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ITEA 3 is a EUREKA strategic ICT cluster programme

Exploitable Results by Third Parties

15022 Media Orchestration from Sensor to Screen

Project details

Project leader:	Gjalt Loots
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Name: WWS platform runtime		
Input(s):	Main feature(s)	Output(s):
▪ Data ▪ multimedia streams	▪ dataflow application platform near real time performance dataflow nodes are operators that take in data and/or multimedia streams, operate on that information and produce derived data and/or multimedia streams dataflow edges are streams themselves large library of domain specific operators	▪ data or multimedia streams

Unique Selling Proposition(s):	▪ IaaS supported dataflow application runtime, scalable. near realtime, fuses multimedia and data streams
Integration constraint(s):	▪ platform is offered as a hosted service, needs either dedicated hardware or a subscription to am IaaS provider (AWS, Google,...)
Intended user(s):	▪ verticals, smart cities, government, ...
Provider:	▪ Nokia
Contact point:	▪ philippe.dobbelaere@nokia.com
Condition(s) for reuse:	▪ SaaS pay per use fee (WWS standalone), or any commercial agreement for a Nokia product that incorporates WWS inside

Name: WWS platform design tools		
Input(s)	Main feature(s)	Output(s):
Design specs	▪ dataflow application design and prototyping platform	▪ dataflows to be deployed on WWS runtime

Unique Selling Proposition(s):	▪ IDE to create WWS dataflows and connect external streams to real data sources / sinks has support to monitor internal streams (both data and multimedia)
Integration constraint(s):	▪ IDE can be offered as hosted service or as docker container set for local deployment
Intended user(s):	▪ IoT application designers
Provider:	▪ Nokia
Contact point:	▪ philippe.dobbelaere@nokia.com
Condition(s) for reuse:	▪ SaaS pay per use fee (we are considering to offer it free for non commercial use)

Name: **nodejs scope serialiser/deserialiser**		
Input(s)	Main feature(s)	Output(s):
nodejs code to be run in distributed environment or binary serialised content	▪ (de)serialiser that is object lifetime aware and can (de)serialise both locally scoped data and javascript code to enable remote execution	▪ binary serialised content/ nodejs code and data to be run in distributed environment

Unique Selling Proposition(s):	▪ helps to distribute javascript code and data (e.g. closures) to remote execution nodes)
Integration constraint(s):	▪ nodejs
Intended user(s):	▪ distributed platform designers
Provider:	▪ Nokia
Contact point:	▪ philippe.dobbelaere@nokia.com
Condition(s) for reuse:	▪ opensource

Name: Inmotio Performance Center (IPC) cloud application/portal		
Input(s):	Main feature(s)	Output(s):
▪ Position data coming from Inmotio's LPM System ▪ Position data coming from 3rd party position data & STATS provider(s) ▪ Video stream coming from camera's (broadcast or else)	▪ Of the shelf – default performance reports focused on soccer. ▪ 100% SaaS Application (Cloud) ▪ Self service portal – workspace per team available ▪ Pre-loaded Position data, analyzed to be used in models ▪ API (fully documented) for third party integration possibilities, export possibilities ▪ "free format" – custom reports created by end users, based on parameters and thresholds.	▪ Tactical reports, based on scientific research – data science ▪ Physical performance reports ▪ 2D analysis per 'event', dynamic ▪ Video analysis, pre-clipped (5 seconds) ▪ Timestamp export (JSON/ XML) for further video analysis

Unique Selling Proposition(s):	▪ Instant (default) reports, based on existing data (ready to use) ▪ Physical and Tactical data ▪ Referee-proposition available
Integration constraint(s):	▪ All features available via API, only constraint can be the in-ability to work with API.
Intended user(s):	▪ Soccer clubs, Leagues ▪ Performance analysist, video analysist, coaches and assistant coaches. ▪ Third parties – integration models into their solutions (e.g. video presentation features) ▪ Media companies – using models to analyze matches and present to viewers etc.
Provider:	▪ Inmotio Object Tracking B.V.
Contact point:	▪ Vincent van Renesse van Duivenbode
Condition(s) for reuse:	▪ IPC subscription (various options, depending on data) ▪ API key and password

