TaskBuddy — Prototype Specification (ID + UX + Engineering)

A calm, instrument-grade task device with deliberate constraints, magnetic stations, and daily loop closure.

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What this is: a buildable v1 concept focused on (1) a single satisfying completion action, (2) strict choice reduction (Top 3 only), (3) room-based context via magnetic docks, and (4) Apple Watch–style loop closure.

1 Product Definition

1.1 One-Line

A palm-sized device that shows only your **top three** tasks (always led by **Priority**) and advances only when you **Complete** or intentionally **Hold**, reinforced by a physical button and a calm "close-the-loop" reward.

1.2 Target User

People who have tasks across places (desk, kitchen, shop) and want less phone distraction and more follow-through.

1.3 Non-Goals

- Replace full task managers on phones.
- Enable infinite browsing or "task shopping" on-device.
- Become a notification feed or messaging device.

2 Behavior Design: Why It Works

Humans perceive "premium" as instant response, constraint, and calm presentation. The rules below convert those into behavior:

- **Constraint reduces avoidance:** only Top 3 prevents endless list scanning.
- **Physical commitment:** a button press creates an intentional state change.
- **Daily ritual windows:** limited planning windows satisfy autonomy without enabling procrastination.
- **Loop closure:** a small, consistent reward makes returning habitual.

3 Core UX Rules (Non-Negotiable)

3.1 The Top-3 Constraint

- Idle screen shows **no more than 3 tasks**.
- The first task shown is always the **Priority Task**.
- Additional tasks beyond 3 are not browseable on-device outside planning windows.

3.2 Progression Lock

- You cannot move forward without resolving the current task via:
  1. **Complete** (short press), or
  2. **Hold** (press-and-hold; time-boxed).
- "Scroll" is not a default navigation mechanic; it is earned or time-bounded.

3.3 Planning Windows (Option C)

Two brief daily windows allow curation of the Top 3:

- **Morning Plan:** curate today's Top 3 (and set Priority).
- **Evening Reset:** curate tomorrow's Top 3 (and clear loose ends).

Outside these windows the device returns to locked progression.

4 Interaction Model

4.1 Inputs

- **Primary Button (hero):**
  - Short press = **Complete**
  - Long press (1–2s) = **Hold**
- **Optional Secondary (prototype-dependent):**
  - A discreet side/rear button or short "peek" action used *only* in planning windows.

4.2 Haptics + Sound (Reward Language)

- **Complete:** crisp click + short chime + single haptic "thunk" (0.6–1.2s total).
- **Hold:** softer tone + subtle haptic tick; shows resume time.
- Sound is user-configurable; haptics remain default.

4.3 Hold Presets (Time-Boxed)

Hold is framed as intentional planning, not failure:

- Presets: 15m / 1h / After next calendar event / Tomorrow morning / Next time docked here
- Holds are finite and visible (countdown or timestamp).

5 Close-the-Loop System (Rings)

Three rings provide daily closure without turning into gamification noise:

1. **Priority Ring:** closes when the Priority Task is completed.
2. **Momentum Ring:** closes when 3 tasks are completed (tunable).
3. **Ritual Ring:** closes when Morning Plan + Evening Reset are completed.

Rings are shown as minimal arcs (2–3 tones max) and animate only on completion.

6 Magnetic Docks: "Place = Mode"

6.1 Core Idea

The device becomes context-aware by docking: kitchen, shop, bedroom, etc.

6.2 Recommended Build Approach

Steel in device, magnets in dock for cleaner device exterior and stronger station ecosystem.

6.3 Dock Identity (Prototype Choice)

Pick one for v1:

- **NFC tag in dock (recommended):** device reads dock identity when seated.
- **Resistor ID via contact pins:** reliable hardware ID with simple analog read.
- **BLE beacon:** flexible but adds pairing complexity.

6.4 Dock Requirements (Physical)

- "Snap" feel: magnets + alignment lip or pins to prevent rotation.
- Weighted plinth (counter dock) so button press does not slide the dock.
- Optional charging via pogo pins; optional non-charging mounts for walls/fridge.

7 Industrial Design (ID) + CMF

7.1 Form Language

Modernized Hasselblad/Braun: instrument-grade, calm, and strict hierarchy.

