The RePlay Newsletter

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Not for sale.

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Editorial

We are very pleased to welcome you to the inaugural version of the RePlay newsletter. RePlay is an exciting new EU research project that started in March 2013 and that brings together eight participants from five countries across Europe including Vicomtech-IK4 and Eusko Jaurlaritza from Spain, Vicon Motion and IN2 Search from the UK, CLARITY and the GAA from Ireland, the University of Geneva from Switzerland and the Centre for Research and Technology, Hellas in Greece.

The goal of RePlay, in a nutshell, is to develop novel technology to allow capturing an aspect of our intangible Cultural Heritage that has been too often overlooked, specifically European Traditional Sports and Games. In this first newsletter, we provide an overview of the project in terms of its motivation, objectives and timeliness. Each future newsletter will provide an update on the recent activities of the project, including details of research publications, new technical demonstrations, pointers to RePlay appearances in the media and details of any upcoming events.

We hope you enjoy learning about the RePlay project, through this and subsequent issues. Were you interested in our project, please don't hesitate to get in touch and don't forget to follow the project on Facebook, Twitter and YouTube!

https://twitter.com/Replay_fp7

http://www.youtube.com/user/fp7Replay

https://www.facebook.com/Replay.fp7

Sport as Intangible Cultural Heritage

The history of sport can be traced back to the very existence of human civilisation itself, probably ever since we started to use sticks and rocks to hunt with. It penetrates every social, political, ethnic and religious divide and is played by children in every geographical location, irrespective of the size of their community testifying to its universal and accessible nature. Therefore, sport not only reflects the identity and evolution of a society , but actually acts to shape societies.

This explains the staggering diversity and richness of sports across cultures. Only Europe, there are over 3000 Traditional Sports and Games (TSG). However, due in part to globalisation by a few sports and the increased tendency towards individualised physical exercise, many traditional sports are in decline or already lost to us. Given the importance of sport as intangible Cultural Heritage it is imperative that we understand, preserve, protect and promote traditional sports.

Project Concept

The RePlay project aims at the development of a technology platform that shall provide access and interpretation of digital content for Traditional Sports and Games (TSG). It will enable multiple modes of training, coaching and knowledge sharing that will contribute to the increased participation and preservation of Traditional Sports and Games in the future. In the case of RePlay, this will be field based on Gaelic team sports and Basque individual/doubles ball and court sports. The fundamental structure of these sports is extensible to a vast majority of traditional minority and mainstream sports.

RePlay will design and implement a platform for the capture, annotation, indexing and provision of 3D sports content. It will include the analysis and specification of methodologies and ideal cost-effective hardware solutions for the extension of the project to other sports. The RePlay project will focus on the use of existing and near future 3D motion capture hardware.

The project focuses on the analysis, capture and modelling of the basic styles and techniques of play common to all participants or the "Local Hero" using low-cost capture techniques. However, RePlay will also use advanced professional grade capture techniques on "National Heroes". A national hero, or a recognised elite player, develops their sporting prowess to an extent that is unique. This presents Intangible Cultural Heritage to be preserved, an opportunity to allow the young to try to learn and emulate their heroes, and a scientific opportunity to compare and analyse the evolution in the changes of styles of play over time.

Timeliness

Recent research results indicate that much of the technology needed to realize this vision is either already available or starting to mature. Examples include low-cost motion capture using cheap sensor devices, such as MS Kinect and wearable accelerometers, the emergence of cheap 3D scanning technology and advances in navigable virtual immersive environments for optimum end-user experience.

As such, we believe that the time is right to develop novel low-cost technologies that can be leveraged by anyone seeking to digitally preserve key movement signatures from Traditional Sports and Games.

Objectives

Over the course of its lifetime, the RePlay project will achieve the following objectives:

Objective 1: Through the use of innovative technologies, study, and provide a truly useful resource for the protection, preservation and promotion of other traditional and minority sports by leveraging the expertise of leading traditional sports bodies and associated expert associations.

Objective 2: Establish a methodology which can be applied to the analysis and decomposition of other team and individual sports so that the results of the RePlay project can be extended further to other sports.

Objective 3: Create a set of technologies and methodologies that are built as much as possible from inexpensive and mass market off the shelf components.