Latest update: 26-08-2019

Name: LPM Player wearable		
Input(s):	Main feature(s)	Output(s):
▪ Time of arrival principle (RFID) to determine the location of a player on a field ▪ Sensor data (Height, steps etc) ▪ Data coming from 3rd party devices (heart rate module)	▪ Detectable tag in LPM System ▪ Wearable – light weighted and body fit ▪ oLED screen displaying all sensor data & Status ▪ Inductive vest, containing sensors for heart rate modules (3rd party) ▪ 9-Axis Inertial Sensor ▪ Wireless charging	▪ Accurate position measurement, 50 times per second per player (match) ▪ Real-time data available ▪ (separate) Telemetry channel containing data like heart rate, acceleration, height, body position etc.

Unique Selling Proposition(s):	▪ RFID technology, delivering real time data ▪ High accuracy ▪ Inertial sensors
Integration constraint(s):	▪ Is part of Inmotio LPM system – rest of system needs to be available/ in use by (end)user ▪ Only works with RFID technology
Intended user(s):	▪ Soccer clubs, Leagues ▪ Performance analysist, video analysist, coaches and assistant coaches. ▪ Third parties – integration models into their solutions (e.g. video presentation features) ▪ Media companies – using models to analyze matches and present to viewers etc.
Provider:	▪ Inmotio
Contact point:	▪ Vincent van Renesse van Duivenbode
Condition(s) for reuse:	▪ LPM system license ▪ IMO Client desktop client software (needed for interpretation of data) ▪ Purchase of Transponders/ Tag including vests

Latest update: 26-08-2019

Name: Ball tracking		
Input(s):	Main feature(s)	Output(s):
▪ 12 camera's around the pitch delivering footage to server ▪ Algorithms on IMO server ▪ Soccer match or practice	▪ Detect the position of the ball ▪ Position data of the ball in 3D ▪ Real time data of ball, synchronized with player data	▪ Position of ball

Unique Selling Proposition(s):	▪ Real-time data on the position of the ball ▪ Combined data with players provides unique tactical features ▪ Pass options calculated on algorithms
Integration constraint(s):	▪ 12 camera's, servers and LPM system needed ▪ Needs to be part of the LPM system
Intended user(s):	▪ Soccer clubs, Leagues ▪ Performance analysist, video analysist, coaches and assistant coaches. ▪ Third parties – integration models into their solutions (e.g. video presentation features) ▪ Media companies – using models to analyze matches and present to viewers etc.
Provider:	▪ Inmotio
Contact point:	▪ Vincent van Renesse van Duivenbode
Condition(s) for reuse:	▪ LPM system active ▪ 12 camera's including calibration
	Latest update: 27-08-2019

Name: Real time position data export		
Input(s):	Main feature(s)	Output(s):
▪ LPM data gathering ▪ Player and ball data coming from LPM tracking	▪ Easy integration ▪ Delivering position data of players and ball in real time ▪ Format is adjustable and can be exported so that 3rd party can easy consume.	▪ Position data x,y,z of ball and player ▪ Tactical features as output (e.g. defense 'centroid') ▪ Physical features (e.g. fatigue battery)

Unique Selling Proposition(s):	▪ Easy connect to LPM system/ IMO server ▪ Including tactical features, that deliver real time alerts
Integration constraint(s):	▪ 3rd party needs to be able to "calibrate" position data in video ▪ Consume and display tactical & physical features
Intended user(s):	▪ Soccer clubs, Leagues ▪ Performance analysist, video analysist, coaches and assistant coaches. ▪ Third parties – integration models into their solutions (e.g. video presentation features) ▪ Media companies – using models to analyze matches and present to viewers etc.
Provider:	▪ Inmotio
Contact point:	▪ Rob Renaud/ Vincent van Renesse van Duivenbode
Condition(s) for reuse:	▪ 3rd party IMO license (for consuming data)

