American International University- Bangladesh

Faculty of Science and Technology

Department of Computer Science

Final Term Project [Spring 2020-2021]

Computer Graphics [A]

Project Title : Smart Village

Submitted By

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Title Name: Smart Village

Introduction :

A "**Smart village"** is a mini project in computer graphics which is simple, good looking and useful. We have mainly created some artifacts in this mini project like Moving Sun , Cloud model, Hill, Tilla , House, field, Tree, Windmill . We have tried to create a Smart village with different opengl method and C++ program using from computer graphics background study.

Background of Study :

In background study , We have learn many things to create this project. We wanted to make some houses, some trees, some clouds, some hills, some tilla, Field, some windmill and wanted to design ,architect and colour on them. So To create this project we need opengl method apply and c++ progam using with function. We need to know some header method and define method such as :

```
#include<windows.h>
#include<GL\glut.h>
#include<GL\glu.h>
#include<math.h>
#include<stdlib.h>
#include<stdio.h>
#define Pi  3.1416
```

There have been many problem to create this project because before we have been gain a lots of knowledge how to create this project. Such as , Function generate, Circle Model generate,Sun model generate and design, Moving sun model generate, Cloud Model generate, Hill Model generate, Tilla Model generate, House model generate,Field Model,generate,Tree Model generate, Windmill Stand Model generate , Windmill Blade Model generate.

Objective Of The Project :

The main objectives of this project are:

1. To implement the features of graphics.
2. To interface the applications of graphics to the real world.
3. To give some benefits to the disability.
4. To become familiarization with Graphics and its logical coding

Methodology :

This project was done with the help of C++ Programming Language. Different methods are performed in order to make it more applied and efficient. C Graphics programming is very easy and interesting. We used graphics programming for developing our projects, for designing, animation etc. It's not like traditional C++ programming in which you have to apply complex logic in your program and then you end up with a lot of errors and warnings in your program. In C graphics programming you have to use standard library functions to get your task done. Just you pass arguments to the functions and it's done.

In this project we have implemented an “smart village” so we have given the title as “SMART VILLAGE” where a small house will be present and around it some trees will be there and in the sky, a couple of clouds and windmill will be kept on moving in the sky and the sun will be there.We have provided motion for the clouds and windmill.

In this project we have used some of the built in functions and library functions defined in glut header files.

Description of <GL/glut.h> header file
The header file <GL/glut.h>
includes the standard commands that help us in executing the OpenGL codes. It supports inbuilt functions. Below listed are some of the standard commands that are included in this project.

BUILT IN FUNCTIONS:

1.voidglutInit
The interaction between the windowing system and OpenGL is initiated. The two
arguments allow the user to pass command-line arguments, as in the standard C main function.

2.voidglPushMatrix.
It pushes to and pops from the matrix stack corresponding to the current matrix mode.

3.voidglTranslatef .
It alters the current matrix by a displacement of (x,y,z). TYPE is either GLfloat or GLdouble.

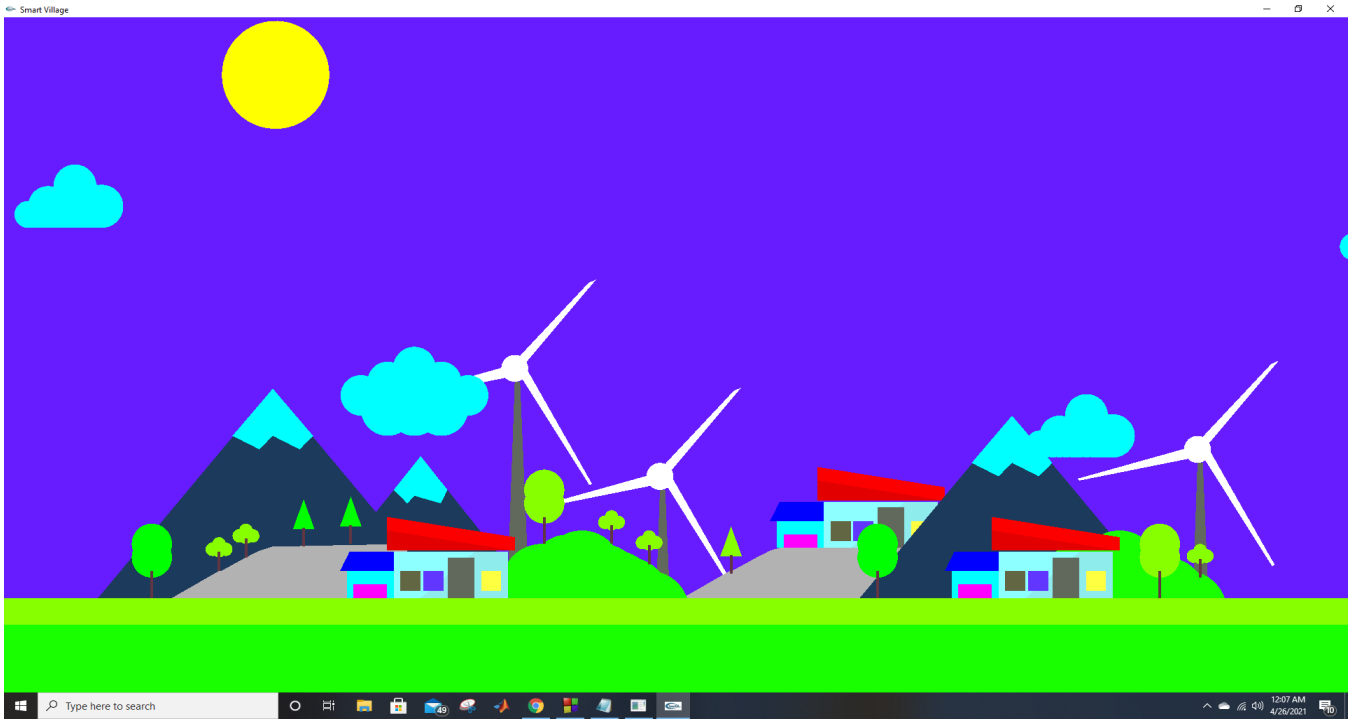
4.void display( )
This function is used to display different objects