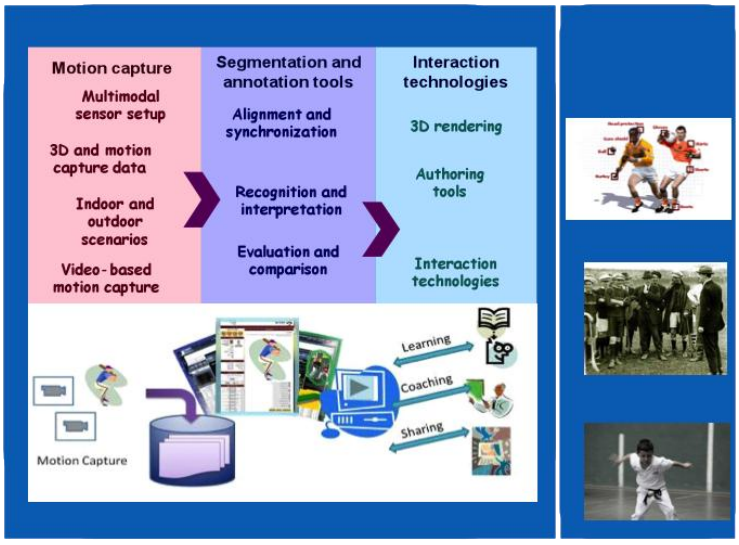
Objective 4: Capture playing techniques and game dynamics of a selection of Basque and Gaelic sports representative of a larger superset of sports whether traditional or minority.

Objective 5: An objective approach to the selection of sensor and capture technologies that will mix the best of marker based, marker less, vision based and sensor based motion capture technologies.

Objective 6: 3D capture, rendering and visualisation of motion capture data that can be used not only as a reference cultural resource, but also for the purposes of TSG coaching by implementing innovative and novel ways of exploiting the content.

Objective 7: Conduct a capture programme using a combination of high-grade motion capture equipment and simpler lower costs sensor and camera setups. The objective will be to ensure the capture and preservation, with a high degree of accuracy, of national heroes, but also to ensure that effective and near parity capture can be achieved for the capture of local heroes.

Objective 8: 3D rendering of the sporting objects and motion that can be made open source and further used by others to develop innovative interactions beyond the scope of RePlay.



Understand

Preserve

Promote

Protect

Project Launch

The RePlay project was officially launched by Minister Richard Bruton, Irish Minister for Jobs, Enterprise and Innovation on Thursday, 21st March 2013 at GAA Headquarters, Croke Park, Dublin. The launch was also attended by Páraic Duffy, Director General of the GAA, Jan Redondo a representative of the Basque Government from the Directorate of Youth and Sports and Prof Brian McCraith, President of Dublin City University.

At the launch, Minister Bruton said "*The Re-Play project is an excellent example of the cultural impact that science can have. Sport is deeply ingrained in Ireland's cultural heritage and this important project will help us preserve, promote and increase participation in our traditional games for future generations.*"

Páraic Duffy, Director General of the GAA, said, "*The GAA has played an important role in facilitating and shaping Ireland's social and cultural heritage for generations. We are proud to be part of this important project and it will enable multiple modes of training, coaching and knowledge sharing that will contribute to the increased participation and preservation of our traditional sports into the future.*"

Selected Press Coverage

PhD student Chris Richter on Irish kid's TV show "Elev8" (spot starts at 12 mins 10 sec):
http://www.rte.ie/player/ie/show/10150458/#pos=731

RePlay's Dr Kieran Moran discussing the project on Irish national radio:
http://www.rte.ie/news/morningireland/player.html?20130321,20174733,20174733,flash,232

Article on the project by Irish Times Science Editor Dick Ahlstrom:
http://fp7-replay.eu/index.php/en/component/k2/10-suit-up-and-test-yourself-against-gaa-greats

For more see: http://fp7-replay.eu/index.php/en/news

Analysis and Categorisation of Traditional Sports and Games

During the first three months, the project has identified the basic set of elements, objects or movements characterizing the selected Traditional Sports and Games (TSG) to be tracked in the motion capture and analysis tasks of the project.

Targeted Sports

On the one hand, the GAA has selected the following Gaelic sports (the gender of the players is also specified): Hurling (men), Camogie (women) and Gaelic football (men and women). On the other hand, the Directorate of Sports of the Basque Country in cooperation with the Basque Federation of Pelota has chosen the following modalities of Pelota: Handball (men), Jai-Alai (men) and Pala (men and women).

These sports were chosen for the following main reasons:

- They are among the sports overseen and governed by the two sporting partners.
- They offer a diversity of sporting categories/scenarios within the RePlay chosen field of "ball sports" to test and demonstrate the capacity of the RePlay platform, especially around the area of motion capture.
- They facilitate the specific promotion of women in Traditional Sports and Games (i.e. Camogie, Gaelic football, Pala) and allow for the differences and similarities between genders to be explored (i.e. Hurling versus Camogie).
- They allow for the evaluation and comparison of variations of similar wall sports (by virtue of the court design and general rules), especially around the use of instruments (i.e. Handball versus both Jai-Alai and Pala), and variations of instruments to strike the ball (i.e. Jai-Alai versus Pala) .
- They allow for the evaluation and comparison of variations of similar invasion sports (by virtue of the pitch size and general rules), especially around the use and non-use of instruments to strike the ball (i.e. Hurling/Camogie versus Gaelic football).