Latest update: 26-08-2019

Name: Real time position data export		
Input(s):	Main feature(s)	Output(s):
▪ LPM data gathering ▪ Player and ball data coming from LPM tracking	▪ Easy integration ▪ Delivering position data of players and ball in real time ▪ Format is adjustable and can be exported so that 3rd party can easy consume.	▪ Position data x,y,z of ball and player ▪ Tactical features as output (e.g. defense 'centroid') ▪ Physical features (e.g. fatigue battery)

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Provider:	▪ Inmotio
Contact point:	▪ Rob Renaud/ Vincent van Renesse van Duivenbode
Condition(s) for reuse:	▪ 3rd party IMO license (for consuming data)

Latest update: 26-08-2019

Name: KISWE Call-In Appliance		
Input(s):	Main feature(s)	Output(s):
▪ Video of the presenter and/or broadcast production feed over HD-SDi ▪ Video of the mobile caller via Call-In client over internet	▪ Integrate Call-In mobile contributions into a broadcast production setup	▪ Mobile Caller video over HD-SDi
Unique Selling Proposition(s):	▪ Easy integration of appliance in production setup within 15 minutes ▪ Caller also sees presenter or stage he is talking too ▪ Queue management ▪ Quality control ▪ No app install requirements	
Integration constraint(s):	▪ Good internet connectivity on site ▪ Audio-embedded HD-SDi with presenter ▪ Contributors meeting minimum hardware requirements	
Intended user(s):	▪ Production team ▪ End-users or on-site journalists	
Provider:	▪ KISWE	
Contact point:	▪ Jorre Belpaire (jorre.belpaire@kiswe.com)	
Condition(s) for reuse:	▪ Licensing (yearly or event-based one-off)	
	Latest update: 28-08-2019	

Name: CloudCast Call-In Plugin		
Input(s):	Main feature(s)	Output(s):
▪ Video of the presenter and/or broadcast production feed from CloudCast ▪ Video of the mobile caller via Call-In client over internet	▪ Endusers/Invitees can participate over mobile in a live CloudCast production event and interact with the original commentators	▪ Updated CloudCast production feed with embedded mobile contribution i
Unique Selling Proposition(s):	▪ Increase viewer engagement levels by involving viewers in the production story lines ▪ Unique time-synchronization algorithm to avoid delay impact on conversations ▪ Queue management ▪ Quality control ▪ No app install requirements	
Integration constraint(s):	▪ Active CloudCast license (See http://www.kiswe.com) ▪ Mobile contributors meeting minimum configuration and network requirements	
Intended user(s):	▪ Production team ▪ End-users or on-site journalists	
Provider:	▪ KISWE	
Contact point:	▪ Jorre Belpaire (jorre.belpaire@kiswe.com)	
Condition(s) for reuse:	▪ Licensing (yearly or event-based one-off)	
	Latest update: 28-08-2019	

Name: Video Processing Platform		
Input(s):	Main feature(s)	Output(s):
▪ Video to be processed	▪ Cloud based processing of media files ▪ The platform is designed in a general way so processing can differ from cropping, tiling, creating DASH, training neural nets for image recognition, image recognition/meta data extraction, region-of-interest creation, etc.	Depending on use: ▪ Processed video ▪ Metadata ▪ Identification tags synchronized with video
Unique Selling Proposition(s):	▪ Cloud native, modular and scalable	
Integration constraint(s):	▪ Can run on local servers or on (public) cloud. ▪ Resource requirements heavily dependent on use case	
Intended user(s):	▪ Any company requiring tailor made, high volume or resource hungry media processing	
Provider:	▪ TNO	
Contact point:	▪ Tom De Koninck (tom.dekoninck@tno.nl)	
Condition(s) for reuse:	▪ To be negotiated depending on use	
	Latest update: 29-08-2019	

Name: Real-time 8K 360VR, 180VR stitching		
Input(s):	Main feature(s)	Output(s):
▪ Multiple Camera inputs, 1080p@30, 60, 2160p@30	▪ Real-time stitching geometrically and photometrically ▪ 8Kx4K@30fps stitching performance ▪ Importing the calibration result of an external calibration tool	▪ Upto 4ch x 4Kx2K@30fps for 8Kx4K@30fps ▪ Upto Encoded 8Kx4K@25fps stream ▪

