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ITEA 3 is a EUREKA strategic ICT cluster programme

Exploitable Results by Third Parties

16026 BIMy – BIM in the City

Project details

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Name: BIMy Data Manager & Web-based Platform		
Input(s):	Main feature(s)	Output(s):
▪ BIM & GIS model files ▪ Metadata related to BIM models ▪ BIM-GIS-based BIMy toolsets	▪ Upload of BIM data in asynchronous way (also has update, get, and delete features) ▪ Role based access to BIM data ▪ Management and utilization of various BIM-GIS tools and services	▪ BIMy data manager over cloud ▪ Web-based platform with effective and user-friendly interface to BIMy toolsets ▪ Fail or success message indication the result of the operation
Unique Selling Proposition(s):	▪ Management of heterogeneous BIM and GIS tools within BIMy context that is elastic to be extended and improved with new innovative tools ▪ With the power of event-driven and non-blocking VERT.X, and the ability to handle concurrencies well, your app can scale with minimal hardware. ▪ MinIO server makes it possible to store your data in a high performance, Amazon S3 API compatible object storage. ▪ With the help of Keycloak, identity management and role-based access to your data is achieved. ▪ Hardware-based cyber protection by HSM (Prigm, Hardware Security Module by ERARGE) ▪ AI-based Cyber resilience against intrusion and cyber-attacks (NOVA Cyber Security Solution Family by NETAŞ) ▪ Chatbots for stakeholders' communication and collaboration	
Integration constraint(s):	▪ MinIO server should be up and running. ▪ Keycloak server should be up and running, and your roles, users, clients should be registered.	
Intended user(s):	▪ Clients, architects, designers, external advisors, contractors, facility manager, governments (urban planning, fire department, crisis management authorities, tax authorities), municipalities, insurance companies, utility companies, marketers, environmental protection administrators.	
Provider:	NETAŞ, ERARGE, GIM	
Contact point:	▪ okumas@netas.com.tr, begumc@netas.com.tr, gozdenur.yesilyurt@netas.com.tr ▪ alper.kanak@erarge.com.tr ▪ info@gim.be	
Condition(s) for reuse:	▪ Terms for the usage of VertX is available at https://www.eclipse.org/legal/epl-2.0/ or https://www.apache.org/licenses/LICENSE-2.0 ▪ MinIO Java SDK is licensed under Apache License 2.0 ▪ Keycloak is licensed under Apache License 2.0	
	Latest update: <15/02/2021>	

Name: BCF Data manager and API		
Input(s):	Main feature(s)	Output(s):
▪ BCF Topics	▪ Host BCF projects to store data-rich BCF topics ▪ BCF topics managed can support comments, attachments, status, due date and assignees. ▪ Implementation of the BCF Standard API	▪ Export of topics in BCF files

Unique Selling Proposition(s):	▪ By implementing the BCF API in third-party applications, users can enable interaction with other BIM platforms in the market. ▪ As the BCF API has been developed according to BuildingSMART specifications, the BCF topics managed through the API are standardized, facilitating interoperability among industry software.
Integration constraint(s):	▪ MinioServer should be up and running to upload attachment/snapshot to BCF topics ▪ Authentication uses GitLab for the moment (access to the BIMy project is required) ▪ MongoDB should be up and running to store the data
Intended user(s):	▪ Architects, designers, engineers, main contractors, governmental institutions (for building permits, model annotations, etc). ▪ Software development companies and technology providers.
Provider:	▪ LetsBuild na/sv (Belgium)
Contact point:	▪ Erick.vasquez@letsbuild.com (Product Manager) ▪ Sergio.ristagno@letsbuild.com (Technical Lead) ▪ Thomas.goubau@letsbuild.com (Chief Commercial Officer)
Condition(s) for reuse:	▪ MinIO .NET SDK is licensed under Apache License 2.0 ▪ Mongo C# Driver is licensed under Apache License 2.0

