

SYSTEM AND METHOD FOR CREATING DIGITAL MODELS OF ENVIRONMENT

TECHNICAL FIELD

5 The present disclosure relates generally to the field of image processing, and more specifically, to a system for creating a 2.5-dimensional model of an environment. Moreover, the present disclosure relates to a method for creating a 2.5-dimensional image of an environment, via the aforesaid system.

BACKGROUND

Conventionally, images are captured in two-dimensional (namely, 2D) or three-dimensional (namely, 3D) form. Typically, 3D images are captured using complex hardware such as Light Detection and Ranging (LIDAR) camera, stereo cameras, and the like. While, 2D images
15 capturing devices does not provide an experience comparable of comparison with that of 3D images.

Despite the emergence of comparatively less expensive 3D capture devices for automatically reconstructing multiple 3D scenes from 3D images, these devices have failed to provide users with high resolution
20 images for enhanced viewing experience. Moreover, the data generated from such devices is too colossal to be deployed on cloud and to be visualized in low specification devices or in regions with poor data connectivity. In particular, viewing 3D images over the web consumes considerable amount of data and processing time.

25 Therefore, in light of the foregoing discussion, there exists a need for equipment that is capable of creating 2.5-dimensional models of physical world scenes and objects.

SUMMARY

The present disclosure seeks to provide a system for creating a 2.5-dimensional (2.5D) model of an environment. The system is capable of capturing two dimensional (2D) images of various objects present in the environment and combining the captured 2D images for creating the 2.5D model of the environment.

The present disclosure also seeks to provide a method for creating a 2.5-dimensional image of an environment, via a system comprising an imaging device and a processing unit communicably coupled to the imaging device.

In an aspect, embodiments of the present disclosure provide a system for creating a 2.5-dimensional (2.5D) model of an environment, the system comprising:

- an imaging device configured to capture at least a first set of images, a second set of images and a third set of images from at least three different regions of the environment, wherein each set of images comprises four images of the environment; and
- a processing unit communicably coupled to the imaging device, wherein the processing unit is configured to
 - receive at least the first set of images, the second set of images and the third set of images from the imaging device;
 - process at least the received first, second and third sets of images to obtain at least a first image sphere, a second image sphere and a third image sphere corresponding thereto;
 - determine centres of the first image sphere, the second image sphere and the third image sphere;

- orient at least one of the first image sphere, the second image sphere and the third image sphere about its centre in a manner that a portion depicting a given region of the environment therein, is substantially aligned with an actual real-world position of the given region;
- 5 - process the first image sphere, the second image sphere and the third image sphere, to obtain a composite image environment; and
- process the composite image environment to create the 2.5-dimensional model of the environment.

The present disclosure is of advantage in that it provides a system for
 10 accurately creating small size 2.5D model of an environment by combining 2D images of objects present in the environment. Moreover the system disclosed herein is advantageous as it provides real-time projection of 2.5D model of the environment.

Embodiments of the disclosure are advantageous in terms of easy
 15 implementation on a programmable system including at least one input device, and at least one output device. Moreover, embodiments of the disclosure reduce the processing time required for combining the 2D images of the objects.

Optionally, the system is operable to employ a keypoint detection
 20 technique to process at least the received first, second and third sets of images.

Optionally, determination of the centres of the first image sphere, the second image sphere and the third image sphere comprises:

- designating a centre of the first image sphere to be an origin of a
 25 three-dimensional co-ordinate system of the environment;
- determining a centre of the second image sphere, based upon the centre of the first image sphere; and

- determining a centre of the third image sphere, based upon the centre of the second image sphere.

Optionally, the at least one of the first image sphere, the second image sphere and the third image sphere are oriented via rotation and/or
5 tilting thereof.

Optionally, processing of the first image sphere, the second image sphere and the third image sphere comprises backwardly-projecting at least one of the first image sphere, the second image sphere and the third image sphere, to obtain the composite image sphere.

10 Optionally, the system further comprises a server arrangement communicably coupled to the processing unit, wherein the server arrangement is configured to:

- receive the created 2.5-dimensional model of the environment from the processing unit; and

15 - deploy the received created 2.5-dimensional model on at least one of: a web platform, a portable electronic device communicably coupled to the server arrangement, a virtual reality device, an augmented reality device.

