



Co-funded by the  
Erasmus+ Programme  
of the European Union



# Multimedia Lab

Learning Resource Centre “Stelios Ioannou”  
University of Cyprus

Petros Louca  
Coordinator IT Officer, IT Infrastructure Service

Kalia Christou  
IT Assistant Officer, IT Infrastructure Service

Promoting youth employment in remote areas in Jordan -(Job Jo)

598428-EPP-1-2018-1-JO-EPPKA2-CBHE-JP

# Specifications



Request from Language Centre to create a state-of-the-art lab that would facilitate innovative learning through the following four axes:

- Local collaboration – collaborative learning
- Telecollaboration
- Streaming, recording and archiving
- Automation and ability for future expansion

# Implementation



- 06/2018: drafting and preparing requirements
- 10/2018: call for tenders
- 12/2018: tender assignment to lowest cost bid
- 01/2019: contract signed with Telmaco, a leading European AudioVisual and Broadcast Systems Provider and Integrator located in Athens, Greece

Project value: ~€183.000

Duration: 7 years

- 02/2019: preparation works in close collaboration with our Technical and IT services. Creation of necessary cable routes, design of the network scheme for the lab
- 03/2019: equipment shipped, installation engineer from the company arrives and installation works begin

# Implementation

- 03/2019: a second team arrives consisting of a programmer and an a/v engineer for equipment configurations.
- 03/2019: University's IT System Sector undertakes the task of adding the lab computers to the university domain (AD) and sending necessary software through SCCM
- 04/2019: Language Centre Instructors undergo training on the use of the equipment and the project enters pilot phase
- 07/2019: final approval and payment



# Components



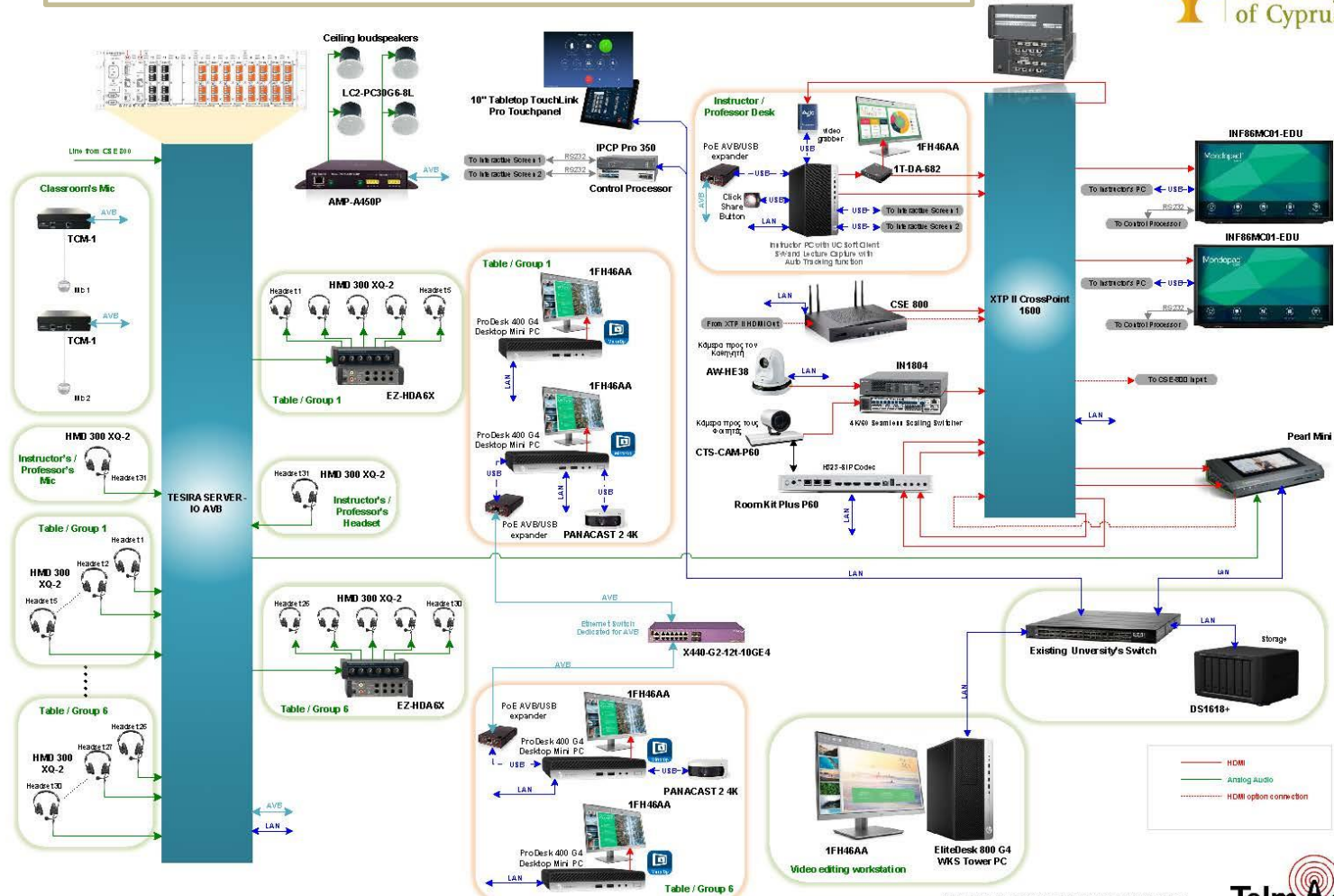
- The solution integrates 13 computers with headsets for 30 participants, 2 large main boards (touch screens), front camera and back tracking camera, 2 ceiling microphones and 4 speakers
- Video editing workstation (Da Vinci Resolve)
- Desktop touch panel automating the desired functions (Extron)
- Break-out sessions/telecollaboration using Cisco Webex Teams
- Videoconference (Cisco Room Kit plus)
- Backend system components
  - Video matrix for routing the signals in each scenario (Extron Custom XTP II CrossPoint 1600)
  - Audio handled through a DSP (Biamp-Tesira)
  - A server to allow local collaboration (Barco Click-Share CSE 800)
  - Recording and Streaming (Epiphan, Pearl Mini)
  - Backup storage unit (Synology DSM)
  - AVB switch