Latest update: <24/02/2021>

Name: Web 3D viewer for BIM models		
Input(s):	Main feature(s)	Output(s):
▪ BIM Model in IFC format	▪ IFC BIM models visualisation ▪ Functionalities for navigation around 3D model (zoom, pan and rotate) ▪ Selection of model objects ▪ 3D viewer sends object ID to web platform for potential interaction with other software.	▪ Visualisation of IFC BIM models ▪ 3D viewer prepared to be integrated in Web platforms
Unique Selling Proposition(s):	▪ 3D viewer for IFC BIM models component that can be easily integrated into Web platforms ▪ Out-of-the-box base functionalities for model navigation	
Integration constraint(s):	▪ Accepted formats are limited to IFC 2x3 ▪ 3D viewer is built and optimised for Web platforms	
Intended user(s):	▪ Software development companies and technology providers.	
Provider:	▪ LetsBuild na/sv (Belgium)	
Contact point:	▪ Erick.vasquez@letsbuild.com (Product Manager) ▪ Sergio.ristagno@letsbuild.com (Technical Lead) ▪ Thomas.goubau@letsbuild.com (Chief Commercial Officer)	
Condition(s) for reuse:	▪ 3D viewer is built with Unity v2190.2	
	Latest update: <04/03/2021>	

Name: LetsBuild BIM prototype + Aproplan-Revit Plugin		
Input(s):	Main feature(s)	Output(s):
▪ BIM Model in IFC format ▪ Revit model using Aproplan-Revit plugin	▪ Revit Plugin allows to send 2D plans directly towards LetsBuild Aproplan ▪ Plans received from Revit have object recognition, facilitating BIM object detection on issues/inspection creation workflows. ▪ Support for multiple models in a project. ▪ 3D viewer for BIM models (ifc format only) ▪ BIM Objects table with possibility to query based on object data and LetsBuild Aroplan statuses ▪ Access to BIM object metadata ▪ Interaction with BIM model objects ▪ Creation and visualisation of issues and inspection tasks linked to BIM objects. ▪ Tasks created in the 3D viewer are transferred to LetsBuild Aproplan mobile including BIM object info and a model snapshot ▪ Actions taken with tasks in LetsBuild mobile (offline mode included) are reflected in the BIM objects through the 3D viewer. ▪ Information collected from the site can be exported along with IFC model or sent back to Revit using the Aproplan-Revit plugin.	▪ Integration of BIM model with LetsBuild Aproplan base platform. ▪ LetsBuild Aproplan issues and inspection tasks. ▪ IFC models with LetsBuild Aproplan site data. ▪ LetsBuild Aproplan site data in native Revit models.
Unique Selling Proposition(s):	▪ Access to BIM models for on-site teams ▪ Allows the creation of issues and inspection tasks on top of a BIM model that can later be carried out by teams on site. ▪ Information provided by site teams can be visualised directly over a BIM model. ▪ Site data can be directly consumed in Revit via the Aproplan-Revit plugin or can be exported as part of the IFC file.	
Integration constraint(s):	▪ User needs to have LetsBuild Aproplan credentials ▪ Accepted formats are limited to .ifc 2x3 (upload) and .rvt (direct transfer) through the Aproplan-Revit plugin. ▪ Data is managed and stored in the LetsBuild Aproplan infrastructure. ▪ Aproplan-Revit plugin is optimised for Revit 2019 and 2020	

Name: LetsBuild BIM prototype + Aproplan-Revit Plugin	
Intended user(s):	▪ Architects, designers, engineers, project promoters, main contractors, subcontractors, facility managers, governmental institutions (model annotations, communication between on-site and offsite teams, etc).
Provider:	▪ LetsBuild na/sv (Belgium)
Contact point:	▪ Erick.vasquez@letsbuild.com (Product Manager) ▪ Sergio.ristagno@letsbuild.com (Technical Lead) ▪ Thomas.goubau@letsbuild.com (Chief Commercial Officer)
Condition(s) for reuse:	▪ User must be registered as a LetsBuild Aproplan user and request direct access to the prototype.
	Latest update: <04/03/2021>

