**FINAL YEAR PROJECT**

Fall 2019

**Proposer Details**

|  |  |
| --- | --- |
| Group Number |  |
| Registration Number of Group Members | 2016-CE-72, 2016-CE-54, 2016-CS-159,2016-CE-81 |

**Proposal Details**

|  |  |
| --- | --- |
| ***Project*** |  |
| Proposed Project Title | Autogeneration of 3-D model from room images |
| Executive Summary | *This project mainly focuses on developing a software that will convert 2-D floor plans into 3-D models.*  *Firstly, user can import 2-D floor plan of specified format. After importing, 2-D floor plan will be shown on the screen and will convert into 3-D model by just clicking on a button. After 3-D generation, user will able to modify the 3-D model by changing the wall texture, paint color of walls. User can also add some furniture into 3-D model at different location in the room in order to check how it looks before actual placement of stuff in the room in reality. This system will also let users to have different viewpoints of 3-D generated model e.g. to walk through the 3-D model, to view from above, to view from side, to view from front.* |
| ***Business Case*** |  |
| Outline the business need for the project | *When anyone plans to buy a new flat/house that is not built yet and can only see its floor plan. So it’s hard for anyone to imagine the actual environment by just seeing 2-D floor plan. So, our system will enable the users to see this 2-D floor plan into 3-D. Sometimes users also curious how to design the interior of house. So, this system will also enable users to modify or add furniture in 3-D generated model.* |
| Motivation for Project | *A common user or an artist who does not know how their home look after construction and proper adjustment of their accessories, it’s a big platform for them to see their house in 3D more than their imagination. We move towards this project because there exists many artists, civil constructors and common house owners which want houses according to their own designs, so to help them that their house will look good or not after implementation, we are making this software.* |
| Description of the project objective(s) | * *To make a desktop application that can import a 2D floor plan and automatically generate 3D model s according to the plan by just clicking on a button.* * *Aims to make a user friendly GUI (Graphical User Interface) that does not require too much interfaces to access their 3D plan.* * *To implement an app which already has some samples of home accessories which a user can drag to his wanted place in the room.* * *To make an app which can automatically understands the location and sizes of different accessories in the room.* |
| State the level of impact expected should the project proceed and implications of not proceeding | *People of this era are full of wishes, they want their own designs to construct and adjust their houses. So, I think our software will make sure earn rise in future because it helps common users as well as artists. There exists huge possibility that this app will be used by many users and provide benefits to them.* |
| Functional Requirements | *Here are the functional requirements:*   * ***Import of 2-D floor plan:***   *User will able to import 2-D floor plan in specified format. User can create this floor plan by using Microsoft Office Visio.*   * ***Generation of 3-D model:***   *After clicking on Generate 3-D model button, corresponding 3-D model would be generated.*   * ***Modifications in 3-D model:***   *User will able to change the texture of walls, height of walls and also modify the walls color by changing the paint color of walls.*   * ***Add furniture in 3-D model:***   *User will able to choose any furniture from the list provided (i.e. table, chair and couch etc) and drag at any location in the room.*   * ***Different viewpoints of 3-D model****:*   *User will be able to have different viewpoints of 3-D model i.e. top view, front view and side view. User will also have viewpoint of walk through the 3-D model.* |
| ***Benefits*** |  |
| What benefits are expected/ anticipated? | *Following Business/Academic Benefits are listed here:*   * ***Business Benefits:***  1. *For people who are running real estate businesses, 3D floor plans could bring new ideas for efficient sales promotions. It could help them engage customers with interactive and informative site details of adjustment.* 2. *The 3D platform modeling tools help artists in quick editing without even wasting essential resources i.e. time and money. So, this becomes an effective business and marketing tool.* 3. *For planners who are making floor plans for common people, this 3D software provides them ease and makes them to do less effort for customer satisfaction and quality of their service delivery in time which leads to increase their business.*  * ***Academic Benefits:***  1. *It will able us to practice our knowledge we have learned so far in these three years.* 2. *It will improve our interpersonal skills because we work in groups.* 3. *It will benefit us in our careers, because it increases our technical skills.* |
| ***Technology*** |  |
| Programming Language | *C#* |
| Platform | *Desktop Application on .NET and Open GL* |