# Connectivity diagram

Multimedia Lab typical connectivity diagram



IMAGES ARE REPRESENTATIVE AND MAY NOT BE ACTUAL PRODUCT

# Functionalities

- 4 basic axes



# Functionalities



- Presentation mode

- Local PC / webconference

- Enables simple use for projection on the main boards
    - Enables web conference sessions through web collaboration tools

- Break out sessions

Break out rooms whilst videoconferencing through Webex Teams. Audio is routed to each table's headphones. Each table is equipped with a wide angle camera to facilitate this purpose





# Functionalities



- Collaboration mode

- Allows users to project the content of their screens onto the main boards
  - Instructor moderates this function
  - Users must be connected to the lab's wifi
  - ClickShare app for achieving this function



# Functionalities



- Videoconference mode
  - Cisco Room Kit allows video calls to other H.323 or SIP end points. The whole classroom participates in this scenario. Audio is routed to the ceiling mics and speakers when this mode is enabled



# Functionalities

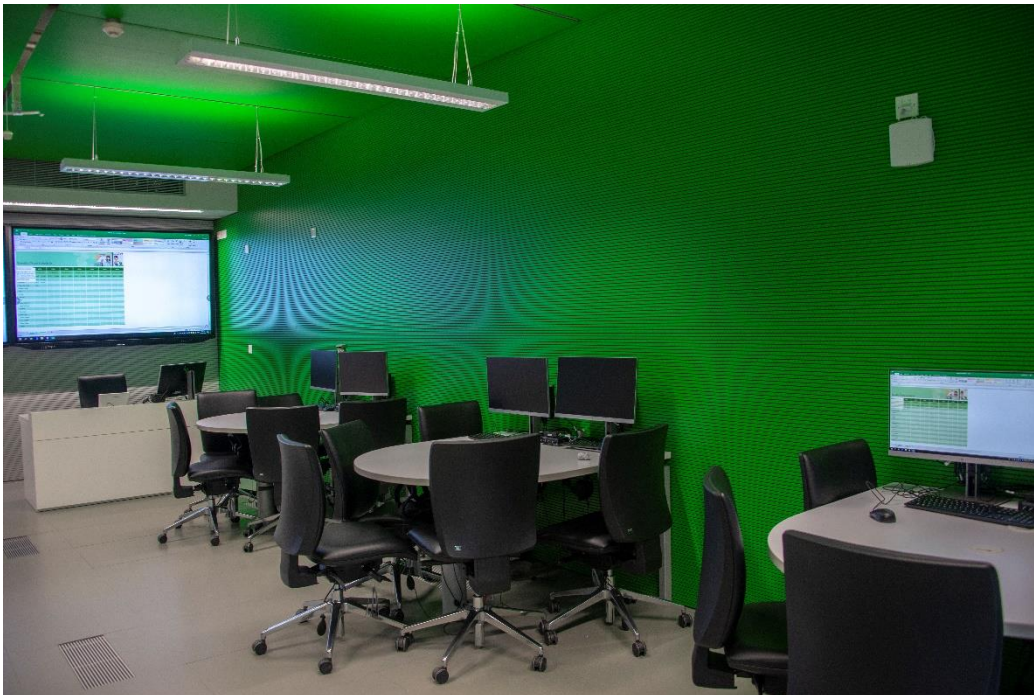


- Streaming/Recording mode
  - Presets available
  - Indicators showing streaming and recording status
  - Recorded material is stored on a NAS in the control room