Name: Autodesk Revit model checker check sets		
Input(s):	Main feature(s)	Output(s):
▪	▪ Configure check sets to check Revit models based on BIM protocols, BIM standards, etc. ▪ Check Revit models before exporting to IFC, submit model for review for a building permit, …	▪ Check sets in xml ▪ Reports about Revit models in html or Excel format.
Unique Selling Proposition(s):	▪ By using checksets within Revit the user doesn't waste time by exporting models to IFC, doing unnecessary uploads to governing platforms… etc. ▪ Since commissioning parties start to more and more publish their own BIM protocols (and sometimes Revit templates) they could create a check set to see if provided Revit models do comply with the BIM protocol. This check set will enable the commissioning party to check incoming models, but it the check set is shared with the people delivering the model, they can use it to check their model before delivering the model and prevent delivering a non-compliant model.	
Integration constraint(s):	▪ To use the Autodesk Revit model checker the user should be using Revit full, as plugins are not supported in Revit LT	
Intended user(s):	▪ Architects, designers, engineers, main contractors, governmental institutions (for building permits, urban planning regulations, etc), commissioning parties.	
Provider:	▪ Geo-IT BV (Belgium)	
Contact point:	▪ Jens.lathouwers@geoit.be	
Condition(s) for reuse:	▪ Free use of the provided check sets for users of Autodesk licenses bought through Geo-IT.	
	Latest update: <28/02/2021>	

Name: BIM-GIS Semantic Web Viewer (ERARGE)		
Input(s):	Main feature(s)	Output(s):
▪ BIM model of a building or construction site in IFC format ▪ Urban context in CityGML format	▪ Extracting essential data from BIM and GIS data and storing them on a semantic framework ▪ Providing action-specific APIs for dynamic smart-SPARQL queries ▪ Circular-economy specific queries with advanced calculating techniques ▪ Spring API endpoints	▪ Statistical overview in JSON or CSV format ▪ Visual overview (graphs) of the statistical data ▪ Visual inspection of linked BIM data
Unique Selling Proposition(s):	▪ This tool provides extracting quantitative data for related building objects that can be reused in scope of circular economy. Not only on building scale, but on city scale where a statistical summary can be extracted for an area/region. This mostly concerns about demolition of buildings, especially in urban transformation cases. ▪ Detailed 3D inspection of buildings	
Integration constraint(s):	▪ Accepted formats are IFC2x3 for BIM models and CityGML2.0 for GIS models ▪ Optimised for Web usage	
Intended user(s):	▪ Municipalities, city planners, circular economy engineers	
Provider:	▪ Ergünler R&D Center (ERARGE)	
Contact point:	▪ alper.kanak@erarge.com.tr	
Condition(s) for reuse:	▪ CesiumJS is licensed under Apache 2.0 license ▪ Bimserver is licensed under GNU Affero General Public License v3.0 ▪ OpenLink Virtuoso Open-Source Version is licensed under GNU General Public License	
	Latest update: <10/03/2021>	

Name: BIM-GIS AR and VR Tools for fire and earthquake preparedness		
Input(s):	Main feature(s)	Output(s):
▪ BIM model of a building or construction site in IFC format ▪ Urban context in CityGML format	▪ Integration with GIS-BIM semantic framework ▪ CityGML and IFC models are converted into Unity compatible format Collada (DAE) ▪ The environment is sorted into 3D layers for modular usage (walls, columns, beams, windows, doors, urban point-of-interests etc.) ▪ An earthquake case is simulated ▪ A fire and intervention to a fire is simulated ▪ Interaction with objects/furniture is available ▪ Hidden infrastructure information is visualised	▪ Visual simulation on virtual environment (VR) ▪ Visual simulation embedded in a real-world environment (AR)
Unique Selling Proposition(s):	▪ Visualizing urban context and building data as embedded 3D layers ▪ Near-realistic disaster training for earthquake and fire cases ▪ The VR and AR tools serve to educate first aid candidates and residents by providing an immersive environment. Which, in real-life experiencing (even as a training) earthquake or fire can harm the user, whilst in VR and AR tools the user is away from any dangerous situation while experiencing every possible scenario during such events.	
Integration constraint(s):	▪ Unity v2019.4.21f1 LTS, or newer ▪ Windows 10 OS ▪ Hololens v1 is needed for AR ▪ VR glass (Oculus Rift) is needed for VR ▪ Computation power: CPU: Intel i3-6100 / AMD Ryzen 3 1200, FX4350 or greater GPU: NVIDIA GTX 1050Ti / AMD Radeon RX 470 or greater RAM: 8GB+ RAM Video Output: HDMI1.3 USB: 1xUSB3.0 port, plus 2xUSB2.0 ports	
Intended user(s):	▪ Municipalities, fire brigade, disaster and emergency management institutes (AFAD in Turkey), community	
Provider:	▪ Ergünler R&D Center (ERARGE)	
Contact point:	▪ alper.kanak@erarge.com.tr	
Condition(s) for reuse:	▪ License for Windows 10 is needed to use Oculus Rift	
	Latest update: <10/03/2021>	

