

# PRODUCT CHARTER v2.0 — Scroll Off

**Status:** Locked (single source of truth)

**Owner:** Karan (solo)

**Platform (Phase 1):** iOS

**Platform (Phase 2):** Android

**Data (Phase 1):** On-device only (no cloud)

**Business model:** Freemium + Premium + Pro + capped emergency token IAP

**Change control:** Nothing here changes unless we publish Charter v2.1 with a change log.

## CHANGELOG v1.3 → v2.0

### Strategic pivots:

- **Platform:** Android-first → iOS-first (Android moves to Phase 2)
- **Pricing:** \$3.99/\$6.99 → \$4.99/\$8.99 monthly tiers
- **Behavioral science:** Added implementation intentions builder, self-efficacy messaging, mindfulness integration, enhanced self-awareness analytics

**Rationale:** iOS delivers 67% of app revenue with 7.4x higher ARPU (\$10.40 vs \$1.40).

Research shows implementation intentions, self-efficacy framing, and self-awareness insights are strongest predictors of behavior change success. Website blocking expanded to close mobile browser workaround loophole.

## 0) One-liner (frozen)

**Block doomscrolling and earn your screen time back.**

## 1) Vision, Mission, Principles (frozen)

**Vision:** Help people reclaim attention and self-respect by replacing mindless scrolling with intentional, earned use.

**Mission:** Interrupt impulsive app opens, enforce meaningful cooldowns, reward abstinence with short, guilt-free access, and build lasting self-regulation capacity.

**Positioning:** Evidence-based behavior change tool — stricter than "gentle nudges," more empowering than pure blockers. Block + earn + build self-efficacy is the core differentiator.

**Tone:** Supportive, empowering, numbers-first, celebrates capability, no shame.

**Non-goals:** Therapy/clinical claims, parental control admin, surveillance, social feeds, cash payouts (we use billing credits later), desktop (Phase 3).

## 2) Target Users & Jobs-to-Be-Done (frozen)

**Segments:** Students • Workers/Freelancers • Self-identified procrastinators (esp. late-night scrollers)

**JTBD:**

1. "Stop me the moment I try to open time-sink apps"
2. "Let me earn some time so I don't feel deprived"
3. "Make it hard to cheat when my willpower dips"
4. **"Help me understand my patterns so I can improve" (NEW)**
5. **"Build confidence that I can actually do this" (NEW)**

## 3) Core Mechanics (frozen)

### 3.1 Blocking model

- User selects any installed apps as **Blocked**
- Opening a blocked app triggers a **full-screen shield** via iOS ScreenTime API that prevents interaction
- **Foreground-only spend:** credit deducts only when a blocked app is in the foreground
- **Website domain blocking:** When an app is blocked, its mobile web domains are automatically blocked (e.g., block Instagram app → instagram.com also blocked in Safari)
- **Always-allow list (safety):** Phone/FaceTime, Messages (optional), Camera, Maps, 2FA/Auth apps, Settings → ScreenTime, Scroll Off itself

### 3.2 Earn-Spend currency ("Minutes")

**Default earn rate:** +5:00 credit for each 60 min without opening any blocked app

**Wallets:**

- **Global wallet** (all tiers)
- **Per-app wallets** (Pro): user can earmark minutes per app (advanced control; collapsed by default)

**Daily earn caps & rollover:**

- **Free:** cap 45 min/day; rollover same-day only (expires at local midnight)
- **Premium:** cap 90 min/day; rollover 3 days
- **Pro:** cap 120 min/day; rollover 7 days

## Spending:

- Deducted per second of foreground time (no rounding)
- At 0s, shield reappears instantly

**Anti-binge guard:** optional per-app daily spend cap (Pro; advanced control)

## 3.3 Cooldowns & Hard-curfew

**Toggle-on lock (per app):** once set to Blocked, cannot un-block until cooldown ends:

- **Free:** 2h • **Premium:** 1h • **Pro:** 30m

**Hard-curfew (optional, per user schedule):**

- A 16-hour daily block window (e.g., 12:00am → 4:00pm) where selected apps remain blocked regardless of schedule edits
- Curfew edits locked 30m before start and during active window
- **Curfew website enforcement:** automatically blocks corresponding domains during curfew hours

## 3.4 Bypass ladder (per local day)

**Step 1:** One free 60-sec peek (Free); two for Premium

**Step 2-3:** Each costs 60s of credit (if available)

**Step 4 (NEW - optional):** "Try this first" → 2-minute guided mindfulness exercise (breath awareness, 5-4-3-2-1 grounding, or body scan) → user can skip or complete → then proceed to bypass

**Beyond that:** Emergency Token IAP \$0.99, hard-capped at 5/month (all plans). Pro includes 3 tokens/month bundled.

## 3.5 Friction & empowerment (enhanced)

**Overlay copy:** Short, empowering, celebrates capability (not just transactional)

- Focus on **self-efficacy**: "You're building real control" vs just "Time saved: 2h"
- **Progressive difficulty acknowledgment**: "That took strength — resisting gets easier with practice"

**Optional interventions:**

- 3-second confirmation before spending credits (user-controlled)
- "What else?" button → 3 quick alternatives (walk/water/stretch/breathe) with 1-tap timers. Off by default.
- **Mindfulness exercises** (optional, at expensive bypass points)

## 3.6 Implementation intentions (NEW - core behavioral science feature)

**What:** Specific "if-then" plans linking situational cues to alternative responses

**Research validation:** Reduces daily phone unlocks by 6 per unit of planning; effect sizes

d=0.59-0.95

**Implementation:** Dedicated onboarding step (Section 6.1) where users create 3-5 specific plans

**Format:**

- "When [trigger situation], I will [alternative behavior]"
- Examples: "When I feel bored during work calls, I will doodle instead of checking Instagram"
- Provide **templates** but enable full **customization**
- **Track completion** as activation metric (predicts success)

**Storage:** Room table `implementation_intentions(id, trigger_text, response_text, created_at, times_referenced)`

## 4) Scope by Phases (frozen)

### Phase 1 — iOS MVP (local-only)

**Goal:** Prove "block + earn + build self-efficacy" loop on highest-monetizing platform; validate pricing and behavioral science features.

**Why iOS first:**

- **67% of mobile app revenue** despite smaller user base
- **\$10.40 monthly app spend** vs \$1.40 Android (7.4x difference)
- **27% more productivity app installs** among iOS users
- **Cleaner technical implementation** via ScreenTime API (vs Android Accessibility Services restrictions)
- **Faster path to revenue validation** (4-6 months to \$20K MRR vs 12-18 months on Android)

**Must-haves:**

1. **App picker & management** (multi-select, search, popular apps quick-add)
2. **Shield blocking** via iOS ScreenTime API (FamilyControls + ManagedSettings + DeviceActivity)
3. **Website domain blocking** (automatic: instagram.com follows Instagram app; manual: add custom domains)
4. **Earn engine:** +5m/h abstinence (awarded per completed hour)
5. **Spend engine:** per-second deduction in foreground
6. **Cooldowns** (2h/1h/30m) & **16-hour Hard-curfew** scheduler (edits locked near/within window)
7. **Implementation intentions builder** (onboarding: create 3-5 if-then plans with templates + customization)
8. **Wallet UI:** global balance, earnings today, spend today, history
9. **Enhanced stats & insights:**

- Time saved today/7-day/30-day
  - Urges blocked count
  - **7-day trend graph** (daily time saved visualization)
  - **Usage pattern insights** ("Most blocks: 9-11pm on weekdays")
  - **Self-efficacy framing** ("You're getting better — 30-day streak shows real capability")
- 10. Subscriptions:** Free / Premium (\$4.99) / Pro (\$8.99 or \$59.99/yr); Emergency Token IAP
- 11. Anti-tamper basics:** DeviceActivity monitoring, user education on ScreenTime persistence, Pro passcode for protection changes
- 12. Privacy:** all data on device; no account; no analytics sent to servers
- Refinements (locked into MVP):**

### **Onboarding "instant win":**

After permissions, run a 10-second demo block and award a one-time starter credit of +2:00 (clearly labeled "starter credit," excluded from caps/rollover). Creates immediate value experience.

### **Implementation intentions builder (critical):**

Step 4 of onboarding: "Set your if-then plans" → guided builder with:

- Pre-populated templates for common scenarios (bored at work, can't sleep, waiting in line, procrastinating on assignment)
- Full text customization
- Require 1 minimum, encourage 3-5 plans
- Track completion as activation metric A1.5 (between permissions and first block)

### **Progressive disclosure:**

Global wallet shown by default; Advanced controls (collapsed) house per-app wallets, daily spend caps, custom domain blocking.

