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POSTNATAL PAIN RELIEF
ALLOWING SENSE

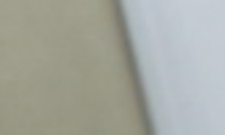
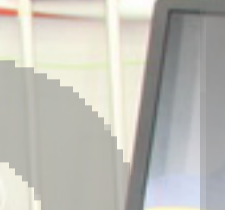
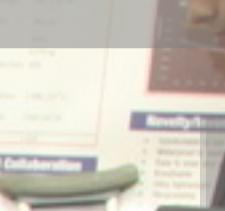
ITEX 19

ULTRA LIGHTWEIGHT 3D PRINTED
IMMOBILIZATION CAST FOR BONE
FRACTURE TREATMENT IN ORTHOPEDIC

ITEX 19

Abstract Product Description

An ultra-lightweight 3D printed immobilization cast is a novel
product to reduce and guide the treatment time in cast and bandage
application to the lower limb (i.e., ankle, foot, and lower leg) and
wound. It is designed to be used in a 3D printed cast made for a
patient. The cast is used for immobilization of the lower limb and
wound. It is made with a 3D printed material and is designed to
provide a supporting surface and an immobilization device for
the lower limb and wound.



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LEARN WITH IQAAL: AI-BASED INTERACTIVE CHILDREN EDUCATIONAL MOBILE APPLICATION

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ITEX 19

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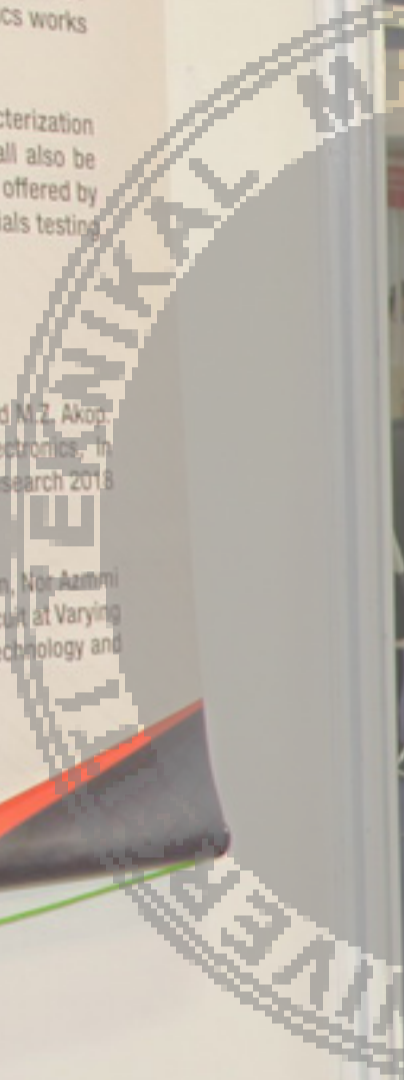
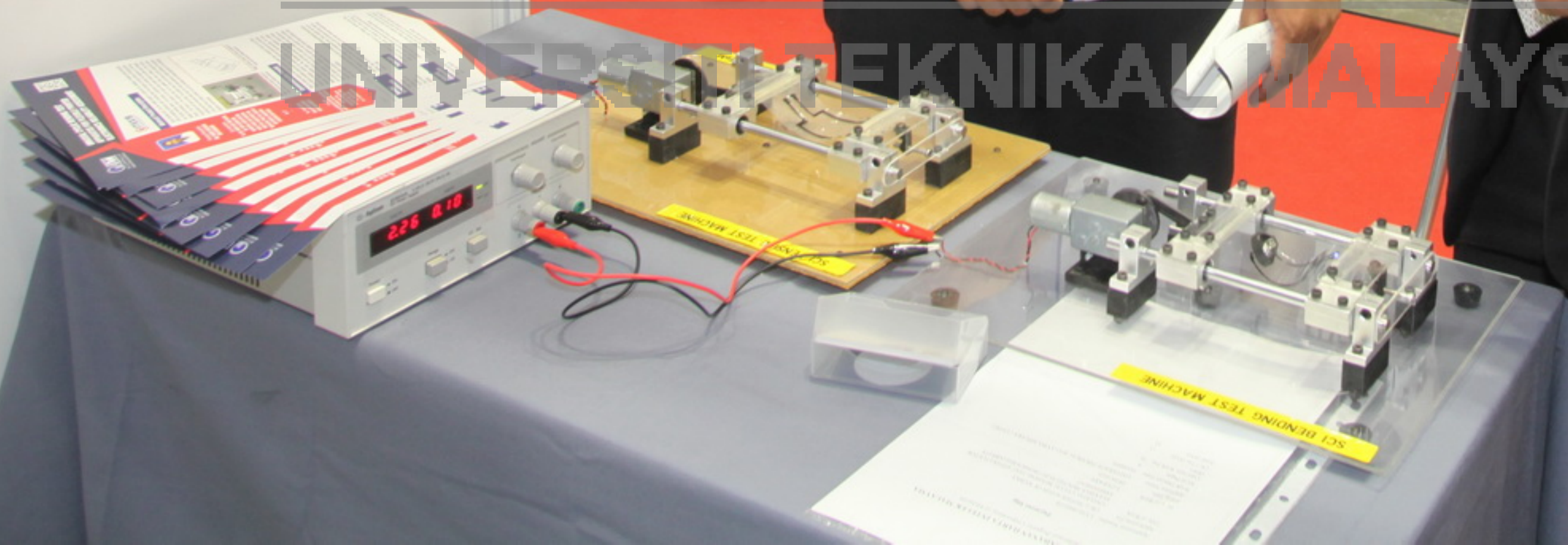
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Potential
flexible electronics market share is expected to raise up to 43.3 billion
annual growth rate of 10.6%), with major applications such as automotive,
consumer and industrial electronics, and telecommunication. The recent
Action Plan (NanoMalaysia) has also been established to prepare
the world flexible electronics market. Hence, a simple yet robust
apparatus is essential as part of the component reliability testing infrastructure to
prepare industries. Similar apparatus is also essential for research purposes
in institutions (IHL), to test the reliability of latest flexible electronics works
developed shall be installed in UTeM Advanced Materials Characterization
house research and development works. Similar capability shall also be
from other IHL and industries, as part of professional services offered by
to further help to strengthen AMCHAL as the premier advanced materials testing
ulaiman, R. N. H. Raja Norazli, S. A. Azli, F. Wasbari, A. Md Saad and M. Z. Akop
tion of cyclic bending test apparatus for flexible printed electronics in
Colloquium on Advanced Materials and Mechanical Engineering Research 2019
of Mechanical Engineering, Universiti Teknikal Malaysia Melaka.
d Amin, Muhd Ridzuan Mansor, Northisham Ismail, Mohd Azli Salim, Nur Azami
ni Saad, Sheet Resistivity of Square-Shape Flexible Electronic Circuit at Varying
ceedings of International Conference on Sustainable Engineering, Technology and
Linton University College, Malaysia

