AI Mini-Arcade — Product Requirements Document (PRD)

1. Strategy

Item	Details
Product	"AI Mini-Arcade" — a lightweight, 3-page site where visitors discover and chat with quirky AI agents.
Problem	Non-technical users struggle to test bespoke AI bots without installing anything or sharing long API keys up-front.
Goal	Deliver a friction-free showcase that (1) explains the concept, (2) lets users pick a bot, and (3) provides a chat sandbox that can convert to BYO-API-key when free credits expire.
Primary Metric	$\geq$ 40 % of unique visitors send $\geq$ 3 chat messages to any bot within one session.
Secondary Metrics	• Avg. time on site $\geq$ 3 min • $\geq$ 15 % of free-tier exhaustions convert to BYO-key • Error rate < 0.5 %

2. Scope (MVP)

Page	Core Features	Must-Have	Nice-to-Have
Home (`/` **)**	Hero text, origin story, "How it works", CTA to bots	Responsive layout, $\leq$ 3 s FCP	Embedded explainer video
Bots Gallery (`/bots` **)**	Grid of bot cards, hover micro-interactions, filter by category	Custom logo, color & tagline per bot	Search box, "New" badge
Chat (`/chat/{botId}` **)**	Two-pane chat (messages & bot bio), token counter, free-tier meter, BYO key modal	Streaming responses, copy-code button	Dark mode toggle, emoji reactions

3. User Personas & Stories

Persona	Story ID	Narrative
Curious Visitor	**UV-1**	"As a first-timer I want a quick intro so I know why these bots are interesting."
Tinkerer	**UV-2**	"As a hobbyist I want to pick a bot that suits my mood and chat instantly without signup."
Power User	**UV-3**	"When I hit the free limit I want to drop in my own OpenAI key and continue seamlessly."

4. Functional Requirements

4.1 Home Page (`/`)

Req-ID	Requirement
H-1	Hero section with value prop (max 15 words).
H-2	"Origin Story" block with 3 bullet anecdotes (pull from CMS / markdown).
H-3	"How to Use" timeline: *Pick → Chat → Upgrade* illustrated in 3 steps.
H-4	Primary CTA button "Meet the Bots" → `/bots` .

4.2 Bots Gallery (`/bots`)

Req-ID	Requirement
B-1	Fetch bot catalog from `/api/bots` .
B-2	Render each bot as a Card: logo (128×128 px SVG), name, one-line pitch, theme color.
B-3	Clicking a card routes to `/chat/{botId}` *and wakes the agent* (init call to `/api/bots/{id}/warm`).
B-4	Keyboard navigation & ARIA labels for accessibility.

4.3 Chat Page (`/chat/{botId}`)

Req-ID	Requirement
C-1	Panel A: Chat log with streaming messages (Markdown render, code block copy).
C-2	Panel B: Bot "About" card (logo, persona, capabilities, limitations).
C-3	Free-tier meter showing remaining tokens; updates every response.
C-4	On limit reached, non-blocking modal: \n • Explains cost, privacy (*"Key stored only in session memory"*) \n • Input field with masked key \n • Validation ping to OpenAI before enabling "Continue".
C-5	If user declines, disable input with info banner "Limit reached — add API key to continue".

5. Non-Functional Requirements

Category	Requirement
Performance	FCP $\leq$ 3 s @ 3G; Lighthouse perf $\geq$ 90
Security	No API key persisted in DB/localStorage; held only in memory for session.
Compliance	Honor `robots.txt` ; GDPR cookie banner if analytics used.
Tech Stack	Next.js 14, React Server Components, TailwindCSS, Vercel Edge Functions for / lambda APIs.

Category	Requirement
Accessibility	WCAG 2.1 AA; focus traps in modals.

6. Analytics & Instrumentation

Event	Payload
`bot_card_click`	botId, timestamp
`chat_message_sent`	botId, tokenCount
`free_tier_exhausted`	botId
`api_key_added`	hashedKeyPrefix, plan=BYO

7. Risks & Mitigations

Risk	Likelihood	Impact	Mitigation
High OpenAI latency	Medium	Medium	Use streaming, show typing dots
Abuse of BYO key	Low	High	Warn user, rate-limit per IP
Token overshoot vs. meter	Low	Medium	Pre-count prompt, add 10 % buffer

8. Milestones

Date	Deliverable
T-0 + 1 wk	UX wireframes & content draft
T-0 + 3 wk	MVP pages functional, internal QA
T-0 + 4 wk	Beta launch, telemetry check
T-0 + 5 wk	Public release v1.0

9. Open Questions

1. What is the free-tier token cap per user (1 K? 2 K?)
2. Will bots share a single system prompt template or per-bot file?
3. Need SSO / email capture for future phases?

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