CLAIMS

1. A three-dimensional building model generation system, comprising:

a non-transitory storage device having embodied therein one or more routines operable to generate a three-dimensional model pertaining to a floor plan;and

one or more processors coupled to the non-transitory storage device and operable to execute the one or more routines, wherein the one or more routines include:

a two-dimensional image receive module, which when executed by the one or more processors, receives a two-dimensional image pertaining to the floor plan;

an image processing module, which when executed by the one or more processors, processes the two-dimensional image to generate a binary image, wherein the binary image is generated based on conversion of the two-dimensional image in a gray-scale image and performing thresholding of the gray-scale image using a pre-determined threshold value wherein the image processing module morphs the binary image to remove distortion caused by noise content from the binary image;

a two-dimensional floor plan graph generation module, which when executed by the one or more processors, extracts two-dimensional geometry from the binary image to generate a two-dimensional floor plan graph, wherein the two-dimensional floor plan graph represents one or more cyclic wall graphs and one or more connectives; and

a three-dimensional model generation module, which when executed by the one or more processors, generates a three-dimensional model of the floor plan by performing geometric extrusion of the two-dimensional floor plan graph based on the one or more cyclic wall graphs and the one or more connectives, wherein the geometric extrusion is performed by interpolation of the two dimensional floor plan graph along an axis perpendicular to a plane of the two-dimensional floor plan graph to generate a point cloud and performing a polygonal meshing operation on said generated point cloud.

2. The system of claim 1, wherein the two-dimensional image pertaining to the floor plan is any of a hand-drawn image of the floor plan, a sketch of the floor plan, a photograph of the floor plan or a computer generated image of the floor plan.

3. ~~The system of claim 1, wherein the image processing module morphs the binary image to remove distortion caused by noise content from the binary image~~.

4. The system of claim ~~3~~1, wherein the morphing is based on performing any or a combination of erosion operation and dilation operation on the binary image.

5. The system of claim 1, wherein the two-dimensional floor plan graph generation module extracts the two-dimensional geometry based on extraction of one or more contours from the binary image.

6. The system of claim 1, wherein the two-dimensional floor plan graph generation module determines type of physical space pertaining to the floor plan based on factors such as historical data, dimensions and vastu compliance.

7. The system of claim 1, wherein the three-dimensional model generation module allows a user to modify the generated three-dimensional model based on a pre-configured library.

8. The system of claim 1, wherein the one or more cyclic wall graphs are represented by one or more vertices and one or more connectives are represented by one or more edges in the two-dimensional floor plan graph.

9. The system of claim 8, wherein the three-dimensional model generation module is configured to compute positions and dimensions of one or more connectives of the floor plan graph based on the one or more edges in the two-dimensional floor plan graph.

10. A method comprising the steps of:

receiving, by one or more processors, a two-dimensional image pertaining to the floor plan;

processing, by the one or more processors, the two-dimensional image to generate a binary image, wherein the binary image is generated based on conversion of the two-dimensional image in a gray-scale image and performing thresholding of the gray-scale image using a pre-

determined threshold value, wherein the binary image is morphed to remove distortion caused by noise content from the binary image;

extracting, by the one or more processors, two-dimensional geometry from the binary image to generate a two-dimensional floor plan graph, wherein the floor plan graph represents one or more cyclic wall graphs and one or more connectives; and

generating, by the one or more processors, a three-dimensional model of the floor plan by performing geometric extrusion of the two-dimensional floor plan graph based on the one or more cyclic wall graphs and the one or more connectives, wherein the geometric extrusion is performed by interpolation of the floor plan graph along an axis perpendicular to a plane of the two-dimensional floor plan graph to generate a point cloud and performing a polygonal meshing operation on said generated point cloud.