

Chapter 1

Technology–Based Computer– Assisted Learning: An IoT CAL Overview

Sinthuja U.

 <https://orcid.org/0000-0001-5873-3459>

*Ramakrishna College of Arts and Science, Coimbatore, India & Hindustan
College of Arts and Science, Coimbatore, India*

Thavamani S.

Sri Ramakrishna College of Arts and Science, India

ABSTRACT

In today's world, technology is taking over many parts of human existence, and computer aided learning (CAL) is an educational instrument that facilitates learning. Computer aided learning (CAL) is an integrated technology that specific role of IoT in education in a learning environment where a computerized tool is utilized to help a user study a specific topic. Incorporating technologies like artificial intelligence (AI), internet of things (IoT), virtual reality (VR) and augmented reality (AR) in CAL will be driving the present as well as future. The impact of pandemic conditions has resulted in an increase in CAL users, which is expected to make the CAL programme more successful. The proposed IoT CAL ideas are intended to provide a worthwhile learning experience by delivering efficient, engaging, and preemptive context-aware training smart services.

DOI: 10.4018/978-1-6684-5058-1.ch001

INTRODUCTION

One of the most valuable blessings of the digital age is computer-assisted learning (CAL). We can have an abundance of knowledge with only one click. It is the process of learning knowledge through the use of technological gadgets and products. No longer does one have to rely just on books and institutions to obtain education and information. Technology is used in every aspect of education, whether it is medical or civil. Electronic equipment can be used to gain any kind of knowledge in any discipline. In the majority of schools and institutes, virtual learning is replacing classroom instruction. Computers enable smart classes, video classes, online-offline movies, web classrooms, and many other services. Computer-assisted education is a simple and effective technique to absorb and comprehend information. We can learn at any time and in numerous ways using Computer-Assisted Learning. We may watch the films and the recorded tutored sessions at any time and from any location. It has brought value to the realm of education platforms. Learning has grown more exciting as a result of Computer-Assisted Learning. Students have become more independent as a result of computer-Assisted Learning, which has lessened their reliance on teachers and physical instruction. Students' interest is maintained by interactive videos and presentations. The pandemic began in China, where the lockdown was first detected. Education should not suffer as a result of the lockdown. The Chinese government employed ten-cent classrooms to make education available online. This has been dubbed the “biggest online movement” in Wuhan's educational history. Which has resulted in bringing more equipped tools in teaching and learning practice.

IoT in CAL

The components of the Internet of Things can be broken down into three categories: based on things, internet, as well as semantic (Atzori, Iera, and Morabito, 2010). The first layer is referred to as the “Device Layer.” This layer includes sensors, actuators, and an embedded communication hardware system. “Service Layer” is the second layer. The third layer is characterized as “App Layer,” and it consists of on demand storage and cloud computing tools for data analytics. The layer provides visualization and interpretation capabilities that may be used on a variety of platforms and for a variety of applications (Gubbi et al., 2013). Although the Internet of Things vision has immense promise for future technology, many complicated technical,

6 more pages are available in the full version of this document, which may be purchased using the "Add to Cart" button on the publisher's webpage: www.igi-global.com/chapter/technology-based-computer-assisted-learning/313138

Related Content

A Systematic Review of the Potential Influencing Factors for ChatGPT-Assisted Education

Chuhan Xu (2024). *International Journal of Technology-Enhanced Education* (pp. 1-19).

www.irma-international.org/article/a-systematic-review-of-the-potential-influencing-factors-for-chatgpt-assisted-education/339189

The Promotion of Self-Regulated Learning Through Peer Feedback in Initial Teacher Education

Elena Cano García and Laura Pons-Seguí (2020). *International Journal of Technology-Enabled Student Support Services* (pp. 1-20).

www.irma-international.org/article/the-promotion-of-self-regulated-learning-through-peer-feedback-in-initial-teacher-education/255119

Nurturing Curiosity Learning Through STEM in Physical Education in Zimbabwe

Thembelihle Gondo and Jenet Jean Mudekanye (2020). *International Journal of Technology-Enabled Student Support Services* (pp. 20-30).

www.irma-international.org/article/nurturing-curiosity-learning-through-stem-in-physical-education-in-zimbabwe/270261

Transforming Mathematics Teacher Knowledge in the Digital Age Through Iterative Design of Course-Based Projects

Jennifer M. Suh, Debra R. Sprague and Courtney K. Baker (2019). *TPACK: Breakthroughs in Research and Practice* (pp. 347-371).

www.irma-international.org/chapter/transforming-mathematics-teacher-knowledge-in-the-digital-age-through-iterative-design-of-course-based-projects/220852

Effects of Computer-Based Training in Computer Hardware Servicing on Students' Academic Performance

Rex Perez Bringula, John Vincent T. Canseco, Patricia Louise J. Durolofo, Lance Christian A. Villanueva and Gabriel M. Caraos (2022). *International Journal of Technology-Enabled Student Support Services* (pp. 1-13).

www.irma-international.org/article/effects-of-computer-based-training-in-computer-hardware-servicing-on-students-academic-performance/317410