# Functionalities

- Camera controls
  - Switch between cameras
  - Zoom in/out , move camera position



# Augmented reality mobile apps for student learning experience enhancement

Language Centre, University of Cyprus

Petros Louca  
Coordinator IT Officer, IT Infrastructure Service

Dr. Stella Hadjistassou  
Acting Director, Language Center



# AR in Educational Technology



Educational technology contributes to student learning engagement improvement, through web tools and AR experience, using mobile applications employing the following aspects:

- Designing and projecting artificial 3D model elements, which are controlled using a programming language
- Employing objects and characters animation, to the real world with audiovisual support, utilizing also photogrammetry for constructing CG objects from real world objects.

# Requirements/Objectives



Based on the “ReDesign” EU funded program framework, design an AR mobile app, for in-classroom use, in order to offer an immersive learning experience to foreign language students, defined with specific guidelines by the research project’s team members, Mrs. Hadjistassou, UCY Language Centre, Mrs. McPherson, University of Hull, UK and Mrs. Meissl-Egghart, owner of talkademy.org, Austria.

The objectives were to create 2 AR mobile apps, the Alien Project and the Disruptive Student Case Project.

# Main Software Tools Utilized



## Unity Game Engine with AR Support:

- Ease of use and targeted tools for AR designs, through its Vuforia augmented reality software development kit extension widely used in game and VR/AR industry
- Offers a broad assets/add-ons library and VR/AR hardware gear support
- Has a solid programming language, the C#, to achieve game development and customizations.

## 3DF Zephyr

Photogrammetry software to create 3D objects from physical/real objects.

# Alien Project Scenarios

Includes 3 interactive scenarios, with an animated 3D CG alien, representing an immigrant visiting our home planet, having similar feelings, as a human visiting another country for the first time, having different language and culture.

## Introductory Scene

Alien lands on an earthly scenery

## 1st Scenario

Alien greets, in an out-of-this world language.

## 2nd Scenario

In order for the alien to feel comfortable and meet us, humans, various Cypriot and English artefacts and objects are offered, relating to culture, food and other physical objects.

## 3rd Scenario

After artefacts/items are offered, alien presents a family photo, as a friendly gesture and a set of stones, 7 gemstones and a mythical statuette from alien's home planet are then offered to us.



# Disruptive Student Scenarios

Practice-oriented concept in dealing with an emerging challenge that most educators encounter in classrooms, disruptive behavior. In this case, three options/scenarios were designed to invite participants in dealing with students' use of cell phones during class instruction.

## Introductory Scene

Teacher looks towards class, saying “Welcome to this exciting learning module” and then starts writing on the blackboard.

## 1<sup>st</sup> Scenario - Phone rings

The phone rings in class and the student picks it up, teacher walks towards student and says “Interesting conversation isn't it? No you are alright, do carry on - you probably don't pass this module.”

## 2nd Scenario - Student talks to classmate

Student starts whispering to classmate “Hey, what's up?”  
Teacher is well aware of the situation, but chooses to ignore it saying “Hmm...”, turns around and heads back to her desk.

## 3rd Scenario - Student phone rings and answers it

The phone rings in class and the student answers it.  
Teacher grabs her bag and approaches student saying “Would you hang up the phone and place it away?”.  
Student hangs up the phone, apologizes and places it in the bag.  
Teacher then takes phone, heads back to her desk, turns towards the class and places phone on desk.





# Resources/References



Telmaco S.A., Greece  
[www.telmaco.gr](http://www.telmaco.gr)



Unity 3D, Game Engine  
[www.unity.com](http://www.unity.com)



Vuforia Unity Extension  
AR Functionality  
[www.vuforia.com](http://www.vuforia.com)



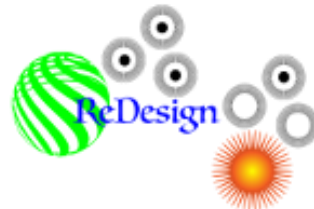
3DF Zephyr  
Photogrammetry software  
<https://www.3dflow.net>



Online Assets Galleries  
<https://assetstore.unity.com>  
[www.free3d.com](http://www.free3d.com)  
[www.archive3d.net](http://www.archive3d.net)  
<https://freesound.org>



IT Infrastructure Service  
<https://www.ucy.ac.cy/itis/en/>



Redesign Erasmus+ Project  
[www.redesign-project.eu](http://www.redesign-project.eu)



Language Center  
<http://langce.ucy.ac.cy>