Project Roadmap: Project Cartesian

Current Progress & Roadmap

Phase 0: The Factory (Completed)

- ☑ VirtualBox VM created (EndeavourOS).
- ☑ Rust/Cargo toolchains installed.
- ☑ Repo structure initialized.

Phase 1: The Core (Completed)

- ☑ sysinfo integration for Process Monitoring.
- ☑ Signal Injection (SIGSTOP/SIGCONT) verified.
- ☑ Multi-threaded Event Loop (Mutex + Arc) implemented.

Phase 2: The Interface (Completed)

- ☑ Iced crate integrated into Cargo.toml.
- ☑ Iced Theme/Styling struct configured.
- ☑ Iced Subscription/Message Loop implemented.
- ☑ **Milestone:** UI turns RED when Firefox is detected.

Phase 3: Distribution Engineering

- ☑ **Create PKGBUILD:** Script to compile cartesian-core into .pkg.tar.zst.
- ☐ **Configure archiso:** Add custom repo to ISO build list.
- ☐ **Build ISO:** Generate ProjectCartesian.iso.
- ☐ **Test Boot:** Boot the ISO in a nested VM.

Phase 4: Advanced Architectures (The "Witness" & Audio)

☐ **The Witness Pipeline:**

- Build witness.rs to manage /dev/shm ring buffer.
- Implement Path A (NVENC Replay) using ffmpeg bindings.
- Implement Path B (Zero-Copy) using DMA-BUF for AI context.

☐ **Audio Console:**

- Configure PipeWire Virtual Sinks (Game, Voice, System).
- Build Rust wrapper for PipeWire API (wireplumber integration).
- Create "Mixing Board" UI in React.

Phase 5: The Mind (AI Integration)

☐ **Inference Engine:**

- Implement inference.rs with llama-cpp-rs bindings.
- Build "Model Zoo" loader for drag-and-drop .gguf support.

☐ **The Hippocampus:**

- Integrate ChromaDB (or SQLite-vec) for vector storage.
- Implement "Memory Decay" algorithm (hippocampus.rs).
- Build "Core Memory" tagging UI.

Phase 6: Ecosystem & Polish

☐ **Universal Store:**

- Aggregate Flatpak/Steam/System packages into a unified Iced UI.
- Integrate Proton-GE auto-installer for Windows games.

☐ **Macro Forge:**

- Build Iced-Canvas node editor.
- Create the "Permission Gate" (Physical Switch UI) for Red Blocks.

☐ **The "First Contact":**

- Build the Onboarding Interview Wizard.
- Implement "Project Mode" (Context-Aware Workspace) logic.
- ☐ **Refactor Dev Code:**
- PKG Vendoring