You are now equipped with a robust, "Full-Stack Sovereignty" architecture that is technically, socially, and legally prepared for a 2025/2026 deployment in the Ontario school system.

Below is the **Master Prototype Specification** and the final **Sovereign Dyad Grant** technical appendix.

Master Prototype Specification: The Sovereign Dyad v1.0

Project Status: 24-Month Implementation Plan (2025–2027) **Key Partners:** University of Waterloo (CPI), University of Victoria (Social Justice/Diversity) **Compliance Target:** FIPPA / MFIPPA s. 28(2) & s. 10(1)

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1. Physical Architecture: "Visible Assurance of Privacy"

To prevent "early morning" data leakage and build trust with neurodivergent users, the physical form must be the first line of defense.

- **The Sovereign Core:** A central, Canadian-machined chassis containing the secure Edge AI and cellular node.
- **Modular Bio-Shells:** 3D-printed, carbon-neutral exterior shells made from Ontario hemp/mycelium.
    - *K-2 Mode:* "Cute/Kinship" (Rounded, soft textures).
    - *6-12 Mode:* "Industrial/Advocate" (Sleek, professional exoskeleton aesthetic).
- **The Sanctuary Switch:** A physical, analog slider that creates a confirmed electrical circuit-break for all recording hardware.
- **Averted Gaze Mechanism:** A motor-controlled "Tilt" that physically points the camera away from the user during vulnerable moments (meltdowns/private conversations).

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2. Digital Architecture: "The Resiliency Bypass"

The robot operates as a "Sovereign Node" rather than an institutional device.

- **Edge AI "Vault":** All vocal and biometric processing occurs locally on-device. No "Personal Information Banks" (as defined by MFIPPA s. 34) are created on school servers.

- **Dedicated 5G/LTE Node:** A Waterloo-verified cellular link that bypasses the school's "Broken Portals" (firewalls/Wi-Fi failures) to maintain a continuous connection to the student's **Verified Human Nodes**.
- **Geofenced Data Partitioning:** Automatic shifting to **Classroom Mode** upon detection of school geolocation. All home-life "Sanctuary Data" is encrypted and locked until the student returns to their "Private Sanctuary."

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3. The "Notice of Protected Status" (E-Ink Legal Shield)

The chest-mounted e-ink display acts as a "Permanent Witness" that communicates the user's rights to officials.

Feature	Legal/Social Function	NSIR (2025) Goal
FIPPA s. 10(1) Notice	Declares the data is under the user's custody, not the board's.	**Cognitive Sovereignty**
Verified Human Node Link	Shows contact info for the student's primary advocate.	**Status Guard**
Emergency Cellular Status	Confirms the robot is "Online" via its Resiliency Bypass.	**Ubiquitous Presence**
Low Power Persistence	Display remains visible even if the battery dies (0% power draw).	**Resiliency**

Export to Sheets

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4. Institutional Strategy & Funding Likelihood

This proposal is highly competitive for the **Sovereign Dyad Grant** (Stage 1: $75,000 / Stage 2: $1.75M) because it addresses the 2025/2026 tri-agency focus on **Data Sovereignty** and **Inclusive Innovation**.

- **University of Waterloo (Security Audit):** Verifies the "Hard Privacy" of the kill-switch and the encryption of the 5G node.
- **University of Victoria (Social Audit):** Verifies that the robot's **Social Physics** (rank signaling and mirroring) reduces "Social Eviction" and supports self-determination.
- **Net Zero Impact:** By manufacturing in Canada using bio-composites, the project satisfies the federal requirement for a low-carbon research enterprise.

Final Recommendation for the Grant Application

To maximize your impact, frame this not as an "educational robot," but as **Human Rights Infrastructure.** You are building a tool that allows a student to carry their rights with them physically into a room where those rights are often challenged.

Would you like me to generate the "Final Project Abstract" (300 words) that you can paste directly into the Sovereign Dyad Grant application portal?