Unique Selling Proposition(s):	▪ Real-time 8Kx4K 360VR broadcasting support
Integration constraint(s):	▪ Need to access the camera raw source inputs ▪ Depending on the GPU
Intended user(s):	▪ Any wide field of view broadcasting
Provider:	▪ ETRI
Contact point:	▪ Seong Yong Lim (seylim@etri.re.kr)
Condition(s) for reuse:	▪ To be negotiated depending on use

Latest update: 31-08-2019

Name: Cloud, MEC-based VR remote player		
Input(s):	Main feature(s)	Output(s):
▪ Upto stitched 8Kx4K@30fps 360VR video file	▪ Dynamic Selection of the multiple viewports ▪ Low latency of dynamic viewport change	▪ Upto 1ch of 1080p@60fps stream to legacy STBs and Mobile phones

Unique Selling Proposition(s):	▪ Reusability of legacy devices including STBs ▪ 500ms low latency of dynamic viewport change
Integration constraint(s):	▪ Depending on the GPUs at the Cloud or MEC
Intended user(s):	▪ Any wide field of view broadcasting
Provider:	▪ JDI
Contact point:	▪ Seong Yong Lim (seylim@etri.re.kr)
Condition(s) for reuse:	▪ To be negotiated depending on use

Latest update: 31-08-2019

Name: OpenGL Panorama stitcher		
Input(s):	Main feature(s)	Output(s):
▪ Multiple raw video streams	▪ Cross-platform, high-performance panorama stitching up to 32 megapixels	▪ Stitched panorama in OpenGL

Unique Selling Proposition(s):	▪ 3D Panorama ▪ High perfomance, even at high resolutions (as high as 32MP) ▪ Cross-platform (c++)
Integration constraint(s):	▪ clang and clang++ (8.0) ▪ cmake (3.14)
Intended user(s):	▪ Application developers
Provider:	▪ Game On Technologies
Contact point:	▪ Cyril Rutten - cyril@game-on.eu
Condition(s) for reuse:	▪ Commercial license

Latest update: 1 sept 2019

Name: OpenGL Panorama stitcher		
Input(s):	Main feature(s)	Output(s):
▪ Multiple raw video streams	▪ Cross-platform, high-performance panorama stitching up to 32 megapixels	▪ Stitched panorama in OpenGL

Unique Selling Proposition(s):	▪ 3D Panorama ▪ High perfomance, even at high resolutions (as high as 32MP) ▪ Cross-platform (c++)
Integration constraint(s):	▪ clang and clang++ (8.0) ▪ cmake (3.14)
Intended user(s):	▪ Application developers
Provider:	▪ Game On Technologies
Contact point:	▪ Cyril Rutten - cyril@game-on.eu
Condition(s) for reuse:	▪ Commercial license

Latest update: 1 sept 2019

Name: WebGL Panorama stitcher		
Input(s):	Main feature(s)	Output(s):
▪ Multiple raw video streams	▪ Platform neutral, cross-browser panorama stitching up to 1080p	▪ Stitched panorama in the web browser
Unique Selling Proposition(s):	▪ 3D Panorama ▪ Platform neutral ▪ cross-browser	
Integration constraint(s):	▪ Browser with WebGL capabilities ▪ Javascript	
Intended user(s):	▪ Application developers	
Provider:	▪ Game On Technologies	
Contact point:	▪ Cyril Rutten - cyril@game-on.eu	
Condition(s) for reuse:	▪ Commercial license	
	Latest update: 1 sept 2019	

