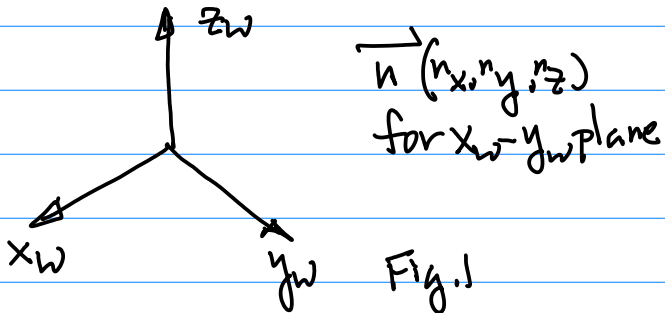


Nov. 17 (Thur).

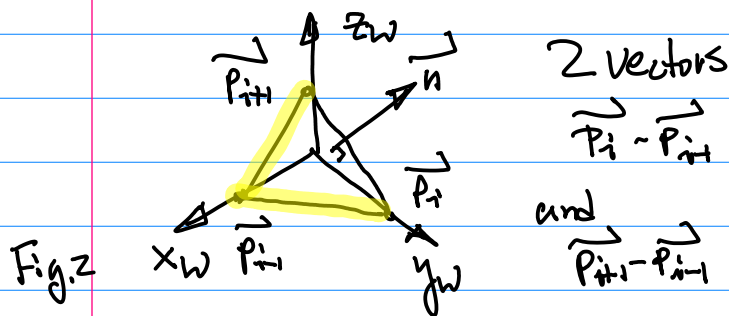
Midterm Key and Discussion.

Normal Vector Calculation.



$$\vec{n} = (0, 0, 1) \text{ or } \vec{n} = (0, 0, c)$$

Generalized Case for Normal Vector

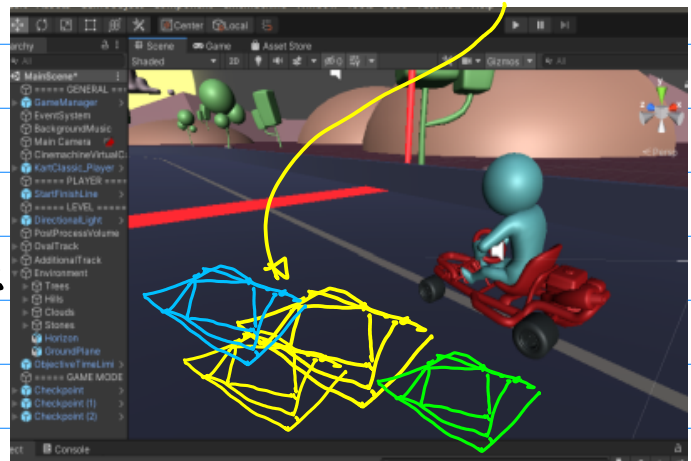


$$\vec{n}(n_x, n_y, n_z) = (\vec{P}_i - \vec{P}_{i-1}) \times (\vec{P}_{i+1} - \vec{P}_i)$$

Semester Project

1. Formal Presentation and Demo At the end of the Semester.
2. Team Coordinator and Team members need to get together Set Tasks
3. Dec. 7th (No Instruction Day).
Presentation. 1:30 pm - 3:00 pm
4. Requirements (Technical Requirements)
See Hand out (To Be Posted on (ANVAS))

a. Rotating Squares on the Road



Or,

Fig. 3

Path Pattern 1 for Unity Simulation

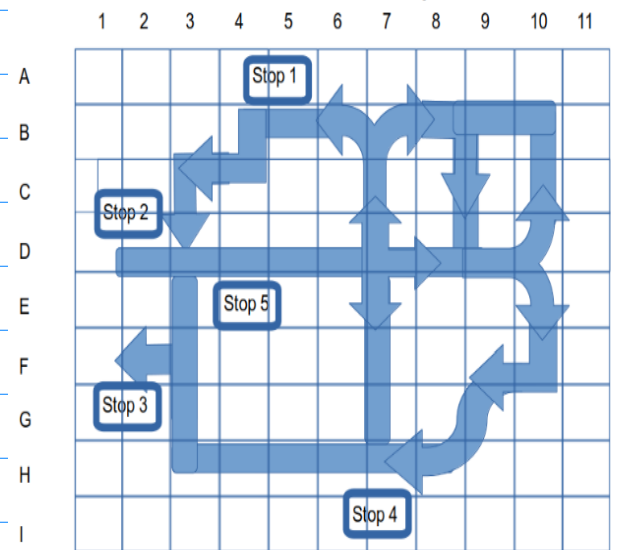
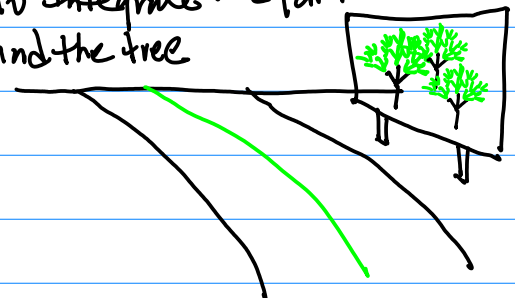


