

Immersive VR Tele-Rehabilitation Platform for Pediatric Pulmonary Rehabilitation in Neuromuscular Disorders

Principal Investigator: Dr. Ka-ka SIU

Technology

- ✓ AI Motion Tracking – Real-time posture correction and feedback for pulmonary rehabilitation exercise
- ✓ Telehealth Integration – HA Go TeleHealth App for remote vitals (SpO₂/HR) monitoring
- ✓ Web Platform – Clinician dashboard & patient progress tracking
- ✓ Cloud Hosting – Secure data storage & analytics

Stage of Development

- 1. System Development (Months 1-6)**
VR exercise module creation
AI motion tracking calibration
- 2. Clinical Validation (Months 7-18)**
Pilot testing with 47 patients
Outcome measurement (Lung function: FVC, MIP/MEP, Quality of Life Questionnaire)
- 3. Implementation (Months 19-24)**
Analyze adherence & efficacy data
Refine for scalability



Key Advantages

- ◆ Innovative Approach – First VR-based pulmonary rehab program for pediatric NMDs in Hong Kong
- ◆ Engagement Boost – Gamified VR exercises designed to improve adherence vs. traditional methods
- ◆ Remote Care Solution – Eliminates travel barriers for home-bound patients
- ◆ Precision Monitoring – Combines VR with real-time physiological tracking

Opportunities

- Policy Impact – Inform telehealth guidelines for rare disease management
- Research Expansion – Framework adaptable to other chronic respiratory conditions
- Economic Value – Potential to reduce hospitalization burden



Supporting Visual
(if available)

Intellectual Property

- Custom VR Rehab Content – Licensed pediatric exercise protocols
- Proprietary AI Model – Movement analysis algorithms
- Clinical Dataset – Longitudinal pulmonary function metrics



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