KEMENTERIAN PENDIDIKAN MALAYSIA

JPT JABATAN PENDIDIKAN TINGGI

UMS UNIVERSITI MALAYSIA SABAH

Pecipta'19

An Interactive Smart e-Learning System on Technical Vocational Education and Training (TVET) in Malaysia Using Augmented Reality Technology

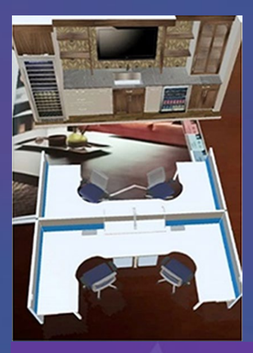
PROJECT DESCRIPTION

Skills Profession Career Focus Industry Guide is to engage Government, private, school and parents to collaborate and empowers students to identify the right skill set and develop the competencies to meet the local workforce and global markets. The objective of this project is to design and develop an interactive smart e-learning system on Technical Vocational Education and Training (TVET) in Malaysia using Augmented Reality (AR) technology. This system provides a comprehensive e-learning system to various skills pathway and occupations in the respective sectors to deepen students' understanding of self and relate schooling to the different education and career pathways. This research modeled previously unarticulated perception experience and skill learning in AR TVET environment and to understand how this system promote learning, and what the learners can learn, given only instruction.

60 participants, who were illiterate in computer subjects were selected. This experiment was guided by Cognitive Task Analysis and User Modelling Techniques. The participants were moved from understanding their current learning perceptions and practices to planning future learning possibilities, especially with computer aided instructions. The results shown AR technology is effective tool for promoting TVET skill learning and training and the paradigm of AR TVET, in terms of HCI methodology (user's participation). This research might effect a long-term change in the learning practice by allowing learners' the opportunity to become self-aware of their implicit beliefs and direct examining of their learning processes. The results also suggest that a successful learning process was a joint product of learners' cognition and learning environment.

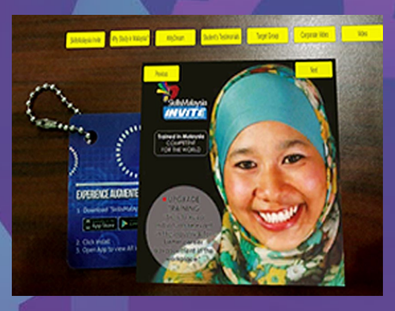
OBJECTIVES

- To design and develop an interactive smart eLearning system on TVET in Malaysia using Augmented Reality Technology.
- To improve learner's engagement using AR Technology.
- To investigate whether the learners able to adopt AR as their learning tool and identify the level of their self-directed learning readiness.



NOVELTY/ INVENTIVENESS

- The application advanced techniques such as multimedia technologies, digital image processing and artificial intelligence can be incorporated in e-learning tool for TVET education.
- Application of new techniques with higher efficiency for teaching and learning for TVET students.
- Improvement of education and technology enforcement in the TVET teaching and learning.
- New methods of learning and training system for TVET education.



APPLICABILITY

- Students can explore the system and visualize the 3D contents and objects, practice and enhance their performance in a practical way.
- Innovate Curriculum and teaching for TVET using latest industry 4.0 technology.
- To educate teachers, parents and students on the current scenario, capability, gaps and challenges faced by the industries' human resources needs.
- To assist educators and students to understand the concepts of abstract and how to enhance visualization objects.
- To identify the impact of the strides in science and technology, the challenges and impact taken in the Higher Education structure.

COMMERCIALISATION POTENTIAL

- Department of Skills Development (JPK) Malaysia
- Information Broadcasting Network (M) Sdn. Bhd.
- Planetarium Sultan Iskandar Sarawak
- Sarawak Tourism Board (STB)

CONTRIBUTION TO ENVIRONMENT

- The application is applied with minimal tools to bring during the learning class.
- Its goal is the seamless presentation of computer-driven information with a user's natural perspective of the world.
- The book is printed with vegetable based ink which is ECO environmental friendly technology.
- It is suitable and safe to use for students.

INNOVATORS

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RESEARCH ACHIEVEMENT

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- ITEX 2019 - Gold Medal Winning Award
- PEREKA UMS 2018 - Gold Medal Winning Award