Optionally, the environment is one of:

20 - a real-estate enlisted for sub-let, renting and/or sale;

- a residential accommodation;

- a hospitality accommodation; and

- a public attraction.

In another aspect, embodiments of the present disclosure provide a
25 method for creating a 2.5-dimensional image of an environment, via a

system comprising an imaging device and a processing unit communicably coupled to the imaging device, the method comprising:

- capturing at least a first set of images, a second set of images and a third set of images from at least three different regions of the environment, wherein each set of images comprises four images of the environment;
- receiving at least the first set of images, the second set of images and the third set of images from the imaging device, at the processing unit;
- processing the received first, second and third sets of images to obtain at least a first image sphere, a second image sphere and a third image sphere corresponding thereto;
- determining centres of the first image sphere, the second image sphere, and the third image sphere;
- orienting at least one of the first image sphere, the second image sphere and the third image sphere about its centre in a manner that a portion depicting a given region of the environment therein, is substantially aligned with an actual real-world position of the given region;
- processing the first image sphere, the second image sphere and the third image sphere, to obtain a composite image environment; and
- processing the composite image environment to create the 2.5-dimensional model of the environment.

Optionally, processing the received first, second and third sets of images comprises employing a keypoint detection technique.

- Optionally, determining centres of the first image sphere, the second image sphere and the third image sphere comprises:

- designating a centre of the first image sphere to be an origin of a three-dimensional co-ordinate system of the environment;

- determining a centre of the second image sphere, based upon the centre of the first image sphere; and

- 5 - determining a centre of the third image sphere, based upon the centre of the second image sphere.

Optionally, orienting at least one of the first image sphere, the second image sphere, and the third image sphere comprises rotating and/or tilting thereof.

- 10 Optionally, processing of the first image sphere, the second image sphere and the third image sphere comprises backwardly-projecting at least one of the first image sphere, the second image sphere and the third image sphere, to obtain the composite image sphere.

- 15 Optionally, in the method, the system further comprises a server arrangement communicably coupled to the processing unit, and wherein the method further comprises:

- receiving, at the server arrangement, the created 2.5-dimensional model of the environment from the processing unit; and

- 20 - deploying the received created 2.5-dimensional model on at least one of: a web platform, a portable electronic device communicably coupled to the server arrangement, a virtual reality device, an augmented reality device.

Optionally, the environment is one of:

- a real-estate enlisted for sub-let, renting and/or sale;

- 25 - a residential accommodation;

- a hospitality accommodation; and
- a public attraction.

Additional aspects, advantages, features and objects of the present disclosure would be made apparent from the drawings and the detailed
5 description of the illustrative embodiments construed in conjunction with the appended claims that follow.

It will be appreciated that features of the present disclosure are susceptible to being combined in various combinations without departing from the scope of the present disclosure as defined by the
10 appended claims.

A better understanding of the present disclosure may be obtained through the following examples which are set forth to illustrate, but are not to be construed as limiting the present disclosure.

BRIEF DESCRIPTION OF THE DRAWINGS

15 The summary above, as well as the following detailed description of illustrative embodiments, is better understood when read in conjunction with the appended drawings. For the purpose of illustrating the present disclosure, exemplary constructions of the disclosure are shown in the drawings. However, the present disclosure is not limited to specific
20 methods and instrumentalities disclosed herein. Moreover, those in the art will understand that the drawings are not to scale. Wherever possible, like elements have been indicated by identical numbers.

Embodiments of the present disclosure will now be described, by way of example only, with reference to the following diagrams wherein:

25 FIG. 1 is a schematic illustration of a system for creating a 2.5-dimensional model of an environment, in accordance with an embodiment of the present disclosure;

FIG. 2 is an illustration of an imaging device configured to capture a set of images of at least one object present in an environment, in accordance with an embodiment of the present disclosure; and

- 5 FIG. 3 is an illustration of steps of a method for creating a 2.5-dimensional image of an environment, in accordance with an embodiment of the present disclosure.

In the accompanying drawings, an underlined number is employed to represent an item over which the underlined number is positioned or an item to which the underlined number is adjacent. A non-underlined
10 number relates to an item identified by a line linking the non-underlined number to the item. When a number is non-underlined and accompanied by an associated arrow, the non-underlined number is used to identify a general item at which the arrow is pointing.