### **Self-awareness analytics (enhanced):**

- **Dashboard trend card:** 7-day sparkline showing time saved per day (tap for full-screen graph)
- **Pattern insight card:** "Peak blocking: 9-11pm • Strongest day: Wednesday" (updates weekly)
- **Comparison framing:** "This week: 52min/day saved. Last week: 38min. +37% improvement"
- **Milestone celebrations:** "30-day streak — you've proven you can do this"

### **Mindfulness integration (optional):**

- At expensive bypass points (Step 4): "Try this first" → choice of 3 quick exercises:
  - **Breath awareness** (2 min): "Notice 10 breaths without changing them"
  - **5-4-3-2-1 grounding** (2 min): Name 5 things you see, 4 you hear, etc.
  - **Body scan** (3 min): Brief guided scan from head to toes
- User can skip immediately or complete

- Track usage: `mindfulness_sessions(id, exercise_type, completed, bypass_avoided, ts)`







#### **Reliability checks (iOS-specific):**

Settings → Reliability with PASS/FAIL status:

- ScreenTime API authorization (FamilyControls)
- DeviceActivity monitoring active
- ManagedSettings applied correctly
- Shield latency <500ms (last measured)
- Deep links to iOS Settings when FAIL

#### **Self-efficacy messaging (throughout UI):**

All stat displays frame accomplishments as evidence of growing capability:

-  "You saved 2 hours" →  "You're building real control — 2 hours saved today"
-  "45-day streak" →  "45 days strong — that's serious commitment"
-  "Urge blocked" →  "You resisted — that took real strength"

#### **Out of scope (Phase 1):**

Android, cloud/sync, accountability/social, AI/ML learning, billing-credit cashback, browser extensions.

## **Phase 2 — Android + Cloud Intelligence (Months 7-14)**

**Goal:** Expand to volume market (Android) while maintaining lower ARPU expectations; add cloud features that enhance retention and enable cross-platform.

#### **Android implementation:**

- Accessibility Services + `SYSTEM_ALERT_WINDOW` for blocking
- Complete Google Permission Declaration Form early (approval takes 4-6 weeks)
- Extensive OEM testing (Samsung/Xiaomi/Oppo/OnePlus minimum)
- Battery optimization allowlist education (MIUI/ColorOS/OneUI guides)
- Offer both Play Store version + sideloaded APK (password-protected uninstall for committed users)
- **Adjusted pricing:** Consider \$2.99/\$5.99 for Android market (vs iOS \$4.99/\$8.99) due to lower ARPU

#### **Cloud features (both platforms):**

- Accounts & cross-device sync (Firebase or Supabase)
- Pattern learning (identify personal high-risk windows; offer auto-curfew suggestions)
- Accountability partner (Pro): partner approval required for disabling strict modes
- Advanced analytics & weekly emails (Premium/Pro)
- Cashback as billing credits for adherence (Pro): \$2/month credit for meeting targets
- Basic browser extension (domain blocks tied to phone app state)

#### **Enhanced behavioral science:**

- Variable reward risk mitigation: ensure all rewards remain predictable (never introduce randomness)
- Transition from extrinsic (credits) to intrinsic (personal values) motivation via journaling prompts
- Habit stacking suggestions: "When you want to check Instagram, you've planned to [user's if-then alternative]"

## Phase 3 — Ecosystem & Enterprise (Months 15-24)

**Goal:** Mature product with B2B revenue streams and deeper intelligence.

- Ensure iOS and Android feature parity
- Org/edu licensing (admin dashboard, cohorts, team challenges, reporting)
- Family plans with parent-child linking (different feature requirements)
- Deeper AI coach (relapse prediction; pre-emptive nudges; personalized intervention timing)
- Desktop/browser native apps (macOS/Windows with cross-platform state)
- API for integration with productivity tools (Notion, Todoist, RescueTime)

## 5) Monetization (revised pricing)

### 5.1 Tiers

Plan	Price	For	Key limits & perks
<b>Free</b>	\$0	Try-it	Block 3 apps • 2h cooldown • Cap 45m/day • Global wallet only • Same-day rollover • 1× 60s peek/day • Basic stats • All behavioral science features (if-
<b>Premium</b>	<b>\$4.99/mo</b>	Regular	Unlimited apps • 1h cooldown • Cap 90m/day • 3-day rollover • 2× peeks/day then each costs 60s credit • 7-day trends + pattern insights • Weekly
<b>Pro</b>	<b>\$8.99/mo or \$59.9</b>	Power user	30m cooldown • Cap 120m/day • Per-app wallets • 7-day rollover • Passcode-protected changes • Emergency tokens (3/mo included; then \$0.99 up to 5/mo) • 30-day trend analytics • Accountability partner (Phase 2) •

#### Pricing rationale:

- **\$4.99/\$8.99 monthly** aligns with iOS productivity app market norms (\$8-10/month standard)
- Still 50% below premium competitor Opal (\$99.99/year) — accessible but signals value
- Annual Pro at **\$59.99 (\$5/month effective)** positions as "best value" with clear \$48/year savings
- **Lifetime option:** Consider \$149.99 as psychological anchor making annual seem like bargain

#### Pricing test plan (soft launch):

- A/B test: \$4.99 vs \$5.99 Premium tier (identical features)

- Hypothesis: similar conversion rate with 20% more revenue at \$5.99
- Decision point: choose price within first 500 paying users based on data

## 5.2 Micro-transactions (ethical guardrails)

**Emergency Unblock Token:** \$0.99 each

### Hard limits:

- Maximum 5 tokens purchasable per month (all tiers)
- Pro includes 3 tokens/month in subscription
- **Critical monitoring:** If >20% of revenue comes from bypass tokens, core blocking has failed — users are paying to circumvent rather than changing behavior

### Ethical constraints:

- No ads. No lootboxes. No dark patterns. No variable rewards (no randomness)
- Clear counters/limits visible in UI always
- Transparent about what tokens do and monthly caps
- Never encourage token purchases (show as last resort only)

## 5.3 Cashback (Phase 2+, Pro only → billing credits)

**Monthly target:** Honor  $\geq 75\%$  of scheduled hard-curfews AND keep average daily spend  $\leq$  earned

### Rewards:

- Monthly success: **\$2 credit** applied to next renewal
- Annual "Zen Master": 12 qualified months → **\$15 credit** at annual renewal

### Rules:

- Credits apply to future invoices only; no cash out
- Transparent tracking: in-app dashboard shows monthly progress toward target
- Purpose: reward sustained behavior change, not just compliance

# 6) UX / UI Spec (frozen)


## 6.1 Screens (MVP: 4 primary + Settings)

### 1. Onboarding / Permissions

#### Flow:

1. **Welcome** → value prop + "Block doomscrolling and earn your screen time back"
2. **Quick win demo** → "Let's try it — pick one app" → 10-second demo block → award +2:00 starter credit (labeled "starter credit")



3. **Choose blocked apps** → multi-select from all installed apps + search + "Popular" section (Instagram, TikTok, Twitter, Reddit, YouTube)
4.  **Set your if-then plans** (NEW — critical behavioral science step):
  - Headline: "When will you be tempted? Plan your response now."
  - Show 4 template categories: "When I'm bored," "Can't sleep," "Procrastinating," "Waiting around"
  - Each expands to editable format: "When [trigger], I will [alternative]"
  - Pre-filled examples: "When I'm bored during work calls, I will doodle in my notebook"
  - User must create at least 1 plan (encourage 3-5)
  - "Why this works" explainer: "Making specific plans now helps your brain auto-respond when you're tempted"
  - Track completion as activation metric A1.5
5. **Grant ScreenTime permission** → "Scroll Off needs ScreenTime API authorization" → system permission flow → FamilyControls authorization
6. **Reliability check** → auto-run PASS/FAIL checks → if any FAIL, show deep links to fix → "All set! Let's block some apps."
7. **Dashboard** → lands with starter credit visible + first blocked apps active

#### Acceptance:

- ScreenTime authorization granted
- At least 1 blocked app selected
- At least 1 implementation intention created (track: `if_then_plans_completed` bool)
- Shield test successful (appears <500ms)
- Starter credit awarded once and clearly labeled "starter credit"
- Returns to Dashboard with earn engine active


## 2. Dashboard (enhanced with self-awareness)

### Top section — Credits ring:

- Circular progress: minutes available (color-coded: green >30m, yellow 10-30m, red <10m)
- Center: large numeral "42m available"
- Subtitle rotates through empowering messages:
  - "You're building control"
  - "Earning time back"
  - "Staying focused"

### Stats cards (self-efficacy framing):

- **Today:** "2h 15m saved today — you're doing this ✨"
- **This week:** "12h 48m total • 6 urges resisted • That's real strength"

- **Trend card (NEW):** 7-day sparkline graph showing daily time saved (tap for full-screen detail)
  - Below graph: "This week: 52min/day. Last week: 38min. +37% better "

#### **Pattern insight card (NEW):**

- "Peak blocks: 9-11pm on weekdays"
- "Strongest day: Wednesday (2.5h saved avg)"
- Updates weekly based on usage patterns

