

ALGAFLEX

Innovative bio-sensing for smarter movement



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PRODUCT PROPOSAL

APRIL 2026

Unmet Need

Introduction: Within the physical therapy discipline, there remains a significant gap between what clinicians can assess in controlled environments and what patients actually do at home. There is currently no reliable way to detect when a movement may be contributing to the re-aggravation of an injury, nor to continuously monitor whether prescribed exercises are being performed correctly outside of clinical supervision.

127.4 million individuals in the U.S. suffer from musculoskeletal conditions (back pain, arthritis, trauma).

50 million individuals in the U.S. actively participating in physical therapy.

A NEED TO ADDRESS:

**PATIENT EXERCISE ADHERENCE
ENFORCEMENT**

**DELAYED PATIENT FEEDBACK UNTIL
PHYSICAL THERAPY APPOINTMENT**

**PERSONALIZED MOVEMENT QUALITY
TRACKING**

**LIMITED INNOVATION IN HOW FLEXIBILITY,
MOBILITY, AND MOVEMENT QUALITY ARE
MEASURED**



Solution & Market Fit

TARGET: PHYSICAL THERAPY PATIENTS

Wearable biosensing patch for real-time movement feedback

Features a light-weight, detachable, low-profile interface integrated with vibration alerts

Enables real-time correction, live feedback & long-term progress tracking

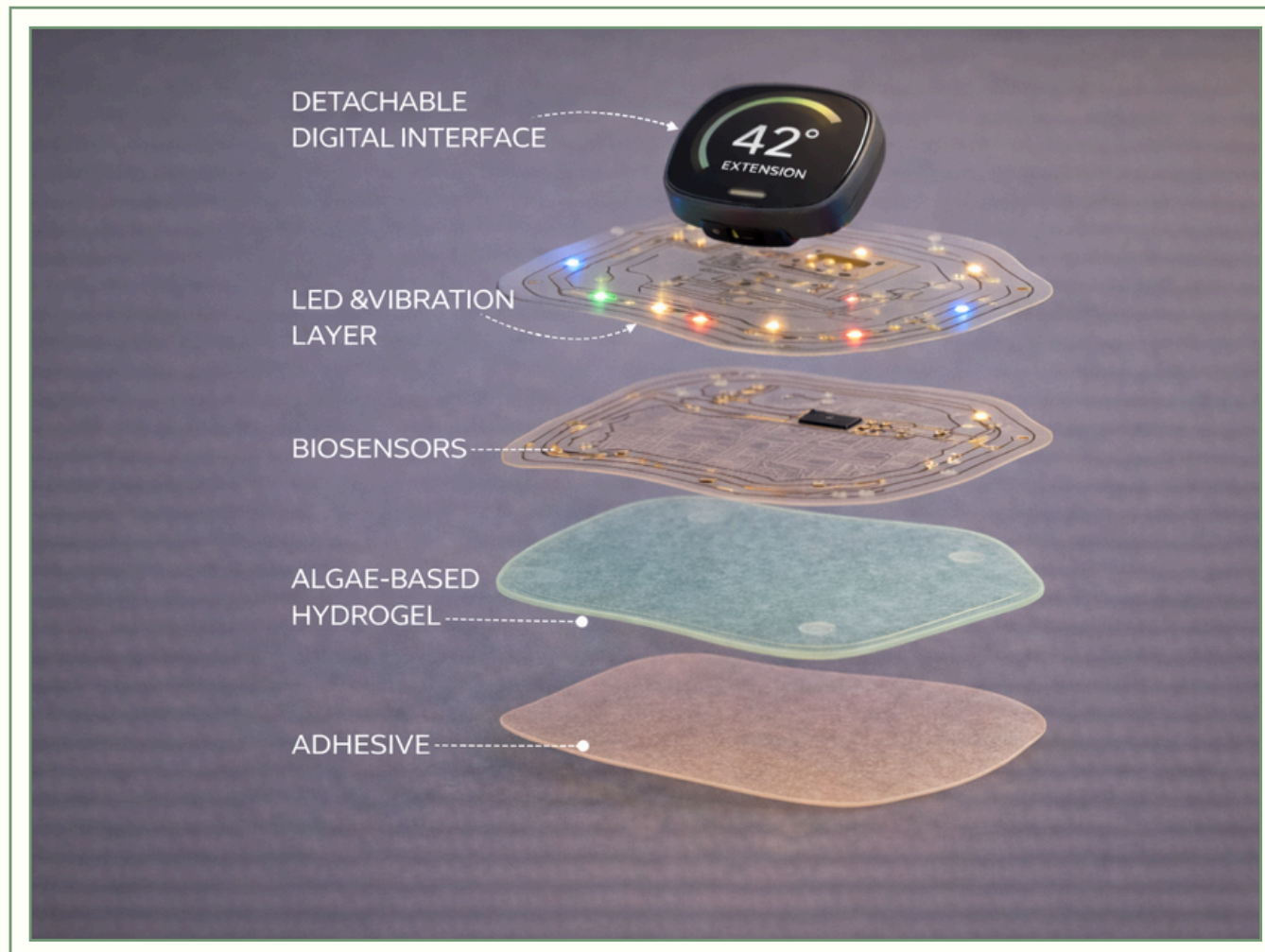
Market Level	Population	Population Estimate	Price Assumption	Market Size
Total Addressable Market (TAM)	Individuals with musculoskeletal conditions	127.4 million*	\$400 (annual est.)	\$60.42 billion
Serviceable Addressable Market (SAM)	Individuals actively participating in physical therapy	50 million**	\$400 (annual est.)	\$2 billion
Serviceable Obtainable Market (SOM)	Early outpatient PT clinic innovators	50 million x 3.5%*** = 1.75 million	\$400 (annual est.)	\$700 million