- Clear seam/shadow-line to visually slim the device.
- Micro-chamfers (0.3–0.6mm) everywhere to read "manufactured," not "printed."
- Display treated as an instrument panel (recessed "display island").

7.2 Materials + Finish (Lighting Stability)

Avoid glossy coats; keep appearance stable under varied light.

- Frame: bead-blasted or fine-brushed matte anodized aluminum.
- Faceplate: micro-texture matte polymer (oil-resistant).
- Window: anti-glare PC or coated glass-like PC.

7.3 Colorways (Two Portfolio Variants)

- **Graphite Instrument:** dark face + satin metal, minimal amber status bar.
- **Light Heritage:** warm off-white body + satin silver accents.

7.4 Accent Rule

One accent = one meaning. Recommended:

- Amber = Focus / locked-in state (subtle bar only)
- Green = Completion (brief, optional)

8 Engineering Architecture (Prototype-First)

8.1 Hardware Blocks

- MCU with BLE (primary connectivity).
- Display: e-ink (calm, always-readable) *or* Memory LCD (faster refresh).

- Inputs: primary button (required).
- Feedback: haptic motor + piezo/buzzer (optional sound).
- Power: Li-Po + USB-C charge/protection; optional fuel gauge.
- Dock I/O: pogo pins for power; optional NFC reader in device.

8.2 Firmware Strategy

- Instant wake-to-use is a quality requirement.
- Offline-first task state stored locally; phone app mediates cloud integrations.
- Signed firmware updates; OTA via phone (BLE) is sufficient for prototype.

8.3 Companion App (Minimal)

- Create/edit tasks; assign to locations; set Priority.
- Define Morning Plan / Evening Reset windows.
- Optional integrations: calendar sync and "friend availability" (future).

9 Exploded Stack (Matches Portfolio Render)

1. Front housing + window lens
2. Display module + gasket
3. Main PCB (MCU/BLE + power)
4. Button assembly (cap + switch + seal)
5. Haptic motor + piezo/buzzer
6. Magnet/steel plate + pogo contacts
7. Rear housing + fasteners
8. Dock plinth (weight + magnets + pogo + identity tag)

10 Prototype Plan (What You Can Actually Build)

10.1 Prototype 0: Feel + Ritual (1–2 weeks)

- Printed enclosure + button feel tuning + sound/haptic tuning.
- On-device: Top-3 screen + Complete/Hold + ring animation.
- Dock snap test (non-charging).

10.2 Prototype 1: Functional Dock + App (2–4 weeks)

- Dock identity (NFC recommended) and location-based task sets.
- BLE sync with a minimal companion app.
- Charging dock with pogo pins (optional).

10.3 Prototype 2: Reliability + Polish (4–8 weeks)

- Finish refinement; gasket; durability.
- Update pipeline (signed firmware) and fault recovery.

11 Test Plan (Prototype Metrics)

11.1 Quality Perception

- Wake-to-use latency target: "feels instant" (sub-200ms goal).
- Button feel: repeatability and crispness (no mush).
- Display readability in sunlight and mixed indoor lighting.

11.2 Behavior Outcomes

- Daily return rate to Morning Plan and Evening Reset.
- Completion rate of Priority Task (Priority Ring closure).
- Reduction in time spent "managing tasks" versus completing them.

11.3 Mechanical

- Dock shear resistance (button press should not slide).
- Drop test: pocket height; docked vs undocked.
- Button cycle test target: high actuation count.

12 Risks + Mitigations

Risk	Impact	Mitigation
Feels restrictive / user rejects lock	Abandonment	Make Hold intentional; planning windows restore autonomy
Dock slides during press	Feels cheap	Weighted base + alignment lip + silicone pad
Lag / slow refresh	"Not premium"	MCU-first; minimal animations; choose display carefully
Feature creep	Breaks clarity	Enforce Top-3 scope; keep browsing in app only

A Appendix A: Portfolio Renders

Place images in `figures/` and reference them here.

A.1 Hero + Exploded (Graphite Instrument)

A.2 Hero + Exploded (Light Heritage)

Figure 1: Graphite instrument variant: hero shot and exploded stack.

Figure 2: Light heritage variant: hero shot and exploded stack.