Name: Metal Panorama stitcher		
Input(s):	Main feature(s)	Output(s):
▪ Multiple raw video streams	▪ Apple-compliant, high performance panorama stitching up to 32MP	▪ Stitched panorama on OSX and iOS
Unique Selling Proposition(s):	▪ 3D Panorama ▪ Compliant to Apple ▪ High performance on OSX and iOS	
Integration constraint(s):	▪ OSX or iOS ▪ clang and clang++ (8.0) ▪ cmake (3.14) ▪ XCode	
Intended user(s):	▪ Application developers	
Provider:	▪ Game On Technologies	
Contact point:	▪ Cyril Rutten - cyril@game-on.eu	
Condition(s) for reuse:	▪ Commercial license	
	Latest update: 1 sept 2019	

Name: HTTP Text-based Stream Segmenter		
Input(s):	Main feature(s)	Output(s):
▪ Text file with time series data	▪ Converts time series data in text format to HTTP streamable format	▪ HTTP streamable time series data

Unique Selling Proposition(s):	▪ Makes any text-based time series data streamable over HTTP, similar to HLS video ▪ Cross-platform
Integration constraint(s):	▪ PHP ▪ Webserver
Intended user(s):	▪ Application developers
Provider:	▪ Game On Technologies
Contact point:	▪ Cyril Rutten - cyril@game-on.eu
Condition(s) for reuse:	▪ Commercial license

Latest update: 1 sept 2019

Name: HLS Segmenter		
Input(s):	Main feature(s)	Output(s):
▪ H264 video stream	▪ Cross-platform HTTP Live Streaming segmenter	▪ Segmented video stream

Unique Selling Proposition(s):	▪ HLS compliant ▪ High performance on OSX and iOS
Integration constraint(s):	▪ clang and clang++ (8.0) ▪ cmake (3.14)
Intended user(s):	▪ Application developers
Provider:	▪ Game On Technologies
Contact point:	▪ Cyril Rutten - cyril@game-on.eu
Condition(s) for reuse:	▪ Commercial license

Latest update: 1 sept 2019

Name: Apache Video Muxer Module		
Input(s):	Main feature(s)	Output(s):
▪ Video file	▪ On-the-fly video transmuxing in one of the most popular web servers	▪ Transmuxed video file

Unique Selling Proposition(s):	▪ Integrated into Apache, one of the most widely used web servers ▪ Easy to use
Integration constraint(s):	▪ Apache 2.4 ▪ LIBAV based ▪ apxs
Intended user(s):	▪ Application developers
Provider:	▪ Game On Technologies
Contact point:	▪ Cyril Rutten - cyril@game-on.eu
Condition(s) for reuse:	▪ Commercial license

Latest update: 1 sept 2019

Name: Real-time color correction		
Input(s):	Main feature(s)	Output(s):
▪ Multiple raw video streams	▪ Real-time color correction for video data from different camera sources	▪ Color correction coefficients

Unique Selling Proposition(s):	▪ Efficient and robust method ▪ Real-time compatible
Integration constraint(s):	▪ Python > 3.6 ▪ OpenCV > 3.*
Intended user(s):	▪ Application developers
Provider:	▪ Game On Technologies
Contact point:	▪ Matthias Häusler - matthias@game-on.eu
Condition(s) for reuse:	▪ Commercial license

Latest update: 1 sept 2019

Name: Vulkan C++ Wrapper Library		
Input(s):	Main feature(s)	Output(s):
▪ n/a	▪ modern RAII wrappers for Vulkan SDK	▪ n/a

Unique Selling Proposition(s):	▪ modern semantically structured library to access the Vulkan API ▪ reduce resource leaks and boiler plate and other sources of error
Integration constraint(s):	▪ C++ ▪ VulkanSDK
Intended user(s):	▪ Application developers
Provider:	▪ Game On Technologies
Contact point:	▪ Daniel Oberhoff - daniel@game-on.eu
Condition(s) for reuse:	▪ Creative Commons CC0 1.0 Universal (open source)

