CLAIMS

1. A system for providing virtual interactions of historical constructions and/or their related information, comprising

at least one data storage device (12) for storing digital assets that are historical constructions and/or their related information;

at least one server (1), having one or more processors (11), and at least implemented with a database management module (112) for providing inter-relations to the assets stored in the data storage device (12); and

a virtual immersion device (2) to be worn by a user, running a client-side application software (21a) that makes requests to the server (1), and generates a virtual environment (4) for the user to be artificially immersed therein, the virtual environment (4) including a primary interactive model (41) and a secondary interactive model (42) that complements the primary interactive model (41);

wherein the primary interactive model (41) has one or more categorical selections that relate to building types, and one or more categorical selections that relate to time periods, in which the user interacts therewith within the virtual environment (4) for selecting at least one building type and one time period, so that one building model related to the selected building type and the selected time period is rendered within the virtual environment (4); and

wherein the secondary interactive model (42) is interactable by the user for determining one or more assets associated with the building model, in which the user further interacts with the primary interactive model (41) to filter and select one asset that is missing or demolished in the building model of the selected time period, which is overlaid onto the building model for visualization within the virtual environment (4).

2. The system according to claim 1, wherein the assets stored in the data storage device (12) includes primary assets (121), comprising

one or more building assets (1211), used for generating a virtual historical

construction in the virtual environment (4);

one or more building component assets (1212), used for generating a virtual render of an architectural component of the virtual historical construction in the virtual environment (4);

one or more building element assets (1213), used for generating a virtual render of an architectural element of the virtual architectural component in the virtual environment (4);

or a combination thereof.

3. The system according to claim 2, wherein the building element assets (1213) are further divided into sub-classes that include arch assets (1213a), moulding assets (1213b), or a combination thereof.

4. The system according to any one of the preceding claims, wherein the assets stored in the data storage device (12) further includes secondary assets (122), comprising

one or more geohistorical assets (1221), used for tagging time period data and location data;

one or more artefact assets (1222), used for generating virtual render of artefacts in the virtual environment (4);

one or more sociocultural-context assets (1223), for providing a sociocultural context;

or a combination thereof.

5. The system according to any one of the preceding claims, wherein the assets stored in the data storage device (12) further includes tertiary assets (123), which further includes informative assets (1231) and characteristic assets (1232).

6. The system according to claim 5, wherein the tertiary assets (123) that are

informative assets (1231) include

one or more layouts plans (1231a) of historical constructions and/or their related information;

one or more elevation plans (1231b) of historical constructions and/or their related information;

one or more cross-section plans (1231c) of historical constructions and/or their related information;

one or more isometric plans (1231d) of historical constructions and/or their related information;

one or more text records (1231e) of historical constructions and/or their related information;

one or more archived photos (1232f) of historical constructions and/or their related information;

one or more invention information (1232g) of historical constructions and/or their related information;

one or more scholar information (1232h) of historical constructions and/or their related information;

or a combination thereof.

7. The system according to claim 5 or 6, wherein the tertiary assets (123) that are characteristic assets (1232) include

one or more environmental assets (1232a) for rendering environments of the historical constructions and/or their related information;

one or more formal and spatial quality attribute assets (1232b) that indicates proportions of the historical constructions;

one or more ideological relationships assets (1232c) of the historical constructions and/or their related information;

one or more technical attribute assets (1232d) of the historical constructions and/or their related information;

one or more physical attribute assets (1232e) of the historical constructions and/or their related information;

or a combination thereof.

8. The system according to claim 5, wherein the interactive models (41, 42) includes a primary interactive model (41) that has one or more surfaces, which include

a first surface (411) that allows selection of the geohistorical assets (1221) by the user, in the form of categorical selections that relate to locations and time periods;

a second surface (412) that allows selection of the building assets (1211) by the user, in the form of categorical selections that relate to building types;

a third surface (413) that allows selection of the building component assets (1212) by the user, by category;

a fourth surface (414) that allows selection of the building element assets (1213) by the user, by category;

a fifth surface (415) that allows selection of the artefacts assets (1222) by the user, by category; and

a sixth surface (416) that allows selection of the social-cultural context assets (1223) by the user, by category.

9. The system according to claim 8, wherein the database management module (112) of the server (1) provides inter-relations to the assets stored in the data storage device (12), these inter-relations being represented as tables with a one-to-one inter-relation, a many-to-one inter-relation, or a many-to-many relation, the tables include

at least one table with inter-relational permutations between the primary assets (121), the secondary assets (122), or the tertiary assets (123); or

at least one table with inter-relational permutations of the primary assets (121), the secondary assets (122), the tertiary assets (123) themselves.

10. The system according to any one of claims 5 to 9, wherein the server (1) further

hosts a website (111a) through the use of a web application module (111) to allow contributors to upload, modify and manage the assets of the data storage device (12), the web application module (111) having one or more software modules that include

an access sub-module (1111), for assigning access levels to contributors accessing the website (111a);

a text input sub-module (1112), for contributors to input text-based information related to the primary assets (121), the secondary assets (122), the tertiary assets (123), or a combination thereof;

an asset upload sub-module (1113), for providing an interface for contributors to upload assets related to the primary assets, the secondary assets or the tertiary assets;

a hierarchy setting sub-module (1114), for allowing the contributors to assign a class, a category, a hierarchy, a relationship, or a combination thereof to an uploaded asset;

a search sub-module (1115), for providing an interface for contributors to search for assets stored within the data storage device (12) through the website (111a); and

a filter sub-module (1115), for allowing contributors to filter a search result through the website (111a).