#### **Primary CTAs:**

- "Manage blocked apps" (main action)
- Curfew pill: "Next curfew: Tonight 11pm • 4 apps blocked"

#### **Recent activity (history):**

- Last 5 events with self-efficacy framing:
  - "+5:00 earned — 1 hour strong!"
  - "Urge resisted — that took willpower ✓"
  - "Used 2:30 — back to earning"
  - "Bypass used (60s peek)"

#### **Advanced controls (collapsed):**

- Per-app wallets
- Daily spend caps
- Custom domain blocking

#### **Paywall chips (contextual):**

- Shown when user hits tier limits: "Unlock unlimited apps → Premium"
- "Get 1-hour cooldown → Premium"
- Never intrusive; always contextual to action attempted

### **3. Blocked Shield (ScreenTime API shield with custom branding)**

#### **Configuration via DeviceActivity + ManagedSettings:**

##### **Shield visual:**

- Title: "**Blocked (earning mode)**"
- Subtitle rotates through empowering messages (3-second intervals):
  - "Nice — you've earned +5:00 today"
  - "1 more hour → +5:00 more"
  - "You're building real self-control"
  - "A short break is okay — earn it first"
  - "Stay strong — you've got this"

##### **Buttons (when credits available):**

- **"Use credits"** → shows countdown timer → deducts per second → at 0s shield reappears
- **"60-sec peek"** → shows "1 left today" or "Costs 60s credit" → consumes peek/credit → 60-second timer → shield reappears
- **"Try this first" (optional, at expensive bypasses)** → 2-minute mindfulness exercise → user can skip or complete
- **"What else?"** (if enabled in Settings) → shows 3 quick alternatives (walk/water/breathe) with 1-tap timers

#### **At 0 credits:**

- "You're close — stay off blocked apps to earn more"
- "Fresh earn cycle starts soon (12 min)"
- Only bypass option: Emergency Token (\$0.99) if under monthly cap

#### **Countdown UI (when spending):**

- Prominent seconds remaining: "2:15 left"
- Circular progress bar around number (fills as time depletes)
- Color shift: green → yellow at 30s → red at 10s
- At 5s: gentle pulse animation + warning haptic
- At 0s: shield reappears instantly with message "Time's up — credits empty"

### **4. Stats & Insights (NEW — dedicated screen)**

**Access:** Tap trend card on Dashboard → full-screen analytics

#### **Sections:**

##### **Overview:**

- Large numerals: "68h 42m total time saved"
- Subtitle: "Since you started 32 days ago — that's real progress ✨"

##### **Trend graph:**

- 30-day line graph (Pro) or 7-day (Premium/Free)
- Daily time saved per day
- Highlight: "Personal best: Thursday 3h 12m"

##### **Pattern insights:**

- **Time of day heatmap:** Shows when blocks happen most (hourly)
  - "Peak temptation: 9-11pm"
- **Day of week:** "Strongest: Wednesday • Toughest: Sunday"
- **App breakdown:** Top 5 blocked apps by time saved
  - "Instagram: 22h saved (32% of total)"

##### **Milestones & self-efficacy:**

- Badges earned: "7-day streak 🔥 " "30-day warrior ⚡ " "100-hour champion 🏆 "
- Next milestone: "10 more days → 60-day legend"
- Self-efficacy message: "You've proven you can do this — 32 days of data don't lie"

### **Comparison framing:**

- Week-over-week: "This week +37% better than last week"
- Month-over-month: "This month: 4.2h/day saved. Last month: 2.8h/day"

## **5. Settings**

### **Sections:**

#### **Plan & Billing:**

- Current plan badge (Free/Premium/Pro)
- "Upgrade to [next tier]" CTA
- Manage subscription (links to App Store)
- Restore purchases

#### **Blocking controls:**

- Manage blocked apps (list + add/remove)
- Website domains (auto + custom)
- Always-allow list (Phone, Messages, Camera, Maps, 2FA apps)
- Cooldown period (read-only: "2 hours on Free" with upgrade CTA)

#### **Curfew scheduler:**

- "Add curfew" → pick daily time window (up to 16 hours)
- Affected apps selection
- Days of week
- "Edits lock 30 minutes before start"
- Optional: "Block Safari during curfew" toggle


#### **If-then plans:**




- View/edit implementation intentions created during onboarding
- Add new plans
- Archive completed plans

#### **Advanced controls (collapsed):**

- Per-app wallets (Pro)
- Daily spend caps per app (Pro)
- Anti-binge guards (Pro)

#### **Reliability:**

- PASS/FAIL status checks:
  -  ScreenTime API authorized

-  DeviceActivity monitoring active
-  Shield configuration valid
-  Last shield latency: 180ms
- Deep links to iOS Settings → ScreenTime when FAIL

#### **Preferences:**




- Reduce Motion (disables animations)
- Sounds (off by default)
- Haptics (on by default)
- "What else?" alternatives (on/off)
- Mindfulness exercises at bypasses (on/off)

#### **Privacy & Legal:**

- Privacy explainer: "All data stays on your device. No account. No tracking."
- Link to Privacy Policy (website)
- Link to Terms of Service (website)
- About / version / contact

## **6.2 Microcopy (enhanced self-efficacy framing)**

#### **Dashboard stats:**

-  "Saved 2h 15m today — you're building real control"
-  "Earned 25m • 6 urges resisted — that's real strength"
-  "Saved 2h 15m today • Earned 25m • 6 urges blocked" (old transactional style)


#### **Bypass chips:**

- "60-sec peek (1 left today)"
- "Peek costs 60s credit (you have 12m)"
- "Buy Emergency Token \$0.99 (3 left this month)"
- "Token limit reached — fresh start next month"

#### **Curfew:**

- "Next curfew: Tonight 11pm-7am • Instagram, TikTok, Reddit blocked"
- "Curfew edits locked during active window"
- "Curfew starts in 10 minutes"

#### **Empty wallet:**

- "You're close — 18 minutes until next +5:00"
- "Stay strong — keep earning"
-  "Wallet empty" (too negative)

#### **Peek exhausted:**

- "All peeks used today — fresh start at midnight"
- "Keep earning to unlock credit-paid peeks"

#### **Permission missing:**

- "Enable ScreenTime API to start blocking apps"
- "Scroll Off needs these permissions to protect your focus"

#### **Milestones (celebration messages):**

- "7 days strong — you're proving you can do this 🔥"
- "30-day warrior — that's serious commitment ⚡"
- "100 hours saved — you've reclaimed 4+ full days 🏆"
- "Personal record — 3h 12m saved today (your best ever!)"

#### **Pattern insights:**

- "Peak blocks: 9-11pm on weekdays — that's when you're strongest"
- "Wednesday is your best day (avg 2.5h saved)"
- "This week: +37% better than last week — real progress 📈"

#### **Time remaining (when spending credits):**

- "2:15 left" (prominent)
- "10 seconds remaining" (when <10s)
- "Time's up — credits empty" (when 0s)

#### **Mindfulness prompts (optional):**

- "Try this first: 2-minute breath awareness"
- "Ground yourself: 5-4-3-2-1 exercise"
- "You can skip this or give it a try"

## **6.3 Motion & Micro-interactions (locked)**

**Principles:** Purposeful, fast, subtle. Target 60fps. Support Reduce Motion.

#### **Durations:**

- Micro: 120–180ms (button press, toggle)
- Standard: 180–260ms (card expand, sheet present)
- Celebratory: 400–700ms (milestone achieved, earn animation)

#### **Easing:**

- Enter: easeOutQuad (smooth deceleration)
- Exit: easeInQuad (smooth acceleration)
- Continuous: easeInOutQuad (smooth both directions)

#### **Shield appearance:**

- Enter: fade + scale 0.95→1.0 (260ms) + backdrop dim to 45% (180ms)

- Exit: fade + scale 1.0→0.95 (180ms)
- Haptics: light impact on enter; success haptic on dismissing without spending

#### **Earn animation ("coin to wallet"):**

- "+5:00" badge appears above shield (fade in 120ms)
- Slides to wallet position in corner (220ms slide)
- Wallet icon pulses (120ms scale 1.0→1.15→1.0)
- Optional "earn chime" sound (if enabled)
- Confetti burst on milestone earns (500ms, skippable with Reduce Motion)

#### **Countdown (when spending):**

- Progress bar sweeps left-to-right (smooth per-second)
- Color shifts: green → yellow at 30s → red at 10s (2-second transition)
- At <10s: gentle pulse animation (scale 1.0→1.03→1.0 every second)
- At 0s: single shake (x±3px, 100ms) + warning haptic + shield reappears

#### **Buttons:**

- Press: ripple effect (140ms) + scale 0.97→1.0
- Disabled: 60% opacity + no interaction
- Destructive (disable protection): requires long-press 600ms with fill animation

