3D-Art Gallery
(Status and Challenges)

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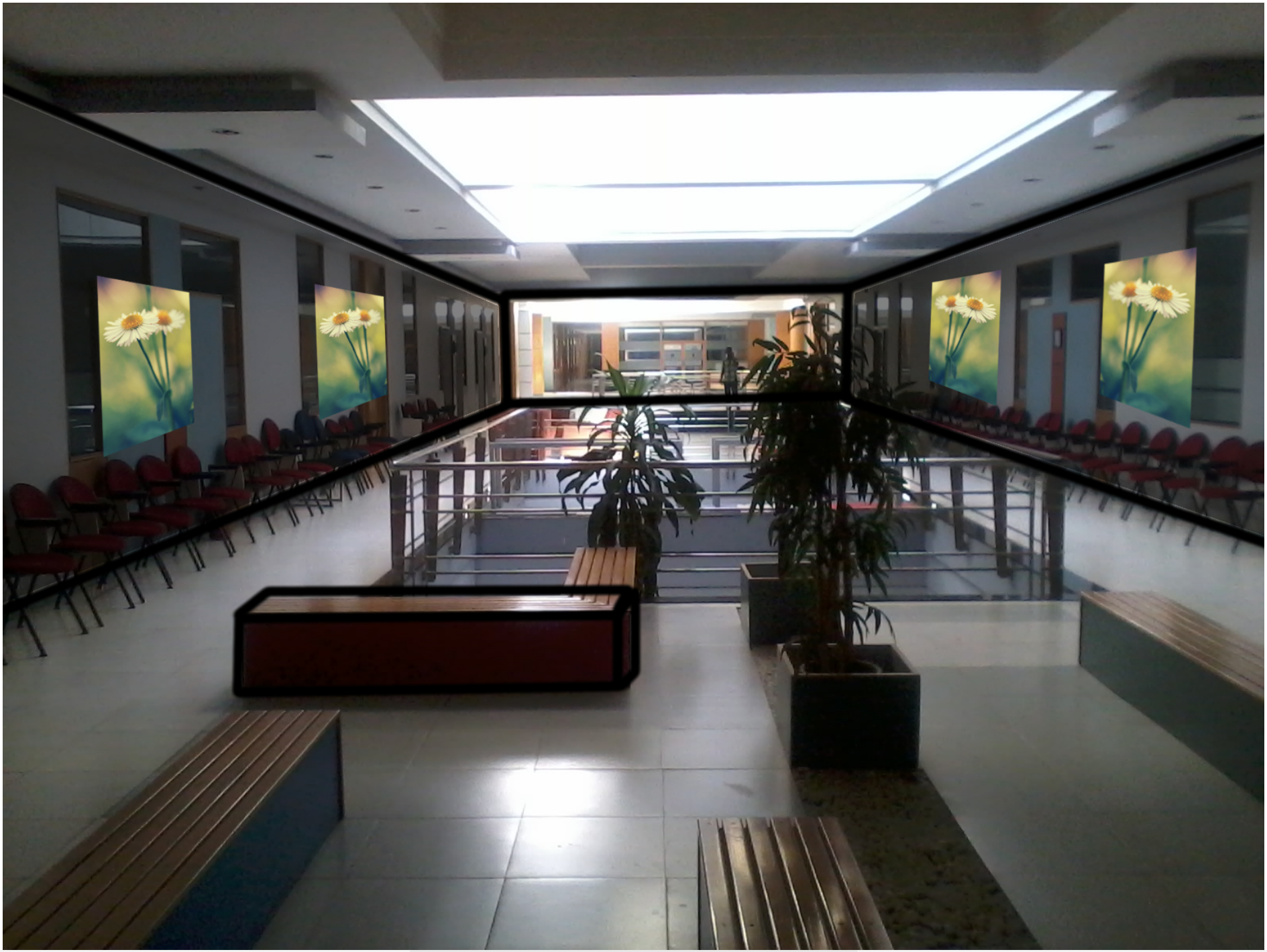
Nov 4, 2014



3D-Gallery

- Gallery modelled as 3-D mesh.
- Traversal inside the gallery.
- Different viewpoints of the scene - human's and controller's.
- Gallery based on folder hierarchy.
- How to add the new walls and floor and ceiling?

3D-Gallery : Challenges

- Adding new walls, floor and ceiling would be complicated if we create the walls and put textures completely independently.
- One approach : Read wall dimensions from a file and then automatically render the art galllery.
- That would certainly make the gallery easier to modify.
- Need of a blueprint
- Need of a text file that would store two pairs of (x,z) coordinates (because in OpenGL the y-direction is considered vertical while x and z represent width and depth).