Fig. 4

b. To Integrate the path and the tree



c. Video Display

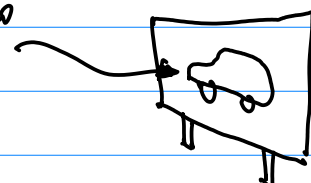


Fig. 5

1. Need Capability of Drawing A Line in Unity Environment \rightarrow 3D Space
#C Script.

<https://docs.unity3d.com/ScriptReference/Debug.DrawLine.html>

Scripting API: Debug.DrawLine - Unity - Manual

Draws a line between specified start and end points. The line will be of the editor when the game is running and the gizmo drawing is ...

Color: Color of the line

End: Point in world

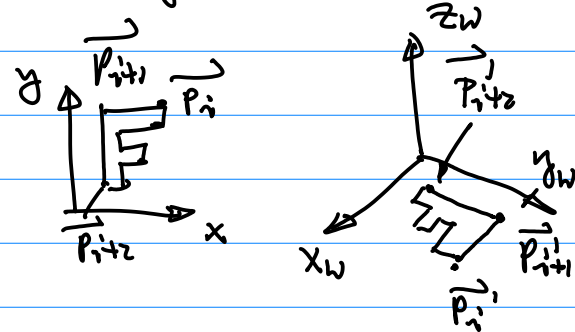
Duration: How long the line should be visible ...

DepthTest: Should t

Handles.DrawLine · Debug.DrawLine · Debug

<https://docs.unity3d.com/ScriptReference/Debug.DrawLine.html>

Step 2. Move this 2D pattern into $x_w - y_w - z_w$ World Coordinate

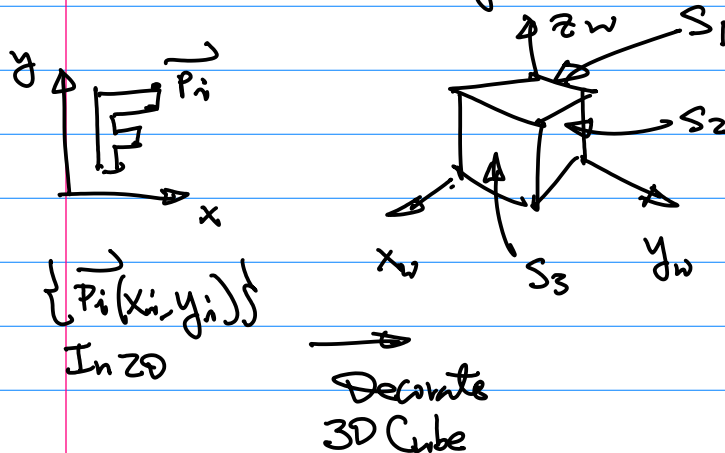


$$\begin{cases} x'_i = x_i \\ y'_i = y_i \\ z'_i = C \end{cases}$$

... (1)

<https://answers.unity.com/questions/8338/how-to-draw-a-line-using-script.html>

2. LINEAR Decoration Algorithm.



Decorate Surface S_1 .

Step 1. Define 2D graphics pattern

$\{P_i\}$ (like Letter "F")

Note: You have Squares, & Trees.

Decorate S_3 .

Idea: Project S_3 plane to $y_w - z_w$.

Right Principle Define

y_w — Ind.

z_w — Func.

Match Ind \rightarrow Ind
(3d) (2d)

Func \rightarrow Func
(3d) (2d)

$$\begin{cases} y'_i = x_i \\ z'_i = y_i \\ x'_i = C \end{cases}$$

... (2)

Decorate S_2

$$\begin{cases} z'_i = x_i \\ x'_i = y_i \\ y'_i = C \end{cases}$$

... (3)