#### **Trend graph:**

- Bars/line animate in from bottom-to-top (staggered 40ms per point, max 1000ms total)
- Highlight current day with subtle pulse
- Tap data point: tooltip appears (fade + slide 180ms)

#### **Reduce Motion ON:**

- Disables all scale/slide animations
- Snaps values instantly
- Disables confetti/celebratory effects
- Maintains fade-in/out only (120ms)

## **6.4 Sounds & Haptics (locked)**

#### **Sounds (off by default, opt-in in Settings):**

- **Earn chime:** Gentle ascending tone (200ms) when +5:00 awarded
- **Time's up tone:** Neutral descending tone (300ms) when countdown reaches 0s
- **Milestone:** Brief celebratory chord (400ms) on streak/achievement unlock

#### **Haptics (on by default):**

- **Light impact:** Shield appears, button press
- **Success haptic:** Earn awarded, urge resisted (chose not to bypass)
- **Warning haptic:** <10s remaining on countdown, expensive bypass prompt
- **Error haptic:** Bypass denied (out of tokens/peeks)

#### **Accessibility:**

- All haptics have TalkBack audio equivalents
- Sounds have visual indicator alternatives (flash/pulse)
- User can disable both independently in Settings

## 6.5 Notifications (locked minimal)

**Principles:** Minimal, respectful, opt-in. No nagging.

**Notifications (all opt-in):**

1. **Earn awards (opt-in):** "+5:00 earned. Balance: 27m available"
  - Frequency: per completed earn (hourly if blocking continuously)
  - Silent notification (badge only, no sound/banner unless user enables)
2. **Curfew reminders (opt-in, Premium/Pro):**
  - "Curfew starts in 10 minutes — 4 apps will be blocked"
  - Sent 10 min before curfew window opens
3. **Weekly digest (Phase 2, Premium/Pro):**
  - Sunday evening: "This week: 12h 48m saved • 6-day streak • Top block: Instagram"
  - Shows 7-day trend graph + milestone progress
4. **Milestone achievements (on by default, can disable):**
  - "7-day streak unlocked 🔥 — you're building a habit"
  - "100 hours saved 🏆 — that's 4+ full days back"
  - Silent notification unless user enabled sound

**No notifications for:**

- Upsells/paywalls (in-app only)
- Credit running low (user can see in-app)
- Bypass attempts (would be annoying)

## 6.6 Visuals (locked)

**Design system:**

**Style:** Calm, clean, numbers-first, empowerment-focused

**Colors:**

- Action: #4C8BF5 (iOS blue)
- Success: #27C084 (green)
- Warn: #F5A623 (amber)



- Danger: #EB5757 (red)
- Background: #0E1116 (dark mode primary) / #F5F5F7 (light mode)
- Text: #E8EAE8 (dark mode) / #1D1D1F (light mode)

#### **Icon:**

- Circular badge with diagonal "feed bars" crossed (Ø with diagonal slash)
- Monochrome-friendly (works in grayscale)
- Scales to all iOS sizes (1024px App Store → 20px system)

#### **Typography:**

- iOS system default (San Francisco)
- Large numerals for time/stats: SF Pro Display, weight 600
- Body text: SF Pro Text, weight 400
- Headlines: SF Pro Display, weight 700

#### **Spacing:**

- Base unit: 8px grid
- Card padding: 16px
- Section spacing: 24px
- Component margins: 12px

#### **Elevation/depth:**

- Cards: subtle shadow (y=2px, blur=8px, opacity=0.08)
- Sheets: backdrop blur + dim (blur=20px, dim=45%)
- Shields: full opacity backdrop (dim=60%, no blur for performance)

## **6.7 Accessibility & Localization (locked)**

### **Accessibility (WCAG AA minimum):**

#### **Visual:**

- Contrast ratio  $\geq 4.5:1$  for all text (7:1 for large text)
- Touch targets  $\geq 44 \times 44$ pt (iOS HIG standard)
- Support Dynamic Type (scales text from -3 to +5 sizes)
- Never rely on color alone (use icons + labels)

#### **VoiceOver:**

- All interactive elements have labels
- Shield announces: "Instagram blocked, earning mode. You have 27 minutes available. Button: Use credits."
- Stats announce values with context: "Time saved today: 2 hours 15 minutes — you're building real control"
- Countdown announces every 10 seconds when <60s remaining
- Correct focus order (logical tab sequence)
- Grouped related elements (stats card = single focus stop)

**Motor:**

- No gestures required (all actions have button alternatives)
- Long-press destructive actions (600ms) have visual fill progress
- Shake-to-undo disabled (some users can't control)

**Reduce Motion:**

- Respects system setting automatically
- Disables all scale/slide/rotate animations
- Maintains simple fade transitions only
- Removes confetti/celebration effects

**Localization (Phase 1: English only):**

- All strings externalized to `Localizable.strings`
- Date/time formatted per locale (`DateFormatter`)
- Number formatting per locale (`NumberFormatter`)
- Right-to-left (RTL) layout support built in (but not localized)
- Phase 2: Add Spanish, Portuguese, French, German, Japanese, Korean, Chinese (Simplified)

## 7) Tech & Architecture (iOS-specific)

### 7.1 Platform & stack

**Platform:** iOS (minimum iOS 16.0+ for ScreenTime API maturity)

**Language:** Swift 6.0 (native, required for ScreenTime API)

**UI Framework:** SwiftUI (primary) + UIKit (only where SwiftUI gaps exist)

**Key APIs:**

- **FamilyControls:** Authorization for ScreenTime access
- **ManagedSettings:** Apply shields to specific apps
- **DeviceActivity:** Monitor usage and trigger earn/spend logic
- **ScreenTime API:** Core blocking infrastructure (Apple's only sanctioned method)

**Data persistence:**

- **SwiftData** (iOS 17+) or **Core Data** (iOS 16 fallback) for local database
- **Keychain** for sensitive data (passcode, token counts)
- **UserDefaults** for simple preferences only

**Billing:**

- **StoreKit 2** (async/await, preferred) with StoreKit 1 fallback
- **RevenueCat** (optional, for simplified subscription management & analytics)

## 7.2 Modules (Swift packages)

```
ScrollOff/  
├─ CoreBlocking/           # ScreenTime API wrapper, shield  
management  
├─ EarnEngine/             # Abstinence tracking, award  
calculation  
├─ SpendEngine/            # Foreground time tracking,  
credit deduction  
├─ ScheduleEngine/         # Cooldown & curfew state  
machines  
├─ InsightsEngine/         # NEW: Pattern analysis, trend  
calculation  
├─ BehaviorScience/        # NEW: If-then plans,  
mindfulness content  
├─ UI/                     # SwiftUI views, view models  
├─ Models/                 # SwiftData/CoreData models  
├─ Billing/                 # StoreKit 2 wrapper,  
entitlements cache  
├─ Reliability/            # Health checks, permission  
verification  
├─ Analytics/              # Local event logging (no  
network)  
└─ Extensions/             # Date, String, etc. helper  
extensions
```

## 7.3 Data model (SwiftData/CoreData entities)

```
@Model  
class BlockedApp {  
    @Attribute(.unique) var bundleID: String  
    var displayName: String  
    var addedAt: Date  
    var tierLimit: Bool // true if user needs upgrade to  
block more  
}  
  
@Model  
class Wallet {
```

```

        @Attribute(.unique) var id: String // "global" or
"app:bundleID"
        var balanceSeconds: Int
        var rolloverExpiry: Date?
    }

    @Model
    class CreditLedger {
        var timestamp: Date
        var deltaSeconds: Int
        var reason: LedgerReason // enum: earn, spend, bypass,
adjust, starterDemo
        var appBundleID: String?
        var note: String?
    }

    enum LedgerReason: String, Codable {
        case earn, spend, bypassFree, bypassCredit,
bypassToken, adjust, starterDemo
    }

    @Model
    class CooldownState {
        @Attribute(.unique) var appBundleID: String
        var lockedUntil: Date
    }

    @Model
    class CurfewSchedule {
        var startLocalTime: String // "23:00"
        var endLocalTime: String // "07:00"
        var daysMask: Int // bitmask: Sun=1,
Mon=2, ... Sat=64
        var isActive: Bool
        var affectedAppIDs: [String]
    }

    @Model
    class ImplementationIntention { // NEW

```

```

        var triggerText: String          // "When I'm bored during
work calls"
        var responseText: String         // "I will doodle in my
notebook"
        var createdAt: Date
        var timesReferenced: Int         // track if users review
their plans
    }

@Model
class BypassTokens {
    @Attribute(.unique) var monthID: String // "2025-10"
    var includedCount: Int                 // Pro: 3, others: 0
    var purchasedCount: Int                // tracks purchases this
month
    var usedCount: Int                     // total used this month
}

@Model
class MindfulnessSession { // NEW
    var timestamp: Date
    var exerciseType: String             // "breath", "grounding",
"bodyScan"
    var completed: Bool
    var bypassAvoided: Bool              // true if user didn't
bypass after exercise
}

@Model
class UsageInsight { // NEW - cache computed insights
    var weekStartDate: Date
    var peakBlockHour: Int                // 21 for 9pm
    var strongestDay: String              // "Wednesday"
    var totalTimeSaved: Int               // seconds
    var topBlockedApp: String             // "Instagram"
}

