Sri Lanka Institute of Information Technology

PROJECT REGISTRATION FORM

The purpose of this form is to allow final year students of the B.Sc. (Hon) degree program to enlist in the final year project group. Enlisting in a project entails specifying the project title and the details of four members in the group, the internal supervisor (compulsory), external supervisor (may be from the industry) and indicating a brief description of the project. The description of the project entered on this form will not be considered as the formal project proposal. It should however indicate the scope of the project and provide the main potential outcome.

PROJECT TITLE	Dream House(සිහින කැදැල්ල)

RESEARCH GROUP	Augmented Reality

PROJECT NUMBER	22

PROJECT GROUP MEMBER DETAILS:

	STUDENT NAME	STUDENT NO.	CONTACT NO.	EMAIL ADDRESS
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SUPERVISOR

Mr. Yashas Mallawarachchi		
Name	Signature	Date

CO-SUPERVISOR

Mr. Anupiya Nugaliyadde		
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EXTERNAL SUPERVISOR

Name	Affiliation	Contact Address	Contact Numbers	Signature/Date

ACCEPTANCE BY CDAP MEMBER

Dr. Jeewani Bamunusinghe		
Name	Signature	Date

PROJECT DETAILS

Brief Description of your Research Problem:

When building a house, in the design role, an architect is hired by the client to produce detailed designs of a concept or idea that the client wants to bring a reality. The major problem faced by the clients is "Unavailability of an app that is made for clients which can build the 3D model on top of a blueprint. (house plan) and design the interior without an aid of an interior designer"
Here are some common problems faced by the client within this process.

1. Design issues. Though the architect provides the drawings, sometimes the client is unable to get a clear big picture of the house by looking at the 2D drawing. Each building area is different and it consumes a lot of time and effort to give a clear picture to the client.
2. The client want a 3D model at a low design cost. Most of the time the cost of building a 3D model is high and the client has to pay an extra amount for it.
3. Clients change their mind all the time with new requirements even after designing the 3D model. If this repeats building a 3D model for each and every requirement is impossible.
4. The other side of this scenario is, if the client is unable to get a 3D model due to scarcity of money, sometimes he may have no clue about the house until it is completely built. So there is a huge risk of dispute during the build or disappointment at completion.
5. Clients have to hire an interior designer for decorating needs, room layout plans, and to plan the space of a room or building.

Description of the Solution:

As the solution the team proposes a software that assembles 3D models and overlays the virtual 3D models on the real blueprint (House plan).And also to design the interior without an aid of an interior designer. The following steps should be taken in order to develop the product.
First scan the blueprint (layout) with a smart phone camera and provide front elevation, side elevations, Cross sections and ground floor design. Then a 3D model of the house is built on top of the blue print according to the above scanned values. Any scanned blue print can be viewed as a virtual 3D model in this scenario.

There is a premium feature that would allow the customer to plan the interior designing of the already built house. For this we suggest the clients to select a price range which they wish to purchase products. After building the house, client can scan the desired room or area using a smart phone camera.

Then the app displays the products which suits the scanned location and the price range. Further the app suggests the user for creating color palettes, selecting appropriate furniture, and accessorizing the space with fabrics, wall hangings, window treatments, light fixtures and flooring.

Main expected outcomes of the project:

As the final outcome clients will get a software that assembles 3D models and overlays the virtual 3D models on the real 2D blueprint (architectural or hand-drawn) And also to design the interior without an aid of an interior designer. End result will be mainly based on Image processing and Augmented reality technologies.

WORKLOAD ALLOCATION

MEMBER 1

Wall modeling –

For this purpose we use Augmented Reality technology as a visualization tool. This builds 3D models of walls and overlays the virtual 3D models on the real 2D blueprint (architectural or hand-drawn).This also

- o Allows user to change the style of the wall (brick wall, stone wall etc.)
- o Allows user to change the color of the wall.

MEMBER 2

Roof modeling –

For this purpose we use Augmented Reality technology as a visualization tool. This builds 3D models of roofs which covers the entire model. Roof Molding also overlays the virtual 3D models on the real 2D blueprint (architectural or hand-drawn).

- o Detects edges of roofs.
- o Detect different kinds of roof shapes and sizes.
- o Analyze different roof levels in the house plan.

MEMBER 3

Detect measurements from the scanned layout (house plan or hand-drawn) -

Using Image processing technology the following information should be obtained.

- o Dimensions of walls.
- o Room sizes and wall lengths and heights.
- o Front, rear and both side elevations dimensions.
- o Windows and doors placements
- o Measurements of roof in the drawing

MEMBER 4

Interior Designing –

This allows clients to select a price range which they wish to purchase products. Then it displays the products which suits the scanned location and the selected price range. Further the app suggests the user for

- o Creating color palettes
- o Selecting appropriate furniture
- o Accessorizing the space with fabrics, wall hangings, window treatments, light fixtures and flooring.

DECLARATION

"We declare that the project would involve material prepared by the Group members and that it would not fully or partially incorporate any material prepared by other persons for a fee or free of charge or that it would include material previously submitted by a candidate for a Degree or Diploma in any other University or Institute of Higher Learning and that, to the best of our knowledge and belief, it would not incorporate any material previously published or written by another person in relation to another project except with prior written approval from the supervisor and/or the coordinator of such project and that such unauthorized reproductions will construe offences punishable under the SLIIT Regulations.

We are aware, that if we are found guilty for the above mentioned offences or any project related plagiarism, the SLIIT has right to suspend the project at any time and or to suspend us from the examination and or from the Institution for minimum period of one year".

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