reached | Flippers meet in middle |
| Group Hug | Weekly streak | Seal wraps around Penguin |
| Victory Pose | Course completed | Both jump with confetti |
| Sleeping Stack | Long idle | Penguin sleeps ON Seal |

Technical Implementation Notes

Atomic Fact Extraction Prompt (Claude 3.5)

EXTRACTION_PROMPT = "....."

You are an expert at breaking down educational content into

"Atomic Facts" – the smallest, standalone pieces of information that can be understood in isolation.

Rules:

1. Each fact must be expressible in 10–20 words
2. Each fact must be self-contained (no "it" or "this" references)
3. Each fact should be memorizable in a 15-second video
4. Prioritize surprising/interesting framings over dry definitions

Input: {document_text}

Output as JSON array:

```
[  
  {"fact": "...", "complexity": 1-5, "keywords": [...],  
   "category": "..."},  
   ...  
,  
  ....
```

Video Script Generation Prompt

```
SCRIPT_PROMPT = """  
You are a Gen Z content creator making educational TikToks  
featuring  
the Dewi Duo mascots (a cozy baby seal and a focused tiny  
penguin)."
```

Convert this fact into a 15-second viral video script.

Fact: {atomic_fact}

Target Vibe: {vibe} # "hype" | "chaotic" | "cozy" | "unhinged"

Requirements:

- Use current slang naturally (slay, lowkey, no cap, etc.)
- Include a hook in first 2 seconds
- Repeat the key information 2–3 times rhythmically
- Include mascot reactions at key moments:
 - Seal: comfort reactions (sleeping, clapping, rolling)
 - Penguin: focus reactions (studying, shocked, determined)
- End on a satisfying loop point
- Suggest background footage type

Output format:

```
{  
  "hook": "first 2 seconds text",  
  "body": [...script segments...],  
  "mascot_cues": [  
    {"timestamp": "0:05", "character": "seal", "action": "claps"},  
    {"timestamp": "0:08", "character": "penguin", "action":  
     "shocked"}  
,
```

```
"repeat_phrase": "the key memorization phrase",
"bg_suggestion": "subway surfers | minecraft | kinetic sand |  
    soap cutting",
"audio_vibe": "phonk | lofi | trending sound"
}  
....
```

Next Steps

1. **Character Sheet Finalization:** All emotional states for both mascots as sprite sheets
 2. **Technical POC:** Build ingestion → atomic facts pipeline
 3. **Video Prototype:** Manual creation of 10 test videos with mascot overlays
 4. **Flutter Scaffold:** Set up project with video player, gesture detection, mascot animations
 5. **Backend API:** FastAPI structure with Claude and ElevenLabs integration
-

[!IMPORTANT] **Core Metric:** Average loops per video + mascot interaction rate. If users aren't tapping the Duo FAB at least once per session, the characters aren't landing. Iterate on personality and placement.