15 **DESCRIPTION OF EMBODIMENTS**

Exemplary embodiments will be described with reference to the accompanying drawings. The disclosure may, however, be embodied in many different forms and should not be construed as limited to the embodiments set forth herein; rather, these embodiments are provided
20 so that this disclosure will be thorough and complete, and will fully convey its scope to those skilled in the art. The terminology used in the detailed description of the particular exemplary embodiments illustrated in the accompanying drawings is not intended to be limiting. In the drawings, like numbers refer to like elements.

25 It is to be noted, however, that the reference numerals in claims illustrate only typical embodiments of the present subject matter, and are therefore, not to be considered for limiting of its scope, for the subject matter may admit to other equally effective embodiments.

The following detailed description illustrates embodiments of the present disclosure and ways in which they can be implemented. Although some modes of carrying out the present disclosure has been disclosed, those skilled in the art would recognize that other
5 embodiments for carrying out or practicing the present disclosure are also possible.

Unless otherwise defined, all terms (including technical and scientific terms) used herein have the same meaning as commonly understood by one of ordinary skill in the art to which this disclosure pertains. It will
10 be further understood that terms, such as those defined in commonly used dictionaries, should be interpreted as having a meaning that is consistent with their meaning in the context of the relevant art and will not be interpreted in an idealized or overly formal sense unless expressly so defined herein.

15 The figures depict a simplified structure only showing some elements and functional entities, all being logical units whose implementation may differ from what is shown. The connections shown are logical connections; the actual physical connections may be different. It is apparent to a person skilled in the art that the structure may also
20 comprise other functions and structures.

Also, all logical units described and depicted in the figures include the software and/or hardware components required for the unit to function. Further, each unit may comprise within itself one or more components which are implicitly understood. These components may be operatively
25 coupled to each other and be configured to communicate with each other to perform the function of the said unit.

The present disclosure provides a system and a method for creating a 2.5-dimensional model of an environment. Generally, 3D models help in visualizing 3D spaces from all possible points in the environment, while

2.5D technology is used to visualize the environment from any point provided that a given region of the environment in a given horizontal plane, preferably human height. The 2.5 dimensional model compresses data to a large extent without losing any relevant information. The
5 created 2.5 dimensional model allows in visualizing the environment from a given position. The system for creating the 2.5D model of the environment comprises of an imaging device operable to capture at least a first set of images, a second set of images and a third set of images from at least three different regions of the environment and a
10 processing unit communicably coupled to the imaging device. The method for creating the 2.5D model of the environment comprises of capturing at least a first set of images, a second set of images and a third set of images from at least three different regions of the environment, receiving at least the first set of images, the second set of
15 images and the third set of images from the imaging device, processing the received first, second and third sets of images to obtain at least a first image sphere, a second image sphere and a third image sphere corresponding thereto, determining centres of the first image sphere, the second image sphere, and the third image sphere, orienting at least
20 one of the first image sphere, the second image sphere and the third image sphere about its centre, processing the first image sphere, the second image sphere and the third image sphere, to obtain a composite image environment and processing the composite image environment to create the 2.5-dimensional model of the environment.

25 As illustrated in FIG. 1, there is described a system **100** for creating a 2.5-dimensional model of an environment in accordance with an embodiment of the present disclosure. The system **100** for creating a 2.5-dimensional model of an environment includes an imaging device **102** and a processing unit **104**. The imaging device **102** is operable to
30 capture at least a first set of images, a second set of images and a third set of images from at least three different regions of the environment,

wherein each set of images comprises four images of the environment. The processing unit **104** is communicably coupled to the imaging device **102** and operable to receive at least the first set of images, the second set of images and the third set of images from the imaging device **102**,
5 to process at least the received first, second and third sets of images to obtain at least a first image sphere, a second image sphere and a third image sphere corresponding thereto, to determine centres of the first image sphere, the second image sphere and the third image sphere, to orient at least one of the first image sphere, the second image sphere
10 and the third image sphere about its centre in a manner that a portion depicting a given region of the environment therein, is substantially aligned with an actual real-world position of the given region, to process the first image sphere, the second image sphere and the third image sphere, to obtain a composite image environment and process the
15 composite image environment to create the 2.5-dimensional model of the environment.