11. The system according to claim 10, wherein the server (1) further comprises an application protocol interface module (113) for managing requests received from the virtual immersion device (2), which are selections made by the user through the interactive models (41, 42), and delivering assets from the data storage device (12) to be rendered in the virtual environment (4).

12. The system according to claim 11, wherein the server (1) further comprises a request interpreter module (114) for interpreting requests received from the virtual immersion device (2), the request interpreter module (114) comprising

a retrieval request sub-module (114a), for generating an interpreted request that directs the database management module (112) on which asset or their metadata is to

be retrieved from the data storage device (12) as selected by the user through the interactive models (41, 42);

an association request sub-module (114b), for generating an interpreted request that directs the database management module (112) on which metadata of an asset is to be retrieved from the data storage device (12) that is related to an asset that was selected by the user through the secondary interactive model (42);

a comparison request sub-module (114c), for generating an interpreted request that directs the database management module (112) to retrieve metadata pertaining to similarities and differences between assets that were selected by the user through the secondary interactive model (42);

or a combination thereof.

13. The system according to any one of claims 11 to 12, wherein the server (1) further comprises a transfer module (115) for facilitating the receipt of assets uploaded by the contributor into the server (1), and for facilitating the transfer of assets to the virtual immersion device (2) after the server (1) receives a request therefrom.

14. The system according to any one of the preceding claims, wherein the data storage device (12) further stores contributor data related to the contributors.

15. A method for providing virtual interactions of historical constructions and/or their related information, comprising the steps of

storing assets that are historical constructions and/or their related information in at least one data storage unit (12);

managing the assets by assigning inter-relations to the assets by at least one server (1); and

requesting the assets by a user artificially immersed in a virtual environment (4), the virtual environment (4) generated through a client-side application software (21a) that makes requests to the server (1) and runs on a virtual immersion device (2) that is

worn by the user,, the virtual environment (4) including a primary interactive model (41) and a secondary interactive model (42) that complements the primary interactive model (41);

wherein the primary interactive model (41) has one or more categorical selections that relate to building types, and one or more categorical selections that relate to time periods, in which the user interacts therewith within the virtual environment (4) for selecting at least one building type and one time period, so that one building model related to the selected building type and the selected time period is rendered within the virtual environment (4); and

wherein the secondary interactive model (42) is interactable by the user for determining one or more assets associated with the building model, in which the user further interacts with the primary interactive model (41) to filter and select one asset that is missing or demolished in the building model of the selected time period, which is overlaid onto the building model for visualization within the virtual environment (4).

16. The method according to claim 15, further comprising a step for generating the assets or their metadata in the virtual environment (4) to be viewed by the user, the step further comprising the steps of

selecting, by the user, the desired historical constructions and/or their related information through the interactive models (41, 42);

sending, by the virtual immersion device (2), a request for the assets or their metadata as selected by the user, to the server (1);

parsing, by the server (1), the request from the virtual immersion device (2) to retrieve the assets or their metadata as selected by the user; and

delivering, by the server (1), the assets or their metadata to the virtual immersion device (2) for the assets to be generated and displayed in the virtual environment or through the interactive models (41, 42).

17. The method according to claim 15, further comprising a step for generating an

association between assets selected in the virtual environment (4) through the secondary interactive model (42) and further assets stored in the data storage device (12), the step further comprising the steps of

selecting, by the user, at least one assets or their metadata through the interactive models (41, 42);

sending, by the virtual immersion device (2), a request for further assets that are associated with the assets or their metadata selected by the user through the interactive models (41, 42), to the server (1);

parsing, by the server (1), the request from the virtual immersion device (2) to retrieve metadata of the further assets stored in the data storage device (12) that are associated with the assets or their metadata selected by the user through the interactive models (41, 42); and

delivering, by the server (1), the metadata to the virtual immersion device (2) for it to be rendered as an association result on the interactive models (41, 42).

18. The method according to claim 15, further comprising a step for generating a comparison between assets selected in the virtual environment (4) through the secondary interactive model (42), the step further comprising the steps of

selecting, by the user, one or more assets or their metadata through the interactive models (41, 42);

sending, by the virtual immersion device (2), a request for a comparison between the assets as selected by the user through the interactive models (41, 42), to the server (1);

parsing, by the server (1), the request from the virtual immersion device (2) to retrieve metadata pertaining to similarities and differences between the assets that were selected by the user through the interactive models (41, 42); and

delivering, by the server (1), the metadata to the virtual immersion device (2) for it to be rendered as a comparison result on the interactive models (41, 42).

19. The method according to any one of claims 15 to 18, further comprising a step for allowing contributors to upload, modify and manage the assets in the data storage device (12) through a website (111a), the step further comprising the steps of

uploading, by the contributor, one or more assets into the data storage device (12) through the website (111a) as an uploaded asset;

inputting, by the contributor, one or more text-based information related to the uploaded asset; and

assigning, by the contributor, the inter-relations between the uploaded asset with existing assets in the data storage device (12).