```

## 7.4 State machines

**Earn engine:**

- **Trigger:** Runs continuously when earn conditions met (no blocked app opened)
- **Tracking:** Increments abstinence counter per elapsed minute
- **Award:** After 60 consecutive minutes, commits +300s to wallet ( $\leq 5$ s delay for database write)
- **Reset:** Any blocked app opened (including peek) resets counter to 0
- **Cap enforcement:** Daily earn cap checked before award; excess discarded with user notification
- **Rollover:** At local midnight, expire credits based on tier rollover rules

#### Spend engine:

- **Trigger:** User chooses "Use credits" on shield
- **Behavior:** Remove shield, monitor app foreground state, deduct 1s per second from wallet
- **Pause:** When app backgrounds, pause deduction (timer stops)
- **Resume:** When app returns to foreground, resume deduction
- **Termination:** At 0 seconds remaining, re-apply shield instantly ( $\leq 250$ ms)
- **Per-app wallets (Pro):** Check per-app wallet first, fall back to global wallet

#### Cooldown state machine:

- **Start:** Begins immediately when user toggles app to "Blocked"
- **Duration:** Based on tier (Free: 2h, Premium: 1h, Pro: 30m)
- **Enforcement:** "Unblock" button disabled until `lockedUntil` timestamp expires
- **Clock resistance:** Store absolute timestamp (not duration) to prevent clock manipulation
- **UI:** Show countdown timer: "Locked for 1h 42m"

#### Curfew state machine:

- **Scheduling:** User defines daily time window (e.g., 11pm-7am) + affected apps + days of week
- **Edit lock:** 30 minutes before start time, edits disabled until curfew ends
- **Active window:** During curfew, affected apps always shielded (credits cannot be spent, bypasses disabled)
- **Website enforcement:** If "Block Safari during curfew" enabled, add Safari to shield list during window
- **Midnight handling:** Correctly handles curfews spanning midnight (11pm  $\rightarrow$  7am)

#### Bypass ladder (per local day):

- **Step 1:** Free peek (60s) — Free tier: 1/day, Premium: 2/day
- **Step 2-3:** Credit-paid peek (60s each, costs 60s from wallet)
- **Step 4 (optional):** Mindfulness intervention prompt
- **Step 5+:** Emergency Token purchase (\$0.99) — check monthly cap (5 max)
- **Reset:** All counters reset at local midnight
- **Pro tokens:** 3 included tokens replenish monthly

## 7.5 ScreenTime API implementation details

#### Authorization flow (FamilyControls):

```

import FamilyControls

let center = AuthorizationCenter.shared
try await center.requestAuthorization(for: .individual)
Shield application (ManagedSettings):

import ManagedSettings
import FamilyControls

let store = ManagedSettingsStore()
let selection = FamilyActivitySelection() // user-selected
apps
store.shield.applications = selection.applicationTokens
store.shield.applicationCategories = .specific([]) //
empty, not using categories
Custom shield configuration:

// iOS 16+: Can't customize shield UI directly, but can:
// 1. Use DeviceActivity to detect shield encounters
// 2. Show local notification with messaging
// 3. Log event for analytics

// iOS 17+: ShieldConfiguration allows custom messaging
let config = ShieldConfiguration(
    backgroundBlur: .systemMaterial,
    backgroundColor: Color(hex: "#0E1116"),
    icon: Image("shield-icon"),
    title: Text("Blocked (earning mode)"),
    subtitle: Text("Nice – you've earned +5:00 today"),
    primaryButton: Text("Use credits"),
    secondaryButton: Text("60-sec peek")
)
DeviceActivity monitoring (usage tracking):

import DeviceActivity

let schedule = DeviceActivitySchedule(
    intervalStart: DateComponents(hour: 0),
    intervalEnd: DateComponents(hour: 23, minute: 59),
    repeats: true
)

```

```
let center = DeviceActivityCenter()
try center.startMonitoring(
    .earnTracking,
    during: schedule
)
)
```

### Handling ScreenTime API limitations:

#### Known issues (per iOS developer community):

- Shield sometimes doesn't appear on first app open (workaround: detect in DeviceActivity, show local notification)
- Authorization can be revoked by user in Settings → ScreenTime (monitor authorization state, prompt re-authorization)
- 50-app limit on individual app shields (workaround: use category shields for large collections)
- Cross-device sync unreliable (Phase 1: single-device only; Phase 2: cloud sync)

#### Reliability mitigations:

- **Health checks:** Poll authorization status every 5 minutes while app in foreground
- **Shield verification:** Attempt test shield application after user blocks new app, verify with DeviceActivity event
- **Fallback notifications:** If shield fails to appear, send local notification: "Stay strong — Instagram is blocked"
- **User education:** Settings → Reliability screen explains how to maintain ScreenTime authorization

## 7.6 Performance & battery

#### Battery targets:

- **Idle:** ≤0.5% battery per hour (device locked, no usage)
- **Active:** ≤1.5% per hour (normal usage with shields active)
- **24-hour test:** ≤12% total battery impact (combined idle + active)

#### Optimization strategies:

- **DeviceActivity monitoring:** Only track during intervals when earn/spend active (not 24/7)
- **Background processing:** Minimal; ScreenTime API handles most monitoring
- **Database writes:** Batch ledger entries, write every 60s or on app termination
- **Animations:** Stop all animations when app backgrounds
- **No long-running timers:** Use DeviceActivity events instead of polling

#### Profiling (Xcode Instruments):

- Energy Impact: Target "Low" or "Very Low" during typical usage



- Time Profiler: No method >100ms in hot path
- Allocations: No memory leaks, stable heap growth
- Network: Zero network activity (Phase 1 local-only)









## 7.7 Anti-tamper & integrity

### iOS-specific considerations:

#### Cannot prevent:

- User disabling ScreenTime authorization in Settings
- User deleting the app entirely
- System clock manipulation (can detect and respond)

#### Can mitigate:

- **Passcode protection (Pro):** Require passcode to change block lists, disable curfews, modify protections
  - Stored in Keychain with biometric unlock option
  - Does NOT prevent app deletion (iOS restriction)
- **Authorization monitoring:** Check FamilyControls authorization status every 5 minutes
  - If revoked, show full-screen prompt: "ScreenTime access required to continue blocking"
- **Clock tampering detection:**
  - On app launch, check system time vs last-known time
  - If rollback detected (>10 min backwards), freeze earn engine for current day
  - Show warning: "Clock change detected — earns paused until tomorrow"
- **Integrity checks (Reliability screen):**
  -   ScreenTime authorization active
  -   DeviceActivity monitoring running
  -   Shield configuration valid
  -   Last shield latency acceptable (<500ms)

#### User education (not enforcement):

- "This app works best when you want it to work"
- "We can't stop you from disabling it — but we can help you stay committed"
- Emphasize self-regulation over control

## 7.8 Permissions & privacy

### Required permissions:

- **FamilyControls authorization:** Required for ScreenTime API access
  - Prompt: "Scroll Off needs ScreenTime access to block apps and track your progress"

- Usage: Apply shields, monitor usage
- Data: All data stays on device; no network transmission

#### **Optional permissions:**

- **Notifications:** For earn awards, curfew reminders, weekly digest
  - Requested after first earn event (contextual, not upfront)
- **Face ID / Touch ID:** For Pro passcode unlock (convenience)

#### **Privacy guarantees (Phase 1):**

- **Zero network activity:** No analytics, no crash reporting, no cloud sync
- **On-device only:** All data stored locally in app sandbox
- **No account required:** No email, no phone number, no identity
- **App Store privacy label:** "Data Not Collected"

#### **Data retention:**

- Credit ledger: 90 days (then purged)
- Usage insights: 30 days rolling window
- Implementation intentions: Never deleted (user can manually archive)
- Wallet balance: Persistent until app deletion

## **8) Analytics & Activation Funnel (enhanced)**

### **8.1 Event taxonomy (local log only, Phase 1)**

#### **Blocking & shielding:**

- `app_blocked(bundleID, tier)` — user adds app to block list
- `shield_shown(bundleID, credits_available)` — shield appeared on app open
- `shield_dismissed_no_spend` — user closed shield without spending (willpower win)

#### **Earning & spending:**

- `earn_award(seconds, wallet_id, daily_cap_hit)` — +300s awarded after 60min
- `spend_tick(seconds_spent, seconds_remaining, bundleID)` — credit deduction per second
- `wallet_empty(bundleID)` — credits depleted, shield re-applied