In an embodiment, the image capturing device **102** may include but not limited to inter alia, DSLR camera, point-and-shoot camera, autofocus camera, digital camera, Single-lens reflex camera, Twin-lens reflex
20 camera etc. The image capturing device **102** is placed over a tripod to capture the at least the first set of images, the second set of images and the third set of images. The image capturing device **102** is operatively coupled to an automated panoramic head. The automated panoramic head is configured to rotate the image capturing device in
25 360 degrees and capture the at least the first set of images, the second set of images and the third set of images from at least three different regions of the environment. In an exemplary embodiment, the image capturing device **102** of the system **100** is operable to rotate 180° longitudinally along axis of rotation. In this embodiment, the image
30 capturing device **102** is rotated longitudinally for capturing the first set of images, the second set of images and the third set of images.

For the purpose of the present disclosure, the set of images captured by the image capturing device **102** may be interpreted as including a collection of visual appearance of the physical world. The set of image captured by the image capturing device does not have any geometric information, GPS or depth information of the physical world. The image capturing device **102** may simultaneously capture the images or capture them over time period. The information captured in the set of images can take many forms. For example, the information may include a series of points with XY spatial coordinates, brightness or intensity value, or color values such as RGB or HSV. The XY spatial coordinates may be presented in absolute coordinates relative to a chosen origin point and axes, camera-relative coordinates, or another coordinate frame.

In an embodiment, the image capturing device **102** may be coupled to the processing unit **104** through a communication network. The term “*network*” relates to an arrangement of interconnected programmable and/or non-programmable components that are configured to facilitate data communication between one or more electronic devices and/or databases, whether available or known at the time of filing or as later developed. Furthermore, the network may include, but is not limited to, one or more peer-to-peer network, a hybrid peer-to-peer network, local area networks (LANs), radio access networks (RANs), metropolitan area networks (MANS), wide area networks (WANs), all or a portion of a public network such as the global computer network known as the Internet, a private network, a cellular network and any other communication system or systems at one or more locations. Additionally, the network includes wired or wireless communication that can be carried out via any number of known protocols, including, but not limited to, Internet Protocol (IP), Wireless Access Protocol (WAP), Frame Relay, or Asynchronous Transfer Mode (ATM).

As illustrated in FIG. 2, there is described an imaging device **200** (such as the image capturing device **102** of FIG. 1) in accordance with an embodiment of the present disclosure. The image capturing device **102** is configured to capture sets of images of at least one object **202** present in an environment **204**. The image capturing device **102** may be operable to rotate 360° perpendicularly along axis of rotation **206** and capture a plurality of panoramic 2D images from a plurality of locations within the environment **204**. In an embodiment, the image capturing device **102** may be operable to rotate 180° longitudinally along axis of rotation **206**.

In an embodiment, the processing unit **104** may be operable to employ a keypoint detection technique for processing the at least one of the first set of images, the second set of images and the third set of images received from the image capturing device **102** via the communication network. In this embodiment, the processing unit **104** processes the at least one of the first set of images, the second set of images and the third set of images to obtain the at least a first image sphere, a second image sphere and a third image sphere respectively. The keypoint determination technique is applied for determining an point of interest of the at least one of the first set of images, the second set of images and the third set of images to obtain corresponding image spheres. The points of interest of the first set of images are identified using key point technique and combined together to create a first image sphere. Furthermore, the second image sphere may be created by combining points of interest of the second set of images and the third image sphere may be created by combining points of interest of the third set of images.

In another embodiment, the processing unit **104** may be operable to determine the centres of the first image sphere, the second image sphere and the third image sphere. Further, determining the centres of

the first image sphere, the second image sphere and the third image sphere includes designating a centre of the first image sphere to be an origin of a three-dimensional co-ordinate system of the environment **204**, determining a centre of the second image sphere, based upon the
 5 centre of the first image sphere in the environment **204** and determining a centre of the third image sphere, based upon the centre of the second image sphere in the environment **204**.

