Technology Request

Partner sought to develop a “Free Viewpoint Video” capture system for virtual and mixed reality applications

Summary

An Austrian company active in the area of artistic entertainment and marketing is looking for partners with technical, mathematical and programming skills to develop a “free viewpoint video” capture system with a scalable number of low cost RGB and/or RGB-D sensors. This product can be used in a variety of cases for Virtual and Mixed Reality applications. All types of partners and cooperations without geographical restrictions will be considered, especially technical and research cooperations.

Expiration Date	24 February 2017
Reference	TRAT20160218001
Profile link	

Details

Description

For the first time since Virtual Reality (VR) came up in the mid 90ies, high quality and affordable VR and Mixed Reality (MR) experiences seem within the reach to a broad range of creatives. The big players in the VR market concentrate mostly on hardware, lacking the content to be displayed on the upcoming generation of display devises. A high-quality, cost-effective, scalable system is not available at the moment, hence the chances in the VR/MR application market are extremely versatile for almost all areas of creative production.

The small Austrian company has been founded in 2009 and is an expert in the artistic entertainment and performance art.

The company would like to develop a low-budget software tool for „mixed reality“ experiences. The tool can be used for product visualization in the industry. This tool is also interesting for the tourism industry as well as the culture environment. The tool enables to capture and process an optimized „free viewpoint video“ with a scalable number of low cost RGB-D sensors, which then can be used in a variety of cases for Virtual Reality and Mixed Reality applications. The innovation is the direct capture of real human performers in 3D, which enables the viewing angel from which a video is looked at to be changed during the playback freely – without the need of motion capture of 3D-animateurs.

The Austrian company is looking for partners. The ideal partner should be able to provide the technical, mathematical and programming skills to develop such software.

The Austrian company is seeking a partner who is able to offer technologies for expertise in the area of virtual and augmented reality, free viewpoint and 3D Video, 3D computer vision as well as real-time 3D. There are no geographical restrictions in terms of the partner sought. The Austrian company is looking for technical and research cooperation agreements but is also

flexible in terms of the types of cooperation considered.

Technical Specification or Expertise Sought

The technical challenge is the development of a set of algorithms that calibrate a scalable number of commodity RGB-D cameras which capture an object from different perspectives and correlate, correct and reconstruct the capture point clouds to a qualitative whole 3D object.
The Austrian company is looking for partners who offer excellent expertise in the following fields
- free-viewpoint and 3D video
- marker-less optical motion capture
- 3D image analysis and synthesis
- image-based rendering
- virtual and augmented Reality
- time-of-flight imaging
- dynamic scene reconstruction
- 3D computer vision
- physically-based rendering
- machine learning for vision / graphics

Keywords

Technology

01003012	Imaging, Image Processing, Pattern Recognition
01003016	Simulation
01005005	Information Filtering, Semantics, Statistics
01005006	Visualisation, Virtual Reality
11008	Creative services

Market

02002008	3D
02004004	Other scanning related (incl. image processing, ...)
02006004	Data processing, analysis and input services
07001002	Amusement and recreational facilities
07001007	Other leisure and recreational products and services

NACE

R.90.0.1	Performing arts

Open for EOI : Yes

Dissemination

Send to Sector Group

ICT Industry and Services

Client

Type and Size of Organisation Behind the Profile

Industry SME <= 10

Year Established

2009

Already Engaged in Trans-National Cooperation

No.

Languages Spoken

English
German

Client Country

Austria

Partner Sought

Type and Role of Partner Sought

Partners of any size and type from all regions are sought, who can offer expertise and solutions in the area of virtual and mixed reality. The focus is on finding an optimum match in terms of the technology, so the company is flexible on many other aspects including the type of cooperation considered, especially technical and research cooperation agreements.

Type and Size of Partner Sought

SME 11-50,University,R&D Institution,SME <10,>500 MNE,251-500,SME 51-250,>500

Type of Partnership Considered

Technical cooperation agreement
Research cooperation agreement

Technology Offer

Innovative three-demnsional (3D) system for assessment of climbers

Summary

A Bulgarian research unit with over 40 years of experience in R&D of specialised technologies and products developed an innovative computerised system for complex assessment of climbers. The institute seeks commercial agreements with technical assistance with companies in the sports sector, for implementation of the device and testing of new applications.