5K141

INSTITUTE FOR INFRASTRUCTURE ENGINEERING AND SUSTAINABLE MANAGEMENT (IIESM)

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SUSTAINABLE MANAGEMENT IIESM

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Innovating Sustainable
Engineering Studies



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Abstract Product Description
Industrial Collaboration
Communication Potential
Dr. Pratik Harsh
SUSTAINABLE MANAGEMENT IIESM
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UTM ITEX19
TYPE-II CONDUCTIVE NANOPASTE
AMPHIPHILIC INK FOR
PRINTED ELECTRONICS

Abstract/ Product Description
 This project aims to develop a novel conductive ink for printed electronics. The ink is composed of silver nanoparticles, a binder, and a surfactant. The ink is printed onto a substrate and cured to form a conductive layer. The conductive layer is used for various applications such as printed resistors, capacitors, and transistors. The project is currently in the development stage and is expected to be completed by the end of the year.

Commercialization Potential
 The developed ink has a high conductivity and excellent stability. It is suitable for various printing processes such as inkjet, screen, and gravure printing. The ink is expected to be commercialized in the near future.

Brevity/ Inventionness
 The developed ink is a novel and innovative product. It has a high conductivity and excellent stability, which are not found in other conductive inks.

Publication
 The project has been published in the journal of *Journal of Applied Polymer Science*.

UTM ITEX19
ELECTRONIC

Abstract/ Product Description
 This project aims to develop a novel method for testing the reliability of flexible printed electronic (FPE) by applying continuous cycle of bending tests to the samples at varying number of bending cycles and varying bending speed. In this project, a customised cyclic bending test apparatus for FPE was designed and developed, which consists of a DC electric motor, sample holder, and video-crank linkages (Figure 1 and Figure 2). The electrical input can be supplied either using a battery or from source measurement and (source meter). The reliability value of the circuit before and after subjected to cyclic bending test were measured either using Four-Point probe apparatus or digital multimeter. The outcome of the project was a simple, portable, low cost and workable cyclic bending apparatus for FPE reliability laboratory scale studies.

Commercialization Potential
 Based on current research, the flexible electronics market is expected to grow at a rate of 10.8% per year to 2026. The market is driven by the increasing demand for flexible electronics in various applications such as wearable devices, smart packaging, and smart textiles. The developed apparatus is expected to be commercialized in the near future.

Brevity/ Inventionness
 The developed apparatus is a novel and innovative product. It is a simple, portable, low cost and workable cyclic bending apparatus for FPE reliability laboratory scale studies.

Publication
 The project has been published in the journal of *Journal of Applied Polymer Science*.