Categorization

A further task was on the definition of the basic elements, objects and movements that characterize the selected Traditional Sports and Games that will be tracked within the duration of the RePlay project. Different sport equipment and apparel, movement techniques and patterns have been identified on the basis of several physical and virtual meetings with sport scientists and technicians.

The results of this work are available online for other potential End-Users so that commonalities and differences could be analyzed for the application of the results of the RePlay project in other Traditional Sports and Games as well.

Online Link

For more information, please download the full document through the RePlay Website: http://fp7-replay.eu/index.php/en/resources/public-deliverables

First data capture

The first data capture session of the RePlay project took place in Dublin City University from 15th-18th July 2013. The goal of this session was to perform a preliminary data capture in order to "stress test" the capture mechanisms to be adopted in the project. To this end, each RePlay partner sent a technical team to Ireland in order to capture with their preferred capture mechanism. These included 16+ high end optical motion capture cameras, 4x MS Kinects, 4x stereo video cameras and 4x Time-Of-Flight (TOF) visual sensors and 8 x wireless inertial sensors worn by test subjects.

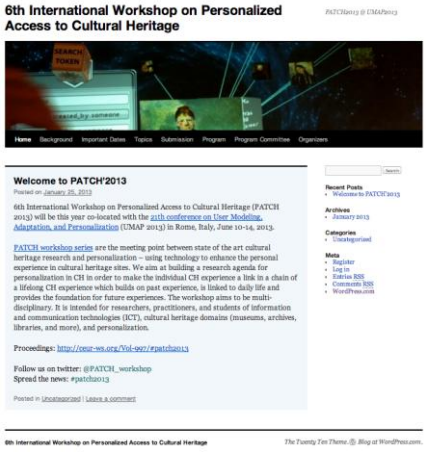
The first day of this complex capturing sessions was spent setting up, calibrating and synchronising the various different capture technologies. The remaining three days were spent capturing a variety of different skills from a selection of Gaelic sports (lift, catch, solo and punt from Gaelic football) and Basque Pelota modalities (underarm and overhead in Pala; sidearm, backhand and serve in Jai-Alai; and overhead in Handball).

This comprehensive and unique data set will be used to aid development of novel low-cost capture technologies. It is also planned to release an annotated subset of the data set to the academic community in the future. If interested in obtaining a copy of this data set, please contact Prof. Noel O'Connor, Noel.Oconnor@dcu.ie

Recent & Upcoming Events

First RePlay paper published!

On June 14th at the 6th Intl Workshop on Personalised Access to Cultural Heritage, Prof. Noel O'Connor presented a position paper entitled "Traditional Sports and Games: A New Opportunity for Personalized Access to Cultural Heritage" by Maria Teresa Linaza, Kieran Moran and Noel O'Connor. The paper is a "call to arms" to the Cultural Heritage community to consider TSG as a key target for digital preservation.

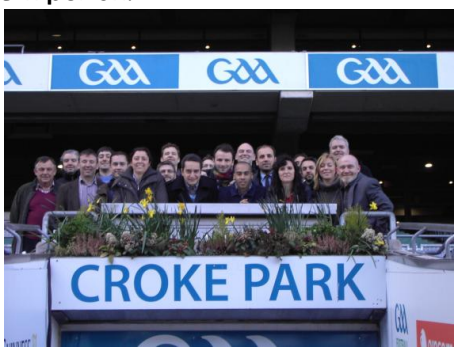


Consortium meeting, San Sebastian, 3rd – 5th Sep. 2013

The next consortium meeting takes place in Vicomtech-IK4 in beautiful San Sebastian, Spain. Partners will gather to consider and discuss the ongoing work in WP2 (Study of Traditional Sports and Games for Digitization) and WP3 (User Requirement Analysis and Global Architecture) as well as the Dissemination activities in WP8 in addition to planning the upcoming technical work of the project.

Connect with us at ICT 2013, Vilnius, 6th – 8th Nov. 2013

The RePlay project will have an exhibition booth at one of the the European Commission's premier annual events – ICT 2013. The event will be held at the Lithuanian Exhibition and Congress Centre LITEXPO in Vilnius. RePlay project partners will be present to discuss the project and provide demonstrations of some of the technologies being developed. So, please feel free to stop by and learn about the project in person!



Thanks for your Interest! The RePlay consortium

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