Magnetic Suspension System

AREZOO ESHRAGHI, University of Malaya
A Magnetic Coupling Device Of A Limb Prosthesis

Prof. Dr. Noor Azuan Abu Osman
PhD, CEng, FIMechE, FIEAust, CPEng, MICR, CSci

Arezoo Eshraghi
PhD, Bright Spark
Statistics talk!

In Latin America, Africa, and Asia combined, almost 0.5% of the population require artificial (prosthetic) limbs (WHO, 2010).
80%

Developing countries
Amputation (limb loss) is a permanent disability
Back to high-quality life

- Artificial limbs: prosthetics

World champion double-amputee Oscar Pistorius
Lower limb prosthesis

- Socket
- Pylon
- Suspension system
- Foot
Fact

Artificial limb is **USELESS** without an efficient suspension system.
Advanced components?!

RM 80,000

RM 50,000
Current Suspension Systems

- Sleeve
- Belt
- Anatomical
- Silicone liners
- Seal-in liners
• Noisy
• Difficult to use
• Expensive
• Uncomfortable

• Low durability
• High pressure
• High pistoning
• Pain
AN IDEA HAS BEEN BORN
Mechanical testing
Clinical evaluation
Advantages

• Lower pressure*

Advantages

Satisfaction survey*:

Easy to use

Advantages

• Less pistoning*: static and during gait

Advantages

• Durable: at least 10 years

• No noise

• Less pain
Achievements

• Gold medal: ITEX 2012

• Silver medal: MTE 2012
ISPO2013
4th-7th Feb

• The best research award for:

1/24/2014
References


References


References


We hope our design helps the University of Malaya to be an internationally renowned institution of innovation and commercialization.
THANK YOU

Innovation distinguishes between a leader and a follower.

- Steve Jobs