SCORE SHEET
ITEX

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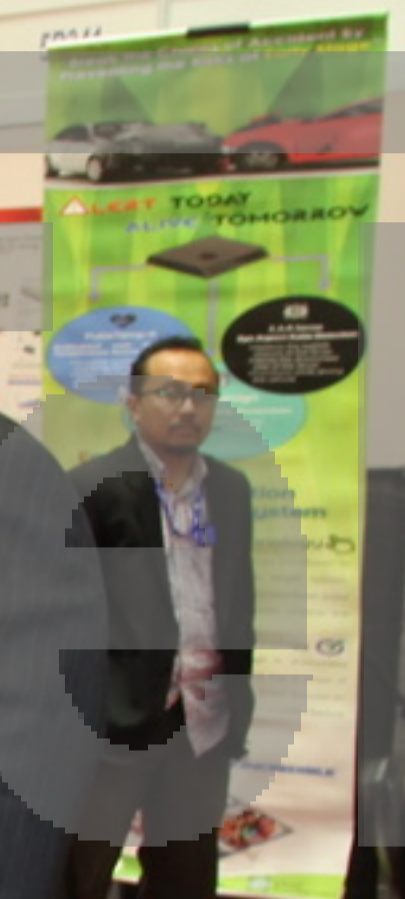


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SIRIM INDUSTRIAL RESEARCH



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Reduce the Chances of Accident by
Preventing the Risks of Early Stage
**GET TODAY
SAFE TOMORROW**

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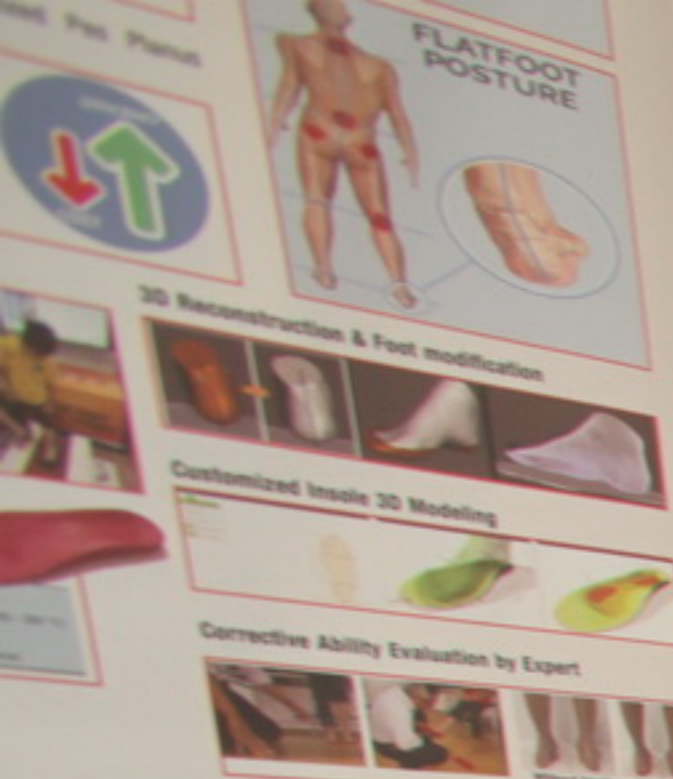
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Publication and Related Research

- Strained Muscles Pes Planus (Flat Foot) Discomfort Solution, Silver Medal, CITREx 2019, UMP 2019
- Development of Customised Pes Planus (Flat Foot) Orthotic Insole Using Additive Manufacturing, Bronze Medal, Jejak Inovasi UTM 2018
- Customized Knee Orthosis for Preventing Knee Injury (ACL) Using Additive Manufacturing, Jejak Inovasi UTM 2018
- Standing Chair Ergonomic Solution for Reducing Physical Strain and Improving Occupational Safety and Health for Factory Workers, Jejak Inovasi UTM 2018
- Customized Ankle Orthosis for Preventing Ankle Sprain Using Additive Manufacturing, Jejak Inovasi UTM 2018
- Exhibitor for TVET National Seminar 2018 (UoM), Designing Custom Made Orthosis to Prevent Anterior Cruciate Ligament (ACL)
- Copyright: Customised Pes Planus (Flat Foot) Pain Solution

A laptop is open on a table, displaying a slide titled 'RESULT & DISCUSSION'. The slide contains the following text:

RESULT & DISCUSSION

- The customized printed insole able to correct and hold the foot in neutral feet condition.
- So, it can work more effectively and may help reduce some of the symptoms as mentioned by Association of Paediatric Chartered Physiotherapists (2018).
- Also supported by the study of Dars et al. (2018), that the best insole designed based on anthropometry and personalized on the patient's foot.

A clear plastic water bottle with a green cap is placed on the table in front of the laptop.

A woman wearing a beige hijab and a black jacket is holding a red 3D printed insole. She is looking at it intently. Next to her, a man in a black jacket and glasses is also looking at the insole. They appear to be in a discussion about the product. The table in front of them has several other red 3D printed insoles and some printed materials.

A man in a white jacket with a blue lanyard is looking at the laptop screen. He is standing to the right of the other two people. The jacket has a logo that says 'amber'.

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