Overview
Visual reality is the valuable generic research area of image processing. It is a technique for the automatic creation of virtual reality models through observation of the real objects and environment. All the synthesized background and related objects will be manipulated properly. By this technique, a flat 2-D photographic image can be enhanced to an interactive 3-D scene.

Aims and Objective
The aim of this project is to build an image-viewing program in Ms Windows’s environment. The goals we accomplished include the following:
1. Enhance an image from the flat 2-D plane into 3-D world.
2. Provide zooming and moving of images.
4. Provide loading and saving function of image files.

Block Diagram
Detailed Design

In this Visual Reality Project, a program which can modify 2-D image into a virtual 3-D image was built that allows users to have various views of the image. This project is divided into two major parts:

1. Texture Synthesis
2. Object modeling

Texture synthesis

A large size texture images can be generated from a small sample texture which preserves the same characteristics of the sample texture. This technique was applied on generating the background of sky and floor.

Object modeling

Three models were set and textures were chosen to map onto them.

1. A sphere model for sky
2. A plane model for floor
3. A rectangular cylinder model for building

Scaling, Moving and Rotation were performed before projecting the 3-D model as a 2D picture.
Implementation Functions & Results

Two surfaces were extracted and mapped onto the model.

The selected sky and floor textures were synthesised to large textures.

Features
1. Importations of image
2. Extractions of Building Surfaces
3. Extractions and Synthesis of simple textures
4. Changes of View Point and Scale

View point and scale can be changed. Different view angle and scale were shown.