*<https://pmc.ncbi.nlm.nih.gov/articles/PMC10788788/>
**<https://www.health.harvard.edu/healthy-aging-and-longevity/physical-therapy-myths-vs-reality#:~:text=more%20than%2050%20million%20americans,and%20maximize%20their%20physical%20functioning.>
***CONSERVATIVE PENETRATION RATE: 1-5% (WE'LL ASSUME 3.5% WHEN EVALUATING OUR SOM AS INNOVATIVE HEALTH PRODUCTS ARE TYPICALLY ADOPTED AT A LOWER RATE)



AlgaFlex Design Progress

Old
Concept

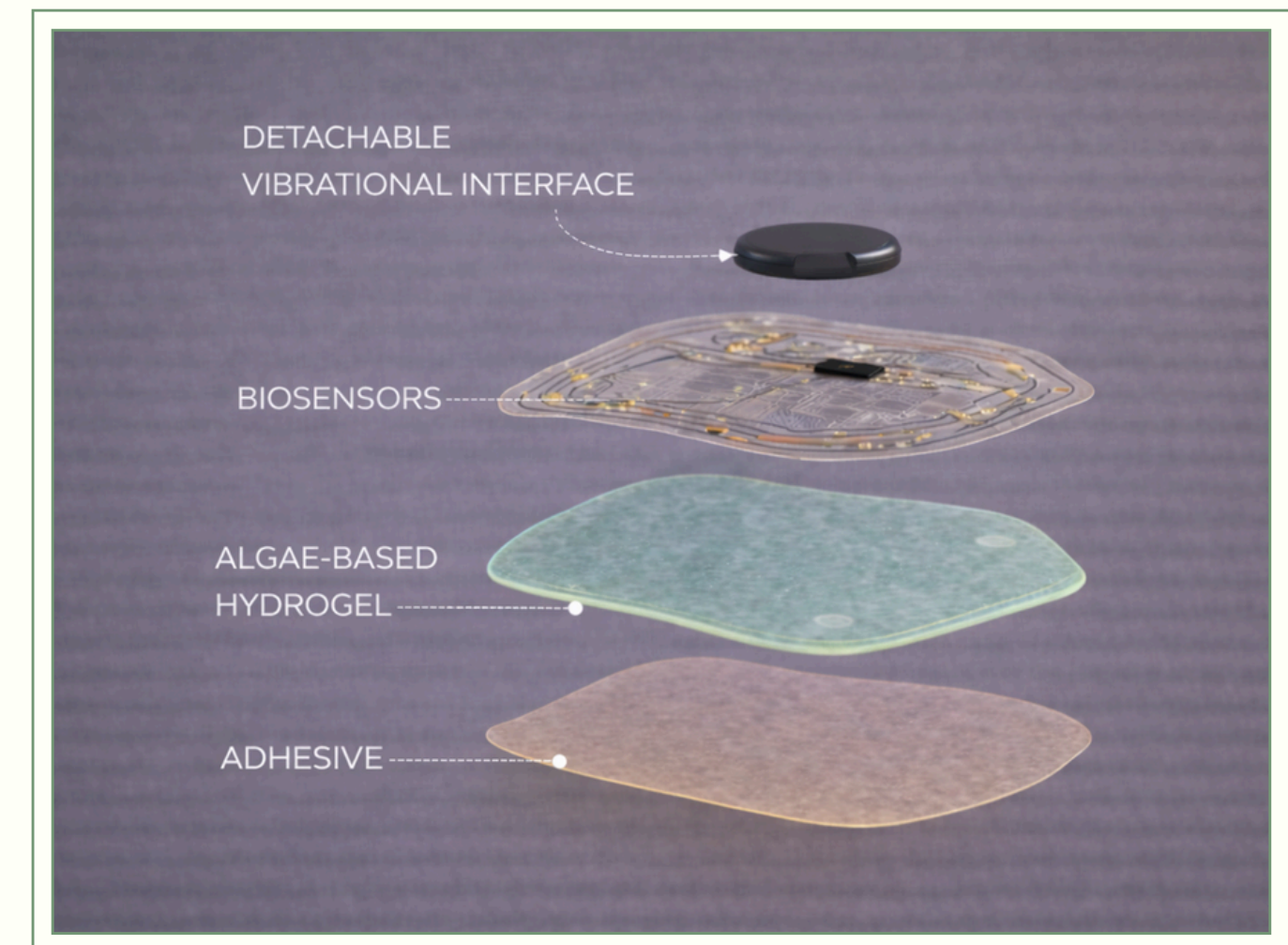


WHAT WE'VE CHANGED

To accommodate usability and cost:

- simplification of the detachable interface
- removal of unnecessary LED & vibration layer

New & Improved
Concept



How Does It Work?



HYDROGELS ARE SOFT, FLEXIBLE, AND MIMIC HUMAN TISSUE → IDEAL FOR WEARABLE DEVICES

AS MUSCLES CONTRACT AND THE BODY MOVES, THE NANOSHEETS IN THE GRAPHENE NETWORK DIVERGE, CAUSING A CHANGE IN ELECTRICAL RESISTANCE

DATA IS TRANSMITTED TO A DETACHABLE INTERFACE → DATA CAN BE REVIEWED BY CLINICIANS DURING FOLLOW-UP APPOINTMENTS

SIGNALS ARE CAPTURED BY EMBEDDED CONDUCTIVE PATHWAYS



AlgaFlex System

REPLACEABLE HYDROGEL PATCH PACK

Biodegradable and available for purchase at pharmacies.



DIGITIZED BIOFEEDBACK

Information is transferred from the interface and visualized to review feedback with a trained clinician.

PRODUCT & PACKAGING

Includes interface, interface charger case, & starter pack of hydrogel patches.





**Recover
Smarter.
Perform
Better.**

The future of recovery
is on your skin.



TRACK

Real-time biometrics
that go deeper.



UNDERSTAND

AI-powered insights
about your body.



IMPROVE

Personalized recovery
that actually works.

Intellectual Property (IP) Strategy

PROTECTING OUR BRAND

Utility Patents

- Protect core system design:
 - Algae-based hydrogel sensing layer
 - Patch + detachable interface
 - Real-time non-screen feedback (vibration)
