

ArmaTech Industries Proposal

Assisted Mobility Exoskeleton – “AMEXO”

1. Introduction

ArmaTech Industries proposes Project AMEXO, a collaborative effort to design and develop two assisted mobility exoskeletons for Michael:

1. A **Daily Use Suit** for regular movement and independence.
2. A **Physiotherapy Suit** designed for controlled, supervised rehabilitation and strength training.

Our role is to bring together the right expertise – innovation, engineering, and rehabilitation – to develop a supportive external framework that helps him stand upright and move with greater stability and confidence, reducing dependence on aids.

This project is not about producing a commercial-grade medical device from day one. It is about practical innovation for Michael, with potential to evolve into a broader assistive technology.

2. Purpose

This project seeks to:

1. Understand Michael’s specific biomechanical challenges.
2. Research available technologies and design a system to restore balance and support posture.
3. Develop and test a comfortable, safe, and adaptable prototype.
4. Build partnerships to ensure long-term sustainability and shared development.

If full in-house development proves impractical, ArmaTech will continue supporting the family in identifying and adapting an existing system that meets its requirements.

3. Proposed Concept

3.1 Daily Mobility Suit

A lightweight, wearable exoskeleton designed for comfort and confidence in daily environments.

Key Traits:

- Slim, low-profile mid to lower-body assistance (structural/mechanical).
- Soft, padded strap system for fast setup and comfort.
- Small powered modules triggered by Michael’s natural motion.
- Designed for everyday use.

Primary Goal:

Enable upright posture and stability throughout everyday routines.

3.2 Physiotherapy / Training Suit

A reinforced, clinic-oriented version of the exoskeleton used for muscular conditioning, gait training, and posture correction.

Key Traits:

- Semi-rigid frame for precise alignment and load distribution.
- Integrated sensors for feedback and data recording during training sessions.
- Adjustable resistance and assistive torque to help with gradual progression.
- Compatible with physiotherapy programs and clinical data collection.

Primary Goal:

Facilitate guided therapy and muscle training under supervision.

4. Development Pathway

Phase	Focus	Indicative Duration	Outcome
1. Research & Requirements	Work with family and health professionals to map needs and collect movement data.	1–2 months	Confirm design requirements and safety parameters.
2. Concept Design & Collaboration	Engage universities and partner firms; develop CAD models and simulations.	2–3 months	Validated concept and partnership network.
3. Prototype & Evaluation	Build partial or full prototype; conduct fit and comfort trials under supervision.	3–4 months	Proof-of-concept unit for further refinement.
4. Review & Path Forward	Present findings, options for continuation, and potential commercial or research partners.	1 month	Next-phase proposal (e.g., production or external procurement).

Timeline: ~6–10 months, depending on available funding and partner contributions.

5. Collaboration Framework

ArmaTech will coordinate the technical and project-management side, working closely with:

- **Medical Specialists** for safety and functional assessment.
- **Universities and Research Centres** for biomechanics, robotics, and materials analysis.
- **Corporate and Industry Partners** for component supply and potential sponsorship.

6. Funding Approach

This project is structured to remain flexible and collaborative.

Initial Engagement Phase:

A modest engagement fee (to be discussed) may cover early design, meetings, and research coordination.

Progressive Funding:

Once validated, additional contributions will be sought from research partners, universities, and industry sponsors. ArmaTech will assist in preparing grant applications and sponsorship proposals to share project costs.

Indicative Range:

Separate from the engagement, early-stage concept and prototyping work could occur within A\$5,000–20,000+, depending on budgets, materials, partner input, and system complexity.

All figures are open for discussion, as the project will be tailored to match available resources and contributions. ArmaTech is also willing to allocate its own resources to the initiative, as this is an opportunity for us to demonstrate our capabilities and explore new fields of research for future use.

7. Success Criteria

- Michael can stand upright safely and comfortably with little to no external support.
- The system demonstrably improves posture and confidence.
- The system is lightweight, comfortable, and safe for supervised daily use.
- A formal pathway for further collaboration and refinement is established, including the potential sharing of IP.

8. Next Steps

1. Hold a more in-depth discovery meeting with Michael's family and medical team to define requirements. Will bring specific follow-up questions and a request for further information.
2. Draft a collaboration brief for partner universities and institutes.
3. Determine available funding, potential grants, and industry support.
4. Begin the development phase (target: within 4–6 weeks of confirmation and mutual agreement).

9. Commitment

We view this project not as a product exercise, but as an opportunity to demonstrate our commitment to advancing Australian capability and innovation, improving the quality of life. This also sets a precedent for others with similar or future needs.