#### **Bypass:**

- `bypass_free_peek(bundleID, peeks_remaining)` — used free 60s peek
- `bypass_credit_peek(bundleID, cost_seconds)` — used credit-paid peek

- `bypass_token_purchased(month_id, tokens_used_this_month)` — purchased Emergency Token
- `bypass_token_cap_hit` — tried to purchase but monthly cap reached
- `mindfulness_prompted(exercise_type)` — NEW: shown mindfulness intervention
- `mindfulness_completed(exercise_type, bypass_avoided)` — NEW: completed exercise
- `mindfulness_skipped(exercise_type)` — NEW: user skipped exercise

#### **Cooldown & curfew:**

- `cooldown_start(bundleID, duration_seconds)` — cooldown lock begins
- `cooldown_unblock_attempted(time_remaining)` — user tried to unblock during cooldown
- `curfew_start(schedule_id, app_count)` — curfew window begins
- `curfew_edit_blocked(time_until_start)` — user tried to edit during lock period

#### **Behavioral science (NEW):**

- `if_then_plan_created(trigger_hash, response_hash)` — implementation intention created
- `if_then_plan_viewed(plan_id)` — user reviewed their plans
- `self_efficacy_message_shown(context, message_type)` — empowerment message displayed
- `pattern_insight_shown(insight_type)` — user saw usage pattern insight

#### **Billing:**

- `subscription_purchase_initiated(sku)` — user tapped upgrade button
- `subscription_purchase_completed(sku, price)` — successful purchase
- `subscription_restored(sku)` — user restored previous purchase
- `paywall_shown(context, sku_shown)` — upgrade prompt displayed

#### **Reliability:**

- `reliability_check_pass(component)` — health check succeeded
- `reliability_check_fail(component, error)` — health check failed
- `authorization_revoked` — ScreenTime access disabled by user

#### **Milestones & insights (NEW):**

- `milestone_unlocked(milestone_id, value)` — 7-day streak, 100-hour saved, etc.

- `personal_record(metric, value)` — new personal best (most time saved in day, longest streak)
- `weekly_insight_shown(peak_hour, strongest_day, time_saved)` — pattern insight displayed

## 8.2 Activation funnel (enhanced)

### Funnel stages:

**A0:** App opened (download → first launch)

**A1:** Permissions granted (ScreenTime authorization completed)

**A1.5 (NEW):** Implementation intention created (at least 1 if-then plan made)

**A2:**  $\geq 1$  app blocked (user selected first app to block)

**A3:** First shield shown (user encountered block for first time)

**A3.5 (NEW):** Shield dismissed without spending (first willpower win)

**A4:** First spend (used credits for  $\geq 30$ s)

**A5:** First earn (+300s awarded after 60min abstinence)

**A6 (NEW):** Pattern insight viewed (user saw their 7-day trend/peak hours)

**A7 (NEW):** Milestone unlocked (7-day streak, 30-day warrior, or 100h saved)

### Target conversion rates (Day 1 for actives):

- A0 → A1:  $\geq 75\%$  (permissions critical; optimize prompt clarity)
- A1 → A1.5:  $\geq 65\%$  (if-then builder must feel quick and valuable)
- A1.5 → A2:  $\geq 85\%$  (natural next step after onboarding)
- A2 → A3:  $\geq 90\%$  (users will try to open blocked apps quickly)
- A3 → A3.5:  $\geq 50\%$  (half resist bypass on first encounter)
- A3.5 → A4: 40-50% (willpower wins are good, but some spending is expected)
- A4 → A5:  $\geq 30\%$  (within 24 hours — this validates earn loop)
- A5 → A6:  $\geq 40\%$  (within 7 days — users engage with insights)
- A6 → A7:  $\geq 20\%$  (within 30 days — reach first major milestone)

### Critical drop-off points to monitor:

- A1 dropout: Permission denial (improve education, show value first)
- A1.5 dropout: If-then builder feels like work (streamline, better templates)

- A4 dropout: Credits not used (may indicate over-earning or lack of temptation — good problem)
- A5 dropout: Never earned (didn't block long enough — improve onboarding education)

### 8.3 North-star KPIs

#### Retention:

- **D1 retention (all users):**  $\geq 55\%$  (return day after install)
- **D7 retention (actives):**  $\geq 40\%$  (still using after 1 week)
- **D30 retention (Premium/Pro):**  $\geq 30\%$  (critical for subscription renewal)

#### Engagement:

- **Median time saved per day (actives):**  $\geq 45$  minutes
- **Shields encountered per day:** 8-15 (sweet spot — not too few, not constant fighting)
- **Willpower wins (dismiss without spending):**  $\geq 30\%$  of shield encounters
- **Implementation intentions created:**  $\geq 2.5$  average per user

#### Behavioral outcomes (NEW):

- **7-day streak achievement:**  $\geq 25\%$  of users (within first 14 days)
- **30-day milestone:**  $\geq 10\%$  of users (within first 45 days)
- **Pattern insight engagement:**  $\geq 40\%$  tap on trend card (within first 7 days)
- **Self-efficacy message views:**  $\geq 80\%$  of users see empowerment messages (not skipped)

#### Monetization:

- **Free → paid conversion:** 5-8% within 14 days (iOS productivity app standard)
- **Trial → paid:**  $\geq 25\%$  (if offering trials)
- **Annual subscription mix:**  $\geq 50\%$  of Premium/Pro (annual better LTV)
- **Bypass token revenue:**  $< 20\%$  of total (healthy boundary — not dependency)

#### Product integrity:

- **Shield success rate:**  $\geq 98\%$  (shields appear when expected)
- **Authorization retention:**  $\geq 92\%$  (users keep ScreenTime access enabled)
- **Crash-free sessions:**  $\geq 99.5\%$
- **Battery complaints:**  $< 2\%$  of users

### 8.4 Monitoring & dashboards (local-only Phase 1)

#### In-app analytics viewer (Pro feature or debug build):

- Event log browser (last 1000 events, searchable)
- Funnel visualization (A0→A7 with conversion rates)
- KPI dashboard (retention, engagement, monetization)
- Export as CSV (for external analysis)






#### Phase 2 (cloud analytics):

- Aggregate anonymized metrics to understand cohort behavior
- A/B test infrastructure (price testing, copy testing)
- Crash reporting (Firebase Crashlytics or Sentry)
- Real-time dashboard (Mixpanel, Amplitude, or custom)





## 9) QA Acceptance Criteria (iOS-specific)

### Core functionality






#### Shield blocking:

-  Shield appears  $\leq 500\text{ms}$  after opening blocked app
-  Shield persists on app relaunch (close + reopen still blocked)
-  Shield prevents all interaction (cannot tap through)
-  Shield respects Reduce Motion (no animations if enabled)
-  Shield shows correct messaging (rotates through empowerment messages)






#### Website domain blocking:

-  When Instagram app blocked, instagram.com blocked in Safari
-  Custom domains can be added manually (reddit.com, twitter.com)
-  Domain blocks active whenever app is blocked (not just during curfew)
-  Browsers show appropriate message when domain blocked





#### Earn engine:

-  +300s posted  $\leq 5\text{s}$  after minute 60 of abstinence
-  Mid-cycle app open resets counter to 0
-  Daily cap enforced correctly (Free: 45m, Premium: 90m, Pro: 120m)
-  Rollover expires at local midnight per tier rules
-  Starter credit (+120s) awarded once after onboarding, labeled "starter credit"






#### Spend engine:

-  Deduction exactly 1s per second when app in foreground
-  At 0s, shield reappears  $\leq 250\text{ms}$
-  Background pauses deduction (app backgrounds  $\rightarrow$  timer stops)
-  Foreground resumes deduction (app returns  $\rightarrow$  timer continues)
-  Per-app wallets (Pro) deduct from correct wallet







#### Cooldown:

-  Starts immediately when user toggles app to Blocked
-  Unblock button disabled until expiry (Free: 2h, Premium: 1h, Pro: 30m)
-  Countdown shows time remaining accurately
-  Clock rollback doesn't shorten cooldown (absolute timestamp check)

#### **Curfew:**







-  Enforced daily per schedule (affected apps always blocked during window)
-  Edits locked 30m before start and during active window
-  Midnight-spanning curfews work correctly (11pm → 7am)
-  Optional Safari blocking during curfew works (when enabled)
-  Countdown shows "Curfew starts in X minutes" 10min before

#### **Bypass ladder:**




-  Free peek resets at local midnight (Free: 1/day, Premium: 2/day)
-  Credit-paid peeks deduct 60s per peek
-  Mindfulness prompt appears at Step 4 (when enabled)
-  Emergency Token purchases capped at 5/month (all tiers)
-  Pro users start each month with 3 included tokens
-  "Token limit reached" message shown when cap hit


### **Behavioral science features (NEW)**

#### **Implementation intentions:**






-  Onboarding includes if-then builder as Step 4
-  At least 1 plan required to proceed (encourage 3-5)
-  Templates provided (4 categories: bored, can't sleep, procrastinating, waiting)
-  Full text customization allowed
-  Plans stored in database and viewable in Settings
-  Completion tracked as activation metric A1.5

#### **Self-efficacy messaging:**







-  All stats use empowering frames: "You're building real control — 2h saved"
-  Willpower wins celebrated: "You resisted — that took real strength"
-  Milestones emphasize capability: "30 days strong — you've proven you can do this"

-  No shame-based messaging anywhere in app

#### **Mindfulness integration:**





-  Optional prompt at expensive bypass points (Step 4)
-  Three exercise types available (breath, 5-4-3-2-1, body scan)
-  User can skip immediately or complete
-  Completion tracked: `mindfulness_completed(type, bypass_avoided)`
-  Can be disabled entirely in Settings

#### **Pattern insights:**






-  7-day trend graph shows daily time saved (sparkline on Dashboard)
-  Full-screen detail view on tap
-  Pattern insight card shows peak block times (hourly heatmap)
-  Strongest day identified ("Wednesday avg 2.5h saved")
-  Week-over-week comparison: "This week +37% better than last"
-  Personal records highlighted: "Today: 3h 12m — your best ever!"