In an embodiment, the system **100** is operable to identify relative position of the at least a first image sphere, a second image sphere and
 10 a third image sphere. Further, positioning of the above mentioned image spheres includes measuring height of the at least a first image sphere, a second image sphere and a third image sphere from floor of the environment (such as the environment **204** of FIG. 2) as a function of focal length of the image capturing device (such as the image
 15 capturing device **102** of FIG. 1). The first image sphere is designated as a centre of the first image sphere to be an origin of a three-dimensional co-ordinate system of the environment **204** placed at the height measured as the function of the focal length of the image capturing device **102**. In another embodiment, the centres of the first image
 20 sphere, the second image sphere and the third image sphere are at the height of the tripod holding the image capturing device **102**. In another embodiment centres of the second image sphere and the third image sphere may be identified by finding positions of the second image sphere and the third image sphere with reference to the first image
 25 sphere.

In an embodiment, triangulation technique may be implemented for identifying relative position of the third image sphere with reference to the first image sphere and the second image sphere. In practice, identification of positions of the second image sphere and the third
 30 image sphere may include identifying centre of the second image

sphere relative to the first image sphere followed by identifying the centre of the third image sphere relative to the second image sphere by implementing the triangulation technique.

In another embodiment, identification of positions of the second image
5 sphere and the third image sphere may include identifying centre of the second image sphere relative to the first image sphere followed by identifying the centre of the third image sphere relative to the first image sphere by implementing the triangulation technique.

In an embodiment, the system **100** is operable to orient at least one of
10 the first image sphere, the second image sphere and the third image sphere about its centre in a manner that a portion depicting a given region of the environment therein, is substantially aligned with an actual real-world position of the given region. The at least one of the first image sphere, the second image sphere and the third image sphere
15 may be oriented via rotation and/or tilting thereof. Further, after obtaining positions of the first, second and third image spheres, and considering the position of the first image sphere at origin, it may be imperative that the second image sphere and the third image sphere are properly aligned so that the points of interest would be in a similar
20 position. In an exemplary embodiment, process of orientating the second image sphere and the third image sphere may include rotating the second image sphere about its centre. In this embodiment, the system **100** may be operable for passing of a ray through the centre of the second image sphere through a floor marker associated with the
25 first image sphere depicting the location of the first sphere where the ray cuts the XY plane of the coordinate system. Since the location of the first image sphere has already been known, rotating the second image sphere about XY plane such that the point of intersection of the ray coincides with the location of the first image sphere would align the
30 second image sphere with the first image sphere. Similarly, the third

image sphere may be aligned with the first image sphere and the second image sphere.

In an embodiment, the processing unit **104** of the system **100** may be operable to process the first image sphere, the second image sphere
5 and the third image sphere to generate a composite image environment. The processing unit **104** may be operable to employ backward-projection to obtain the composite image environment. The obtained composite image is used to create the 2.5D model of the environment.

10 In an embodiment, the system **100** may further include a server arrangement communicably coupled to the processing unit **104**. The server arrangement may be configured to receive the created 2.5-dimensional model of the environment from the processing unit **104** and deploy the received created 2.5-dimensional model on at least one
15 of but not limited to a web platform, a portable electronic device communicably coupled to the server arrangement, a virtual reality device, an augmented reality device.

In another embodiment, the environment may include but not limited to a real-estate enlisted for sub-let, renting and/or sale, a residential
20 accommodation, a hospitality accommodation and/or a public attraction.

FIG. 4 is a flow chart of steps of a method **300** for creating a 2.5-dimensional image of an environment in accordance with an embodiment of the present disclosure. It will be appreciated that the method **300** is implemented via a system (for example, such as the
25 system **100** of FIG. 1) comprising an imaging device and a processing unit communicably coupled to the imaging device. At step **302**, at least a first set of images, a second set of images and a third set of images are captured from at least three different regions of the environment, wherein each set of images comprises four images of the environment.

At step **304**, at least the first set of images, the second set of images and the third set of images are received from the imaging device, at the processing unit. Further, at step **306**, the received first, second and third sets of images are processed to obtain at least a first image sphere, a second image sphere and a third image sphere. At step **308**, centres of the first image sphere, the second image sphere, and the third image sphere are determined. At step **310**, at least one of the first image sphere, the second image sphere and the third image sphere are oriented about its centre in a manner that a portion depicting a given region of the environment therein, is substantially aligned with an actual real-world position of the given region. Further, at step **312**, the first image sphere, the second image sphere and the third image sphere, are processed to obtain a composite image environment. At step **314**, the composite image environment is processed to create the 2.5-dimensional model of the environment.