Latest update: 1 sept 2019

Name: <ONLINE DEBATE PLATFORM>		
Input(s):	Main feature(s)	Output(s):
▪ Video sources of debaters and moderator ▪ Texts from moderator and audiences	▪ Online debate platform ▪ Surveys and voting options ▪ Stitching multiple videos ▪ Debate replays	▪ Source code of stand-alone online debate platform ▪ Online debate portal
Unique Selling Proposition(s):	▪ An easy to use online discussion platform which doesn't require downloading any file for end-users. Easy to customize for specific use cases.	
Integration constraint(s):	▪ It has 7 different sub applications inside (Webrtc server, signaling server, debate server, streaming server, cloud components, data lake, rule manager …etc). Each of them should be configured probably properly	
Intended user(s):	▪ Broadcasters, mass journalism communities, influencers, media organizations…etc for whom the privacy and independency is an important issue.	
Provider:	▪ Gerade Software ▪ DIA Software	
Contact point:	▪ Özer Aydemir ozer@geradesoftware.com	
Condition(s) for reuse:	▪ Licenced	
	Latest update: <INSERT LATEST UPDATE DATE HERE>	

Name: **PIXAGE Digital Publishing Application**		
Input(s):	Main feature(s)	Output(s):
▪ **PIXAGE Architectures & Components**: - SOC (System on Chip) Framework - QT Framework (PC Client) - Multi-Tenant Web Application - Scalable RTC Server - Pixage PC Client HW & OS ▪ **Media Content**	▪ Remote and Central Control (enables managing all screens and broadcast stream from a single center) ▪ Increases the effectiveness of promotions with interesting content ▪ Easy access to customize broadcast stream ▪ Online maintenance ▪ Multi-Tenant Service ▪ High Level of Scalability	▪ Media Stream (Digital Signage) ▪ System Versions: - Guest - Enterprise - Arena
Unique Selling Proposition(s):	▪ Saves on printing and distribution costs of traditional methods ▪ Measures the effectiveness of promotions with detailed reporting on content delivery and feedback ▪ Access from anywhere: Easily reach the Pixage management panel via PC, Tablet and Phone, with a user-friendly interface; you can manage your content anytime, anywhere. ▪ Broadcast Schedule: You can schedule the content specified by the broadcast schedule to be broadcasted at the desired time and on the screen. ▪ Player Grouping and Tagging: You can easily manage location and time-based content by separating your content into groups with tags. ▪ Live Broadcast: You can display live broadcasts in HD quality ▪ Social Media Integration: With Twitter and Instagram integrations, you can make your content more engaging. ▪ Air, Currency, Road Status Integration: You can access the dynamic data such as exchange rate, road and weather via the system, you can add broadcast stream. ▪ 4K Content Broadcast: You can make remarkable promotions with your high-quality videos. ▪ Multi-User Support: You can define as many profiles as you want with the authorization options. ▪ Transition Effects between Content: With transition effects between templates you can make your broadcast flow noticeable. ▪ Error Reporting: On-screen display and broadcasts are continuously provided on the system. A daily error report is sent when an error is encountered on the display and broadcasts. It can also be monitored at any time via the dashboard in the system.	

Name: **PIXAGE Digital Publishing Application**	
	▪ Remote Software Update: Remote software update feature keeps your screens up to date at any time. ▪ Emergency Management: You can activate your message for emergencies at the touch of a button. ▪ Interactive Experience: With touch-based application and template triggering support, you can offer a much more engaging and interactive experience for your organization.
Integration constraint(s):	▪ Windows Server ▪ Client OS's should Linux and Windows ▪ SOC partners Samsung, LG, Arcelik (no other brands) ▪ Network
Intended user(s):	▪ Advertisers in and around Shopping Malls, Shops, Markets, etc. ▪ Administers of Sports Areas for football, basketball, etc. ▪ Product Dealers
Provider:	▪ KoçSistem Bilgi ve İletişim Hizmetleri A.Ş. ▪ Ünalan Mahallesi, Çağla Sokak, Çamlıca İş Merkezi, No:11, 34700 ▪ Üsküdar-İSTANBUL/TURKEY ▪ info@kocsistem.com.tr
Contact point:	▪ ferhat.kutlu@kocsistem.com.tr
Condition(s) for reuse:	▪ Only through commercial partnerships ▪ License Fee: Between 15$ -25$ per player/month *(changing by the number of players in the purchase)*
	Latest update: <28 August 2019>