Name: Integrated BIM/GIS Web Visualisation		
Input(s):	Main feature(s)	Output(s):
▪ BIM Model in IFC format ▪ Geospatial data served over the 3DTiles, WMS,WFS, WMTS and ArcGIS Server protocols	▪ Integrated BIM/GIS Visualisation with support of LoD2 Building objects ▪ Full 2D and 3D view with navigation, selection and measurement functionality and seamless switch between 2D and 3D views ▪ Layer manager and BIM Object manager ▪ Editing of geospatial objects ▪ BCF API interaction ▪ Modular and configurable ifo a specific use case ▪ Integrated user management ▪ Progressive Web app architecture. ▪ Developed in Typescript to minimise dependency on specific javascript frameworks	▪ Integrated BIM/GIS view

Unique Selling Proposition(s):	▪ Seamless integration of GIS and BIM data in a highly configurable 2D/3D Web application
Integration constraint(s):	• Offered as on premise and SaaS Solution
Intended user(s):	▪ Organisations that want to share BIM models integrated in their urban context to a larger audience. ▪ System integrators
Provider:	▪ G.I.M. - Geographic Information Management NV (Belgium)
Contact point:	▪ Info@gim.be
Condition(s) for reuse:	Commercial – conditions upon request.

Latest update: <04/03/2021>

Name: BIM2GIS data transformation engine		
Input(s):	Main feature(s)	Output(s):
▪ BIM Model in Revit/IFC v2.3	Transform BIM models into (simplified) models compatible with common GIS tools	▪ CityGML ▪ 3D Tiles ▪ CityJSON
Unique Selling Proposition(s):	▪ Flexible transformation of BIM Models to commonly used GIS formats with subsetting and filtering possibilities	
Integration constraint(s):		
Intended user(s):	▪ Organisations that want to exploit BIM data within their GIS infrastructure. ▪ System integrators	
Provider:	▪ G.I.M. - Geographic Information Management NV (Belgium)	
Contact point:	▪ info@gim.be	
Condition(s) for reuse:	Commercial – conditions upon request.	
	Latest update: <04/03/2021>	

Name: Urban context generator for BIM		
Input(s):	Main feature(s)	Output(s):
▪ Polygon delimiting the zone for which the Urban context is to be retrieved	Delivery of the Urban context for BIM visualisation and evaluation consisting of the existing Buildings (GIS Level of Detail 2), parcels, digital terrain model, road surfaces, trees and optionally the subsoil utility infrastructure.	▪ IFC containing the urban context
Unique Selling Proposition(s):	Avoid having to model the urban context by hand in your BIM software by importing the most complete, detailed and up to date geodata set available	
Integration constraint(s):	▪ Limited to Belgian territory	
Intended user(s):	▪ Architects, construction companies and urban planners	
Provider:	▪ G.I.M. - Geographic Information Management NV (Belgium)	
Contact point:	▪ info@gim.be	
Condition(s) for reuse:	Commercial – conditions upon request.	
	Latest update: <04/03/2021>	