In an embodiment, at the step **304** the method **300** may include employing a keypoint detection technique for processing the at least one of the first set of images, the second set of images and the third set of images received from the image capturing device **102** via the communication network. In this embodiment, the keypoint detection technique is applied for determining an point of interest of the at least one of the first set of images, the second set of images and the third set of images to obtain corresponding image spheres at the step **306**.

In another embodiment, at the step **308** the method **300** may be operable to determine the centres of the first image sphere, the second image sphere and the third image sphere. Further, determining the centres of the first image sphere , the second image sphere and the third image sphere includes assigning a centre of the first image sphere to be an origin of a three-dimensional co-ordinate system of the environment (such as the environment **204** of FIG. 2), determining a

centre of the second image sphere , based upon the centre of the first image sphere in the environment **204** and determining a centre of the third image sphere , based upon the centre of the second image sphere in the environment **204**. In this embodiment, at the step **308**

5 triangulation technique may be implemented for identifying relative position of the third image sphere with reference to the first image sphere and the second image sphere. In practice, identification of positions of the second image sphere and the third image sphere may include identifying centre of the second image sphere relative to the

10 first image sphere followed by identifying the centre of the third image sphere relative to the second image sphere by implementing the triangulation technique.

In yet another embodiment, at the step **310** the method **300** may include orienting the at least one of the first image sphere, the second

15 image sphere and the third image sphere may be oriented via rotation and/or tilting thereof. Further, after obtaining positions of the first, second and third image spheres, and considering the position of the first image sphere at origin, it may be imperative that the second image sphere and the third image sphere are properly aligned so that the

20 points of interest would be in a similar position. In an exemplary embodiment, process of orientating the second image sphere and the third image sphere may include rotating the second image sphere about its centre.

In still another embodiment, at the step **312** the method **300** may

25 employ backwardly-projecting on the first image sphere, the second image sphere and the third image sphere for creating a composite image environment. In this embodiment, at the step **312** the method **300** may employ backwardly-projecting in iterative manner.

In yet another environment, at the step **314** the method **300** may process the composite image environment to create the 2.5-dimensional model of the environment.

In an embodiment, the system (such as the system **100** of FIG. 1) may
5 further include a server arrangement communicably coupled to the processing unit (such as the processing unit **104** of FIG. 1) and the method 300 may further include receiving, at the server arrangement, the created 2.5-dimensional model of the environment from the processing unit **104** and deploying the received created 2.5-
10 dimensional model on at least one of but not limited to a web platform, a portable electronic device communicably coupled to the server arrangement, a virtual reality device, an augmented reality device.

In another embodiment, the environment may include but not limited to a real-estate enlisted for sub-let, renting and/or sale, a residential
15 accommodation, a hospitality accommodation and/or a public attraction.

Modifications to embodiments of the present disclosure described in the foregoing are possible without departing from the scope of the present disclosure as defined by the accompanying claims. Expressions such as "including", "comprising", "incorporating", "consisting of", "have", "is"
20 used to describe and claim the present disclosure are intended to be construed in a non-exclusive manner, namely allowing for items, components or elements not explicitly described also to be present. Reference to the singular is also to be construed to relate to the plural.

CLAIMS

We claim:

1. A system for creating a 2.5-dimensional model of an environment, the system comprising:
 - 5 - an imaging device configured to capture at least a first set of images, a second set of images and a third set of images from at least three different regions of the environment, wherein each set of images comprises four images of the environment; and
 - a processing unit communicably coupled to the imaging device,
 - 10 wherein the processing unit is configured to
 - receive at least the first set of images, the second set of images and the third set of images from the imaging device;
 - process at least the received first, second and third sets of images to obtain at least a first image sphere, a second image sphere and a third image sphere corresponding thereto;
 - 15 - determine centres of the first image sphere, the second image sphere and the third image sphere;
 - orient at least one of the first image sphere, the second image sphere and the third image sphere about its centre in a manner that a portion depicting a given region of the environment therein,
 - 20 is substantially aligned with an actual real-world position of the given region;
 - process the oriented first image sphere, the second image sphere and the third image sphere, to obtain a composite image environment;
 - 25 - process the composite image environment to create the 2.5-dimensional model of the environment.
2. A system according to claim 1, wherein a keypoint detection technique is employed to process at least the received first, second and
 - 30 third sets of images.