### **Reliability & performance**


#### **ScreenTime authorization:**

-  Grants authorization successfully on first request
-  Monitors authorization status (checks every 5 min when app active)
-  Prompts re-authorization if revoked
-  Settings → Reliability shows PASS/FAIL status




#### **Health checks (Reliability screen):**

-  ScreenTime API authorized: PASS/FAIL
-  DeviceActivity monitoring active: PASS/FAIL
-  Shield configuration valid: PASS/FAIL
-  Last shield latency: <500ms target, shows actual ms
-  Each FAIL deep-links to iOS Settings for fix






#### **Battery:**

-  24-hour idle test: ≤12% battery consumption total







-  Active usage:  $\leq 1.5\%$  per hour
-  No significant energy impact in Xcode Instruments (Low or Very Low rating)
-  No battery drain complaints in TestFlight beta

#### **Performance:**







-  Launch time:  $< 2$  seconds (cold start on iPhone 12)
-  Shield appears:  $< 500\text{ms}$  from app open
-  UI animations: 60fps (no dropped frames on iPhone SE 3)
-  Database queries:  $< 50\text{ms}$  for all reads
-  No ANRs (Application Not Responding)

#### **Stability:**




-  Crash-free sessions  $\geq 99.5\%$  (TestFlight beta)
-  100 shield cycles completed without crash
-  Memory stable (no leaks in Xcode Instruments Allocations)
-  No data corruption after force-quit  $\rightarrow$  relaunch

### **Billing & subscriptions**



#### **Purchases:**



-  Free  $\rightarrow$  Premium upgrade applies instantly (no restart required)
-  Free  $\rightarrow$  Pro upgrade applies instantly
-  Premium  $\rightarrow$  Pro upgrade prorates correctly
-  Emergency Token purchases process successfully
-  Token count updates immediately after purchase
-  Monthly token cap enforced (5 max, Pro includes 3)

#### **Restore:**

-  "Restore Purchases" works after reinstall
-  Subscription entitlements restored correctly
-  Pro passcode not required after restore (user must re-set)







#### **StoreKit testing:**

-  All SKUs configured in App Store Connect
-  Sandbox testing successful (test accounts)





-  No double-charge edge cases
-  Subscription renewal tested (1-month sandbox = 5 minutes)

## Accessibility




### VoiceOver:

-  All interactive elements have labels
-  Shield announces: "Instagram blocked. 27 minutes available. Button: Use credits."
-  Stats announce with context: "Time saved today: 2 hours 15 minutes — you're building real control"
-  Countdown announces every 10 seconds when <60s
-  Focus order logical (top-to-bottom, left-to-right)
-  Grouped elements properly (stat cards = single focus)





### Visual:

-  Contrast ratio  $\geq 4.5:1$  for all text (WCAG AA)
-  Touch targets  $\geq 44 \times 44$ pt (all buttons)
-  Dynamic Type supported (-3 to +5 text sizes)
-  Color not sole indicator (icons + labels everywhere)

### Motor:


-  No mandatory gestures (all actions have button alternatives)
-  Long-press actions show visual progress (600ms fill)
-  No shake-to-undo required




### Reduce Motion:

-  Respects system setting automatically
-  Disables all scale/slide/rotate animations
-  Maintains simple fade only
-  No confetti/celebration effects when enabled




## Localization (Phase 1: English only)

### String externalization:

-  All user-facing text in `Localizable.strings`

-  No hardcoded English strings in code
-  Date/time formatted per locale (DateFormatter)
-  Numbers formatted per locale (NumberFormatter)

#### **RTL support:**

-  SwiftUI respects .leading/.trailing (not .left/.right)
-  Layout mirrors correctly in RTL preview (Hebrew/Arabic test)
-  Icons flip appropriately (chevrons, arrows)

## **10) Legal, Policy, Privacy (frozen)**

#### **Permissions disclosure:**

- App Store listing explains ScreenTime API usage clearly:
  - "Scroll Off uses iOS ScreenTime API to block apps and track your focus time"
  - "All data stays on your device — no account required, no tracking"
- Screenshots show shield, earn/spend UI, stats dashboard
- Permission rationale in onboarding: "We need ScreenTime access to help you block distracting apps"

#### **Privacy commitment (Phase 1):**

- **Zero network activity** (no analytics, no crash reporting, no cloud sync)
- **On-device only** (all data stored locally in app sandbox + Keychain)
- **No account required** (no email, no phone, no identity collection)
- **App Store Privacy Label:** "Data Not Collected"
- In-app Privacy FAQ: explains on-device processing, permission usage, data retention

#### **Always-allow safety:**

- Never block Phone/FaceTime, Messages (unless user explicitly requests), Camera, Maps, 2FA apps, Settings → ScreenTime, Scroll Off itself
- Emergency services always accessible
- User can override any block (via bypass ladder or app deletion)

#### **Micro-transaction transparency:**

- Emergency Tokens clearly priced (\$0.99 each)
- Monthly cap (5 tokens) displayed prominently
- No hidden fees, no surprise charges
- Clear counter: "3 tokens left this month"

#### **No medical claims:**

- Never claim to treat addiction, ADHD, mental health conditions
- Position as "productivity tool" and "focus aid"
- Terms of Service disclaims medical advice







- Encourage users with serious issues to seek professional help

#### **Trademark & naming:**







- "Scroll Off" chosen as product name
- Run knockout TM search before filing (attorney review recommended)
- iOS bundle ID: `app.scrolloff` or `io.scrolloff.app`
- Register domain: `scrolloff.app` (if available)

## **11) Release Checklist (frozen)**






#### **Pre-launch (TestFlight beta):**

-  ScreenTime API authorization tested on multiple iOS versions (16, 17, 18)
-  Reliability screen shows all PASS after setup
-  Permissions walkthrough tested on multiple device types (iPhone SE, 12, 14 Pro, 15)
-  Battery testing completed: 24h idle + active usage under target
-  Crash-free sessions  $\geq 99.5\%$  in beta (minimum 100 users, 1 week)
-  Activation funnel tracked: A0→A7 conversion rates meet targets

#### **App Store submission:**





-  App Store listing: screenshots (6-7 required), description emphasizes value + privacy
-  Permission rationale in App Store Review Notes: explain ScreenTime API usage for digital wellbeing
-  Privacy label: "Data Not Collected" selected
-  No medical claims in copy (positioned as productivity tool)
-  All SKUs configured in App Store Connect: Free, Premium (\$4.99), Pro (\$8.99/mo, \$59.99/yr), Emergency Token (\$0.99)
-  Sandbox testing completed: purchases, restores, token caps

#### **Billing validation:**




-  Purchase flows tested with real test account (sandbox)
-  Restore Purchases works after reinstall
-  Subscription entitlements apply instantly
-  Token cap enforced (purchase blocked at 5/month)
-  No double-charge edge cases

#### **Accessibility audit:**







-  VoiceOver tested on all primary screens

-  Contrast ratios verified (all  $\geq 4.5:1$ )
-  Touch targets measured (all  $\geq 44 \times 44$ pt)
-  Dynamic Type tested (-3 to +5 sizes)
-  Reduce Motion verified (animations disabled)






#### **Localization readiness:**

-  All strings externalized to `Localizable.strings`
-  Date/number formatting uses system formatters
-  RTL layout tested (Hebrew/Arabic preview)

#### **Launch assets:**

-  App icon (1024×1024px + all required sizes)
-  Launch screen (matches brand, quick load)
-  App Store screenshots (6.7" and 5.5" sizes minimum)
-  Privacy Policy published (website URL in App Store listing)
-  Terms of Service published
-  Support email configured (support@scrolloff.app)