 - Personalized calibration

Trademarks

- Protect brand identity:
 - AlgaFlex name, logo, and packaging

Trade Secrets

- Protect proprietary systems:
 - Signal processing + movement interpretation
 - Calibration and personalization algorithms
- Maintains long-term competitive advantage



Launch Plans

B→B→C Model

CLINICAL ENTRY	LAUNCH BUDGET (~\$500K)	SALES STRATEGY
• Target outpatient physical therapy clinics • Clinicians recommend device to patients • Builds trust & ensures guided onboarding	R&D + Prototyping: \$150K FDA & Regulatory: \$75K Manufacturing Setup: \$100K Software Platform: \$80K Pilot Testing: \$25K Sales & Training: \$40K Marketing: \$30K	• Trained sales reps onboard clinicians • Support device use, calibration, workflow integration
PHASE ONE: RESEARCH & DESIGN	PHASE TWO: PILOT TESTING	PHASE THREE: CLINICAL ROLLOUT
• develop working prototype • refine product and system design • conduct early user feedback	• partner with outpatient PT clinics ◦ test for usability, comfort, and performance	• product refinement via feedback • train clinicians on workflow

Conclusion & Call to Action

"REHABILITATION, REDEFINED THROUGH REAL-TIME FEEDBACK"

Conclusion



Primary Solution: Bridges the gap between clinic and real-world movement

- Provides continuous, real-time movement feedback

Combines:

- wearable sensing
- intuitive feedback
- clinician-connected data

Improves:

- patient adherence
- movement quality
- recovery outcomes



Call to Action



1. Advance pilot testing in physical therapy clinics
2. Refine product through clinician and patient feedback
3. Establish partnerships for clinical integration and adoption

Ask:

"We are seeking opportunities to **showcase** AlgaFlex, **connect** with clinical and industry partners, and **expand** its visibility within the healthcare and wearable technology space."



**THANK
YOU**