3. A system according to any of the preceding claims, wherein determination of the centres of the first image sphere, the second image sphere and the third image sphere comprises:

- 5 - designating a centre of the first image sphere to be an origin of a three-dimensional co-ordinate system of the environment;
- determining a centre of the second image sphere, based upon the centre of the first image sphere; and
- determining a centre of the third image sphere, based upon the centre of the second image sphere.

10 4. A system according to any of the preceding claims, wherein the at least one of the first image sphere, the second image sphere and the third image sphere are oriented via rotation and/or tilting thereof.

 5. A system according to any of the preceding claims, wherein processing of the first image sphere, the second image sphere and the
15 third image sphere comprises backwardly-projecting at least one of the first image sphere, the second image sphere and the third image sphere, to obtain the composite image environment.

 6. A system according to any of the preceding claims, further comprising a server arrangement communicably coupled to the
20 processing unit, wherein the server arrangement is configured to:

- receive the created 2.5-dimensional model of the environment from the processing unit; and
- deploy the received created 2.5-dimensional model on at least one of: a web platform, a portable electronic device
25 communicably coupled to the server arrangement, a virtual reality device, an augmented reality device.

7. A system according to any of the preceding claims, wherein the environment is one of:

- a real-estate enlisted for sub-let, renting and/or sale;

- a residential accommodation;
- a hospitality accommodation; and
- a public attraction.

8. A method for creating a 2.5-dimensional image of an environment,
5 via a system comprising an imaging device and a processing unit
communicably coupled to the imaging device, the method comprising:

- capturing at least a first set of images, a second set of images
and a third set of images from at least three different regions of
the environment, wherein each set of images comprises four
10 images of the environment;
- receiving at least the first set of images, the second set of
images and the third set of images from the imaging device, at
the processing unit;
- processing the received first, second and third sets of images to
15 obtain at least a first image sphere, a second image sphere and a
third image sphere corresponding thereto;
- determining centres of the first image sphere, the second image
sphere, and the third image sphere;
- orienting at least one of the first image sphere, the second
20 image sphere and the third image sphere about its centre in a
manner that a portion depicting a given region of the environment
therein, is substantially aligned with an actual real-world position
of the given region;
- processing the first image sphere, the second image sphere and
25 the third image sphere, to obtain a composite image
environment; and
- processing the composite image environment to create the 2.5-
dimensional model of the environment.

9. A method according to claim 8, wherein processing the received first, second and third sets of images comprises employing a keypoint detection technique.

10. A method according to any of claims 8 or 9, wherein determining
5 centres of the first image sphere, the second image sphere and the third image sphere comprises:

- designating a centre of the first image sphere to be an origin of a three-dimensional co-ordinate system of the environment;
- determining a centre of the second image sphere, based upon
10 the centre of the first image sphere; and
- determining a centre of the third image sphere, based upon the centre of the second image sphere.

11. A method according to any of claims 8, 9 or 10, wherein orienting at least one of the first image sphere, the second image sphere, and the
15 third image sphere comprises rotating and/or tilting thereof.

12. A method according to any of claims 8 to 11, wherein processing of the first image sphere, the second image sphere and the third image sphere comprises backwardly-projecting at least one of the first image sphere, the second image sphere and the third image sphere, to obtain
20 the composite image environment.

13. A method according to any of claims 8 to 12, wherein the system further comprises a server arrangement communicably coupled to the processing unit, and wherein the method further comprises:

- receiving, at the server arrangement, the created 2.5-
25 dimensional model of the environment from the processing unit; and
- deploying the received created 2.5-dimensional model on at least one of: a web platform, a portable electronic device

communicably coupled to the server arrangement, a virtual reality device, an augmented reality device.

14. A method according to any of claims 8 to 13, wherein the environment is one of:

- 5 - a real-estate enlisted for sub-let, renting and/or sale;
- a residential accommodation;
- a hospitality accommodation; and
- a public attraction.