Expiration Date	17 January 2018
Reference	TOBG20161222006
Profile link	

Details

Description

The Bulgarian research unit has developed technologies and products together with research and industrial partners that have applications in different fields: aerospace, new materials and coatings, sensors, control units, automated systems, medical and sport applications and others. The institute has international experience with R&D institutions and companies and has implemented many project.

Climbers, especially those involved in sports activities and competitions, need to practice and have a tool for monitoring and assessment and of their physical state and progress in order to be in top condition and have a competitive advantage.

The innovative system developed by the institute addresses that issue allowing climbers to constantly monitor and assess their activities and offers a very versatile system for that use. The device consists of a dynamometer unit with sensors in all three dimension axes (X, Y and Z), with installation for mounting of climbing grip and system for transmitting of the data over wire and wireless high-speed radio-line.
Technical details:
- accuracy of transformation - 12 bits
- frequency conversion - 125 Hertz.
- data transmission speed - 115.2 kilobits per second
- dynamic range of measurement along all three axes (X, Y, Z) - ± 2 kilonewtons

The innovative product also has control software with options for setting of different load models (different tests and their variants), calculation of mechanical parameters analysis, storage and retrieval of data. A specialised stand with display for feedback in real-time supports the assessment and control of the intensity and duration of muscle contractions through graphics and sound signaling, and a mechanical system for fixation of the upper limbs. Adjustments may also be made according to the anthropometric characteristics of the athletes.

The main functions of the innovative product are:
- testing and evaluation of specific force and muscular endurance of the flexors of the fingers of climbers;
- evaluation of the dynamic parameters during the climbing activities with aim to improve the climbing techniques of the athletes;
- measurement of the maximum strength and strength endurance during isometric contractions of the different muscle groups.

The research institute seeks commercial agreements with technical assistance with companies involved in the sports and climbing sectors for adaptation of the device to their needs and also for testing of new applications, providing the necessary know-how and expertise.

Advantages and Innovations

- the system is unique and has no analogue
- the innovative device is adaptive and may be used for inclusive diagnostics of specific force and performance in climbing activities;
- it excels in comparison to competitors with its variety of tests - for muscle strength, continuous and intermittent tests for muslce endurance, tests for maximum force during the whole time period and others;
- the different working modes make it possible to measure and evaluate various physical properties, as well as, physiological functions (local aerobic and anaerobic capacity).
- precise calculation of mechanical parameters, in line with the restrictive requirements of the test;
- there is an option for processing by various criteria: type of test, sex, qualification of the studied person, date and time frame of the conducted the experiments and export of the results in tabular form for additional analysis and processing purposes - which has no analogue in other devices.

Stage of Development

Available for demonstration

IPR Status

Secret Know-how

Profile Origin

Private (in-house) research

Keywords

Technology

01002003	Electronic engineering
01002004	Embedded Systems and Real Time Systems
01003022	Smart Appliances

11007	Sports and Leisure

Market

03001009	Other electronics related (including keyboards)
03004003	Other electronics related equipment
03007003	Other analytical and scientific instrumentation
05001001	Diagnostic services

NACE

M.72.1.9	Other research and experimental development on natural sciences and engineering

Open for EOI : Yes

Client

Type and Size of Organisation Behind the Profile

R&D Institution

Year Established

0

Already Engaged in Trans-National Cooperation

No.

Languages Spoken

English
Bulgarian
Russian

Client Country

Bulgaria

Partner Sought

Type and Role of Partner Sought

- Type of organisation sought: industrial partners;

- Specific area of activity of the partner sought: companies working in the field of sports climbing, analysis of performance of athletes; sports sector;

- Tasks to be performed: commercial agreements with technical assistance with companies interested in the implementation of the innovative product in their activities and processes with assistance and expertise provided by the institute with adaptation to their needs; testing of new applications.

Type and Size of Partner Sought

SME 11-50,SME <10,>500 MNE,251-500,SME 51-250,>500

Type of Partnership Considered

Commercial agreement with technical assistance