#### **Post-launch monitoring (first 48 hours):**

-  Monitor crash rates (target  $\geq 99.5\%$  crash-free)
-  Watch activation funnel (A0→A1 permission grant rate)
-  Track first purchases (validate pricing & IAP setup)
-  Check App Store reviews (respond to first feedback quickly)
-  Verify ScreenTime authorization success rate (target  $\geq 75\%$ )

## **12) Roadmap (post-MVP reference)**

### **Phase 2 (Months 7-14): Android + Cloud Intelligence**

- Android implementation (Accessibility Services + OEM testing)
- Cloud accounts & cross-device sync (Firebase/Supabase)
- Pattern learning (identify personal high-risk windows)
- Accountability partner (Pro): partner approval for disabling protections
- Weekly email digests (Premium/Pro)
- Billing-credit cashback for adherence (Pro)
- Basic browser extension (domain blocks synced with phone)

### **Phase 3 (Months 15-24): Ecosystem & Enterprise**

- Feature parity (iOS + Android fully matched)
- Org/edu licensing (admin dashboard, team challenges, cohort reporting)
- Family plans (parent-child linking)
- Deeper AI coach (relapse prediction, personalized intervention timing)
- Desktop apps (macOS, Windows) with cross-platform sync
- API for integrations (Notion, Todoist, RescueTime)

**Ongoing (all phases):**

- Behavioral science iteration (test new interventions based on research)
- Localization expansion (Spanish, Portuguese, French, German, Japanese, Korean, Chinese)
- Community features (forums, success stories, user-generated content)
- Academic partnerships (publish effectiveness studies)

## 13) Appendices (ready to paste)

### A) Copy Snippets (iOS shield & UI)

**Shield title:** "Blocked (earning mode)"

**Shield rotating subs (3-second intervals):**

- "Nice — you've earned +5:00 today"
- "1 more hour → +5:00 more"
- "You're building real self-control"
- "A short break is okay — earn it first"
- "Stay strong — you've got this"

**Bypass buttons:**

- "60-sec peek (1 left today)"
- "Peek costs 60s credit (you have 12m)"
- "Buy Emergency Token \$0.99 (3 left this month)"
- "Token limit reached — fresh start next month"

**Mindfulness prompt:**

- "Try this first: 2-minute breath awareness"
- "You can skip this or give it a try"


**Curfew messages:**

- "Next curfew: Tonight 11pm-7am • Instagram, TikTok, Reddit blocked"
- "Curfew edits locked during active window"
- "Curfew starts in 10 minutes"




**Empty wallet:**

- "You're close — 18 minutes until next +5:00"
- "Stay strong — keep earning"

### Stats (self-efficacy framing):

- "Saved 2h 15m today — you're building real control"
- "Earned 25m • 6 urges resisted — that's real strength"
- "This week: +37% better than last week — real progress 

### Milestones:

- "7 days strong — you're proving you can do this 
- "30-day warrior — that's serious commitment 
- "100 hours saved — you've reclaimed 4+ full days 
- "Personal record — 3h 12m saved today (your best ever!)"

## B) Color tokens (iOS semantic colors)

```
extension Color {
    static let action = Color(hex: "#4C8BF5") // iOS
blue
    static let success = Color(hex: "#27C084") // green
    static let warn = Color(hex: "#F5A623") // amber
    static let danger = Color(hex: "#EB5757") // red

    // Adaptive (light/dark mode)
    static let background = Color(
        light: Color(hex: "#F5F5F7"),
        dark: Color(hex: "#0E1116")
    )
    static let textPrimary = Color(
        light: Color(hex: "#1D1D1F"),
        dark: Color(hex: "#E8EAED")
    )
}
```

## C) iOS ScreenTime permission deep link

```
// Settings → ScreenTime
if let url = URL(string: "App-prefs:root=SCREEN_TIME") {
    UIApplication.shared.open(url)
}
```

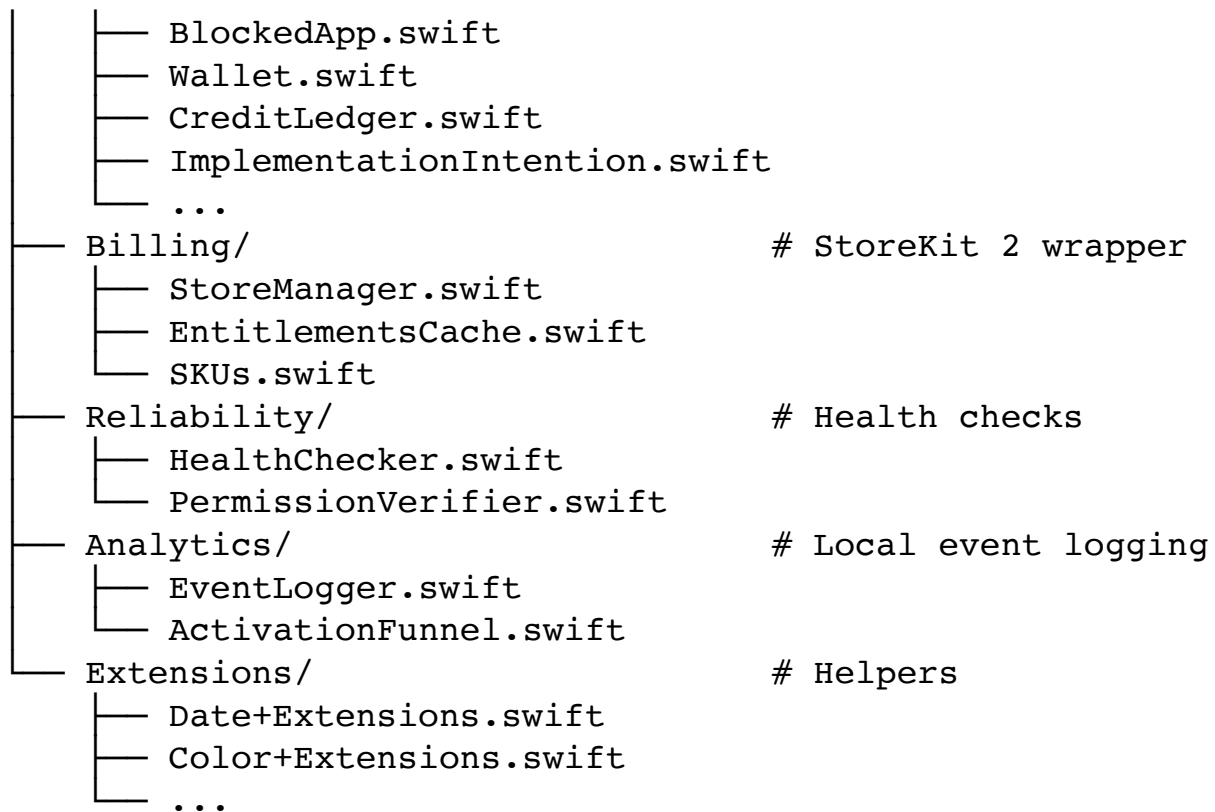
// Note: Deep linking to Settings is restricted in iOS

// Best practice: show instructions with screenshots

## D) Module structure (Xcode project)

```
ScrollOff/
├── App/
│   ├── ScrollOffApp.swift           # Main app entry point
│   ├── AppDelegate.swift           # iOS lifecycle
│   └── Info.plist
├── CoreBlocking/                   # ScreenTime API
└── wrapper
    ├── BlockingManager.swift
    ├── ShieldManager.swift
    ├── AuthorizationMonitor.swift
    ├── EarnEngine/                 # Abstinence tracking
    │   ├── EarnCalculator.swift
    │   └── DailyCapEnforcer.swift
    ├── SpendEngine/                # Credit deduction
    │   ├── ForegroundMonitor.swift
    │   └── WalletManager.swift
    ├── ScheduleEngine/             # Cooldown & curfew
    │   ├── CooldownStateMachine.swift
    │   └── CurfewScheduler.swift
    ├── InsightsEngine/             # NEW: Pattern
    └── analysis
        ├── TrendCalculator.swift
        ├── PatternDetector.swift
        └── MilestoneTracker.swift
    ├── BehaviorScience/            # NEW: If-then,
    └── mindfulness
        ├── ImplementationIntentions.swift
        ├── MindfulnessExercises.swift
        ├── SelfEfficacyMessaging.swift
        ├── UI/                     # SwiftUI views
        │   ├── Onboarding/
        │   ├── Dashboard/
        │   ├── Stats/
        │   ├── Settings/
        │   └── Components/
        └── Models/                 # SwiftData entities
```





## 14) Change Control (frozen)

This **v2.0 Charter** is the single source of truth. Any modification requires a new Charter v2.1 with a documented change log in Section 0.

No scope edits by prompt, meeting notes, or ad-hoc decisions outside formal versioning.

**Approval required from:** Karan (solo owner)

**Review cadence:** After MVP launch + 30 days user data (reassess pricing, features, roadmap)

**END OF CHARTER v2.0**