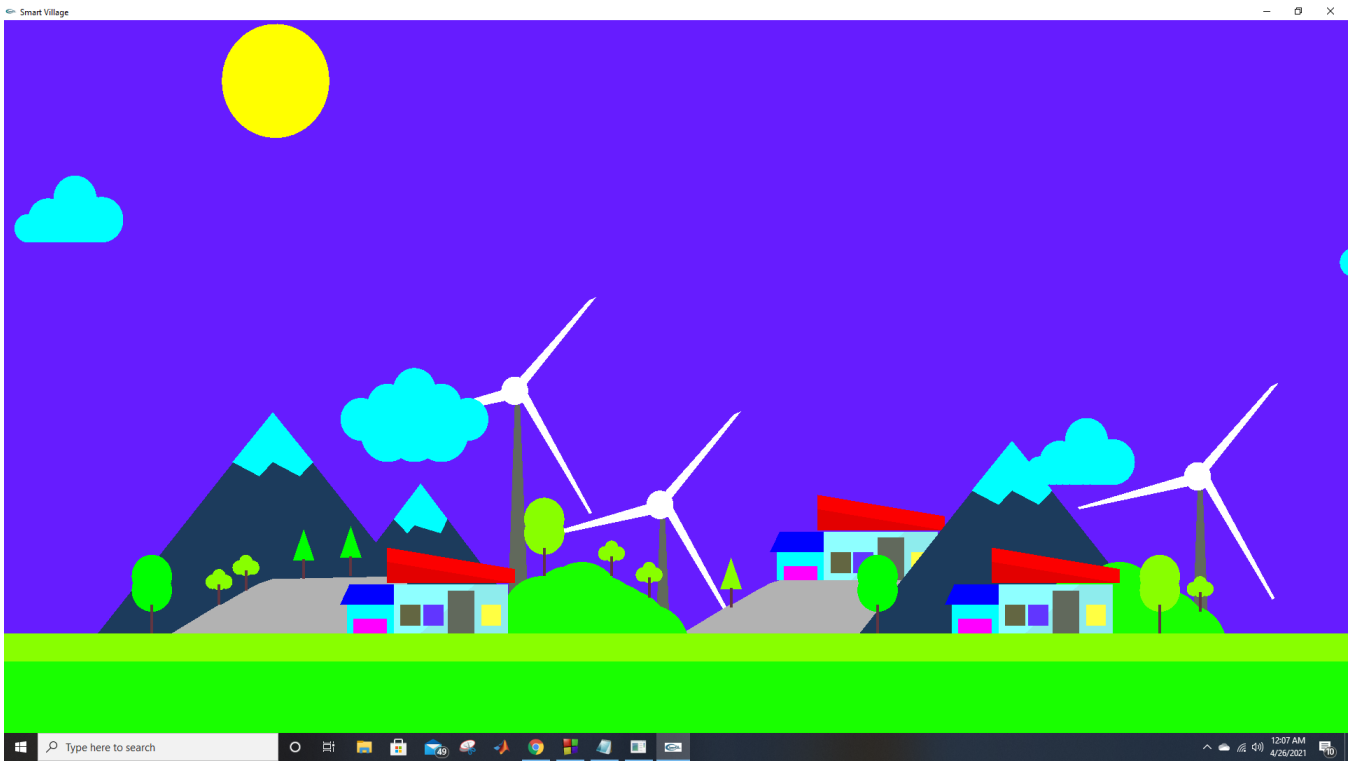
5.glutMouseFunc.
registers the mouse callback function f.thecallback function returns the button

Significant of the project:

In this project Most significant part is design and Architecture. Now we have describe in this part how to create design and Architect. In the project a house is present in a small village and in the sky couple of clouds will be passing in the sky. We have created some windmill near the village house . The hill have been created behind the house.In some cases, houses have been built on the top of the hill to make it look beautiful. Trees have been created on the top of the hill and in some cases trees have been created with the house so that it looks very beautifully. The branches of the tree are painted green and the topsoil is painted green. Three Tilla's are created in which two Tilla's are different in colour and another Tilla is different in colour.The bottom of the two Tilla's are painted in same colour like grey and top part of the tilla's colour are painted in same colour like white and colour will be change in certain time. Another tilla's top of the part is painted with white and bottom of the part is pained with blue and colour will be change in certain time. The windows, doors and roof of the house have been given different colours and windmill also.The colour of the field is green,the colour of the sky is blue and the clouds is white. This is the overview of the project.

Result Analysis (Screenshot of the project) :





Conclusion :

We have successfully done “Smart Village”project which is colorful and simple mini project. And this project includes a lot of options in it. Atlast the program is running successfully.This project gave us more experience and also more gain knowledge with google, youtube tutorial for creating this project. This project is done with a lots of efforting , brilliant group working. Computer Graphics project “Smart Village” is a successful educational experience for us.

Refferences:

https://timetoprogram.com/simple-village-cg-mini-project/

https://goo.gl/U8Gj6z