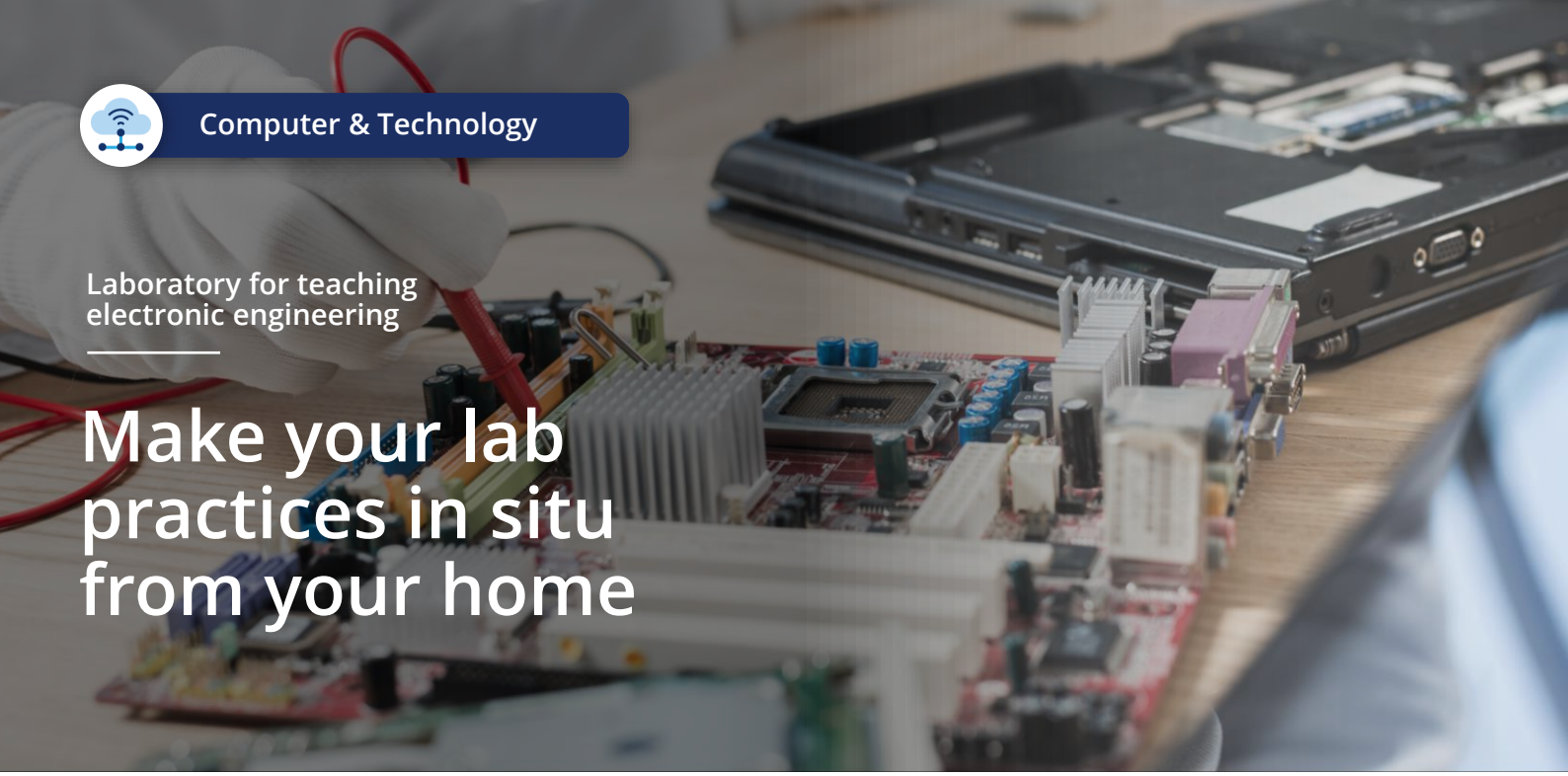

Computer & Technology

Laboratory for teaching electronic engineering

Make your lab practices in situ from your home

Universidad Tecnológica de Pereira

Target Markets / Potential Applications

- Education and teaching institutions
- Electronic parts design

IP Status

Software registered

Offer: Worldwide exclusive license to all potential application

A laboratory environment for teaching electronic engineering through an immersive virtual approach

Inventors at ***Universidad Tecnológica de Pereira*** (UTP) have developed an immersive, three-dimensional, real-data remote laboratory for electronic engineering education. The laboratory allows students to manipulate real instrumentations based on the university facilities from a virtual environment improving their learning experiences.

Potential Benefits

- Quick training and learning
- Distance learning
- Easy access
- Playful experience

LicenciArte BUSINESS OPPORTUNITY

The need

A lack of the appropriate technological infrastructure for teaching electronics in educational institutions and the high cost of existing equipment in the market create a barrier for students to get experiential knowledge. More specifically, the **impossibility of physically accessing the lab instrumentation to a big group of students to obtain real data for their practice according to the proposed syllabus and calendar is an unsolved need**.

In the literature, you can find virtual labs that simulate physical environments. However, no immersive and virtual environments were found for electronic practices. Therefore, technologies that allow an immersion experience to work in augmented reality systems need to be developed.

The solution

UTP inventors address this problem by creating a remote laboratory with three-dimensional immersion similar to reality (Virtual Reality) for digital electronics with real data.

The system has a 3D immersion interface that helps students replicate the practical procedure they would perform in situ laboratories. In addition, a machine learning algorithm to support failure prediction was developed to improve the learning experience.

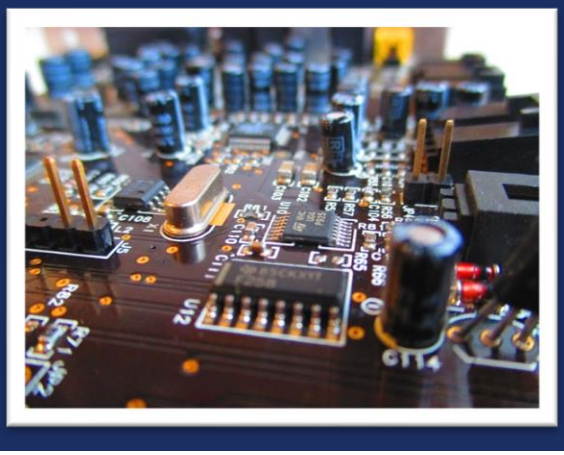

Fig. Reference image to replicate the practical procedure carried out in on-site laboratories.

Inventors

Andrés Felipe Calvo Salcedo

Electronic engineer with a master's degree in electrical engineering from the *Universidad Tecnológica de Pereira* and Ph.D. candidate in engineering from the same university.

Invention Readiness Level™ (IRL)

TRL2 - Proof of Concept Level
A successful proof of concept has been achieved.

CRL 1 - Level of the first business hypotheses raised
Business model hypotheses have been proposed.

IPRL 1 – IP identification

Learn more about IRL

Other relevant information

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