ReFlex Gamification

FOR CEREBRAL PALSY KIDS

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INTRODUCTION

- The available device in the market nowadays does not have a specific function on active movements, especially active range of motion (AROM), where the movement of a joint provided entirely by the individual performing the exercise.
- Most rehabilitation device needs full involvement of physiotherapists during the rehabilitation session.

OBJECTIVES

- To produce device with active movements, active range of motion (AROM) for cerebral palsy kids.
- To reduce the involvement or work rate of a physiotherapist during the rehabilitation session.

NOVELTY

- Affordable (selling price at RM 800.00).
- Sturdy built (made from high strength materials).
- Efficient and user friendly systems.

APPLICABILITY

- Rehabilitation for ankle (dorsiflexion and plantarflexion).
- Attract kids with game during rehabilitation.

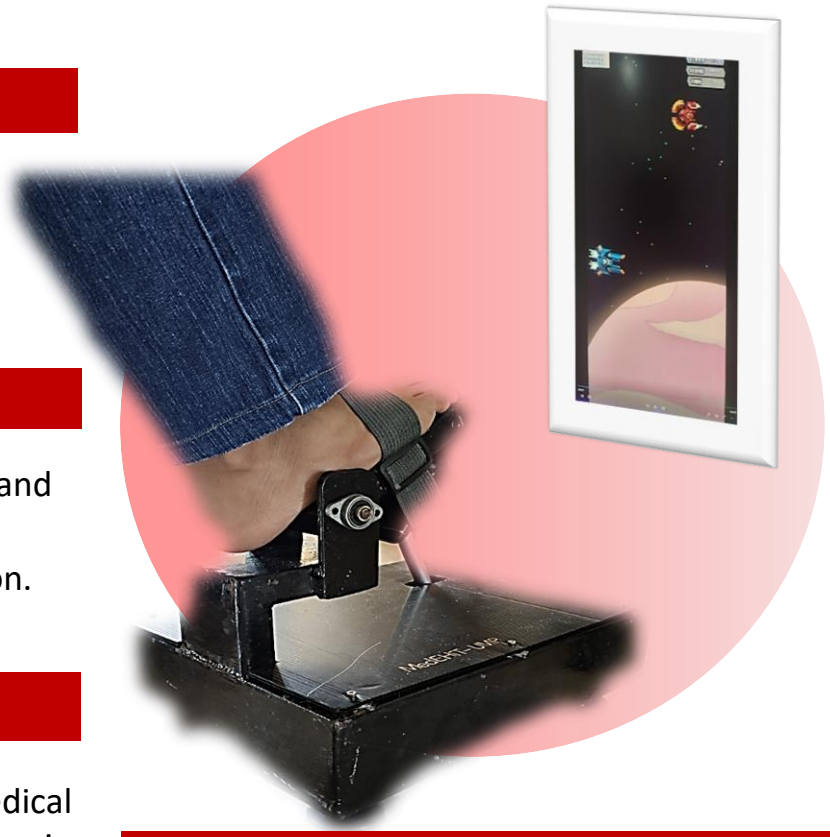
ENVIRONMENTAL IMPACT

- Expand the potential of biomedical engineering fields in Malaysia, especially, in the area of rehabilitation devices .
- Diversify the type of rehabilitation toys.
- Reduce physiotherapist work rate.

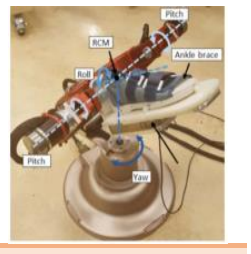
MARKETABILITY & COMMERCIALIZATION

1.	Who are the potential users?	Kids from age 5-12
2.	Does similar game exist in the market?	PedBotHome Exercise
3.	What is the industrial project that your product is to solve?	• To enable kids more focused during leg rehabilitation. • To attract kids towards rehabilitation toy. • To make the rehabilitation more interesting for kids
4.	Which community will benefit from your product?	• Medical healthcare • Parent and kids • Government

FUNCTIONALITY



MARKET SURVEY



ReFlex Gamification	**PedBotHome Exercise**
Single DoF	3-DoF
Gyro sensor	Torque sensor
Simple design with low cost	Complex design with high cost
Voluntarily-assisted	Robotically-assisted

PUBLICATION

MAHM Adib, AF Ilias, MNH Hassan, MM Mustapah, MAA Jamaludin, LS Hong, Design and Development of the Rehabilitation Flexion (*ReFlex*) Gamification for Cerebral Palsy Kids Exercise, International Conference on Bioengineering and Biomedical Engineering (ICBBE 2021)- [**Scopus Indexed – Accepted**]

COLLABORATION (LOI)

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