**AI Pin Re-envisioning: Summary of Approach, Prototypes, and Architecture**

**Summary of approach & rationale**

**Humane’s launch articles show that the AI Pin hardware includes an ultrawide RGB + depth camera, an always‑on microphone array, and upward‑firing Personic speakers. A “Laser Ink” projector beams a green‑hued UI onto your palm. Existing software features include basic real‑time translation, calorie and nutrition lookup, and a screen‑free, minimal‑notification philosophy aimed at digital well‑being. These functions informed our analysis of what is already available and where there are gaps.**

**Because translation and nutrition‑scanning already ship, I defined four truly new scenarios that exploit un‑used combinations of sensors and create clear bridges to Samsung ecosystems:**

1. **Mood‑Mirror Coach – detects vocal stress and posture using the mic and IMU; projects breathing patterns and logs mood to Samsung Health. Humane’s device currently offers passive well‑being (fewer notifications) but no active coaching.**
2. **Spatial Safety Bubble – fuses Doppler audio and vision to alert pedestrians of fast approaching bikes or scooters; risk scores can trigger Samsung Watch/SmartThings emergency features.**
3. **Stealth Palm‑Prompter – listens to your speech, matches it against your outline and lasers the next bullet onto your hand; syncs notes with Samsung DeX so you can present while maintaining eye contact.**
4. **Point‑&‑Pair SmartThings Assist – reads an appliance’s logo/QR code with the camera, fetches pairing instructions from SmartThings, and displays voice commands on your hand; one tap pairs the device via BLE/Wi‑Fi.**

**These use cases are grounded in the job description’s emphasis on rapid prototyping, immersive UX, and cross‑functional collaboration. None of them overlap with Humane’s existing features and each can be Wizard‑of‑Oz‑prototyped within a two‑week sprint.**

**Prototyping & architecture**

**The architecture slides outline a modular pipeline: ambient data from the AI Pin dev kit (camera, mic, IMU) flows to a nearby laptop running Python/Node for ML inference. Cloud APIs (e.g., Whisper for ASR, YOLO for vision, Samsung SmartThings) handle heavy lifting; outputs are simulated with a Unity palm projector and a simple haptic rig. This approach leverages existing open‑source models and the Pin’s hardware while minimising risk, and aligns with the job role’s need for fast prototyping and integration across platforms.**

**Sprint planning & throughput**

**The slide on sprint planning proposes a 0–2 sprint cadence: a Week‑0 setup phase (dev kits, journey maps), followed by two two‑week sprints. Sprint 1 produces Mood‑Mirror and Safety‑Bubble prototypes; Sprint 2 builds the Palm‑Prompter and SmartThings Assist. Each sprint yields functional demo videos and user‑test feedback, ramping fidelity from low‑fi Wizard‑of‑Oz to mid‑fi prototypes; occasional ML engineer support is needed for tuning.**

**Communication & presentation**

**Efficient communication is critical. I recommend daily Slack updates, weekly demo reviews, and a shared Figma/Miro space for storyboards.**