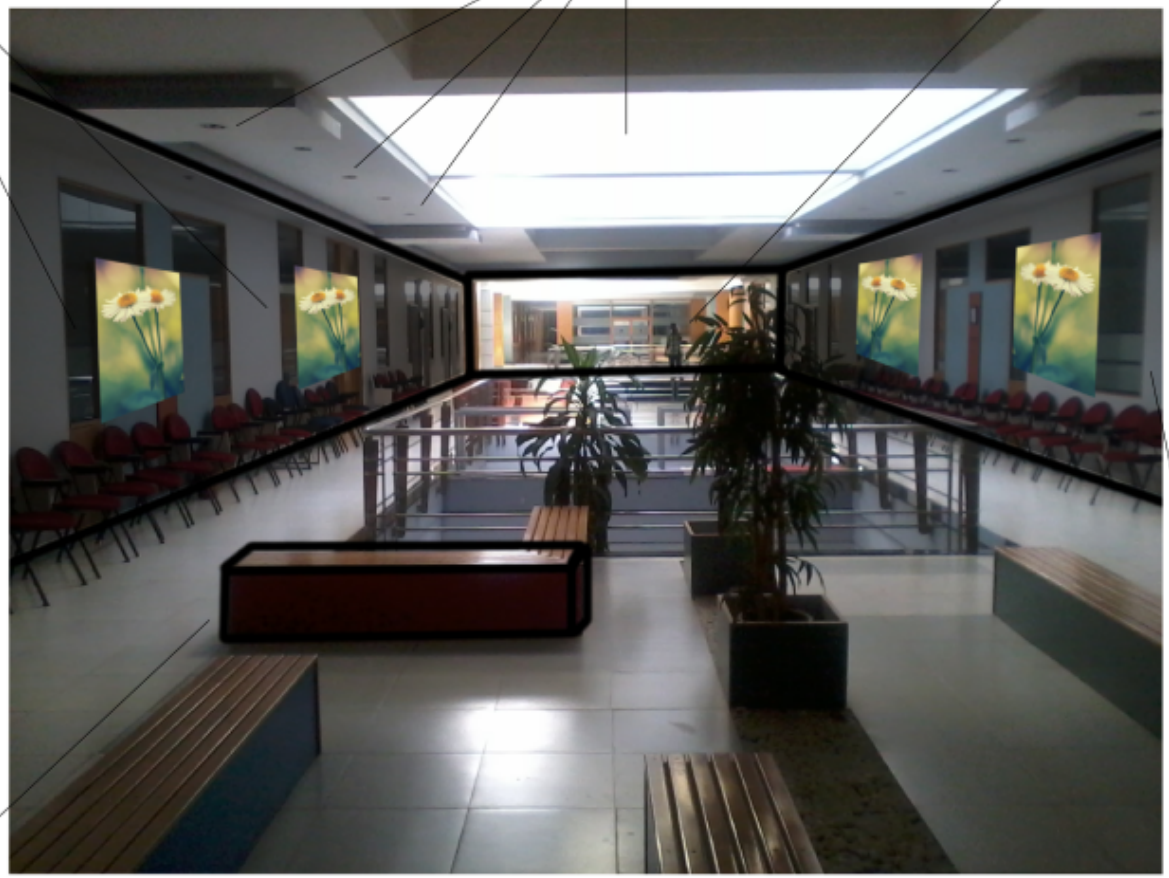
```
wall(x1, z1, x2, z1);
wall(x1, z2, x2, z2);
wall(x1, z1, x1, z2);
wall(x2, z1, x2, z2);
```

Paintings, Walls, Floors and Lighting

- Painting images taken from a folder.
- Floors, walls and paintings as texture maps.
- Paintings change on click :
  - Play movie (Challenge : Performance ?).
  - Deform painting (Challenge : Handling mesh deformation | texture ?).
  - Motion like a pendulum.
  - Falls on floor.
- Lighting in the room and above paintings.
- Lighting effects (Challenge : Realistic like gallery ?).

Human model

- Hierachicaly Modeled (Challenge: Difficult to find parts).
- Can be moved on mouse-click / keyboard.
- Traverses a path to clicked point.
- Challenges :
  - *Realistic* looking motion.
  - Collision detection : Should avoid/jump over obstacles (Detection inside the hierarchy or from outside ?).
  - Performance : Multiple models - Kids (Random), Dog (Follows).



Paintings

- Paintings change on click
  - Play as movie (Change texture fast).
  - Deformation in painting.
  - Opens up a door.
  - Falls on floor.
  - Starts pendulam like motion.

- Implemented as texture maps.
- Painting images are taken from a selected folder in the beginning. Any changes in the image folder gets reflected in the paintings.

Lighting

- Realistic.
- Lighting above paitings and at ceiling.
- Possibility of changing the lighting effects present over the paintings (changing intensity and color).

Human model

- Hierarchicaly modeled.
- Can be moved using mouse click or keyboard.
- Realistic looking motion.
- On click of mouse should traverse a path to the given point of selection.
- Avoids obstacles
  - Jumps over them.
  - Avoid them totally.
- Multiple such models
  - Dogs (Follows owner)
  - Kids (Move randomly)

3D - Room Model

- Gallery modeled using 3D mesh
- Walls/Floor/Ceilings are textured using images.
- Different view points of the scene
  - Human model's viewpoint
  - Controller's viewpoint.
- Paintings are modelled based on the folder hierarchy in consideration.

Obstacles

- Different shape/size.