

Flying Through a Pikachu Village with 3D light

A) Information

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B) User guide

Performance:

This is a 3D world with 3D light source. You can use your key w, a, s, d and ←, ↓, ↑, → to control your camera to go everywhere you want in this world. This one is using perspective camera. You can also adjust this light source. What's more, you can drag the Pikachu beside the world red axis.

!!!Please use **Chrome** browser to open this project, since I use the color picker which is not fully supported in the Firefox browser.

Instruction:

To wander around in this world. For w, a, s, d keys, they can control your camera to move forward/left/back/right. And you can see the specific key results "You press xxx key" in the left corner. For ←, ↓, ↑, → keys, you can set your camera aiming direction to view left/down/up/right.

For the light position part, you can control its position in the world coordinates through these three slider bars. The world axes is shown on the middle of the world.

For the Turn on/turn off light button, you can turn on/off the light. I

assume this world only has one light source like sun. And for my chosen materials, they can't glow. So when you turn off, everything will become black.

For the material submit part, you can select the material for Phong shading sphere. The default is 20 and you can use the material in 1~22.

Have a try!

For the World_box hide/show button, it can hide/show the world axes and ground.

For the Gouraud shading hid/show button, it can hide/show the objects which use Gouraud shading. And for the Phong/Blinn-Phong button below, you can select the lightning method for Gouraud shading.

Similar for Phong shading hid/show button and Phong/Blinn-Phong button in that part.

For the ear control part, you can control its ear part speed. 'Speed<<' means slow down the rate. 'Speed>>' means Speed up the rate.

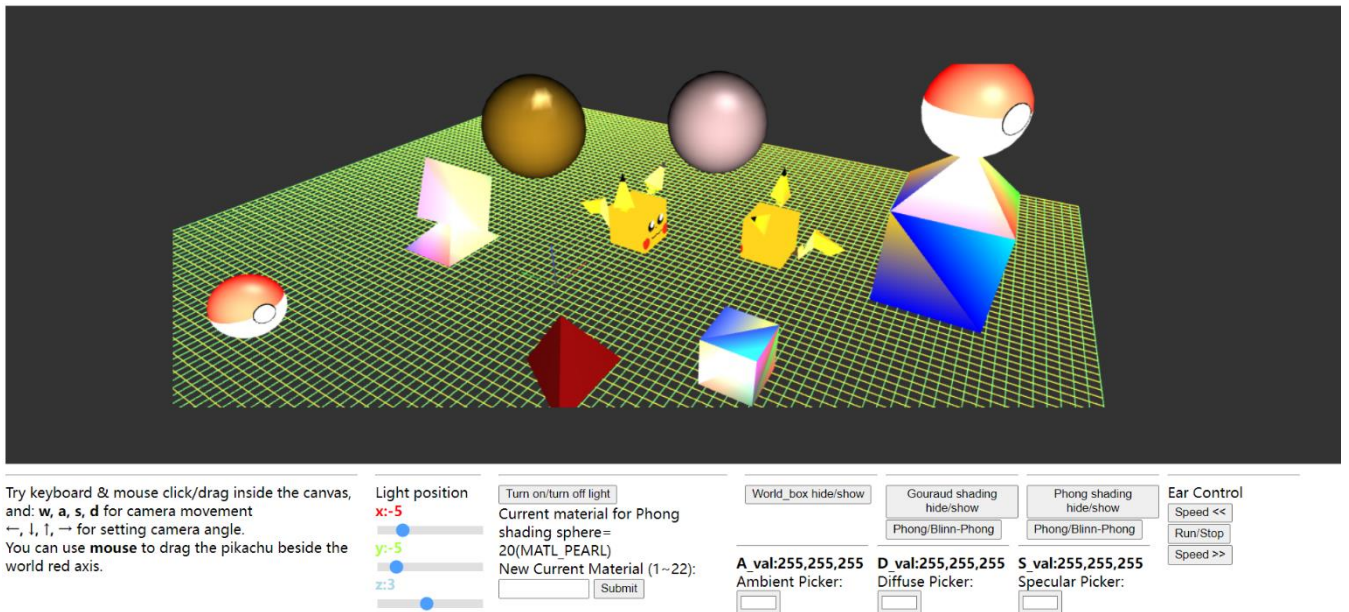
'Run/Stop' means you can stop its ears from waving or start again. And the speed can only be reduced to 0. That means your speed need to be bigger than 0. And the tail part is not controlled by these keys.

And for the three color pickers: Ambient Picker, Diffuse picker, Specular Picker, you can set ambient, diffuse, and specular illumination colors for this 3D light source. And it will transmit them to the illumination values(I_a , I_d , I_s). You can set the ambient color to (0,0,0) to see the different

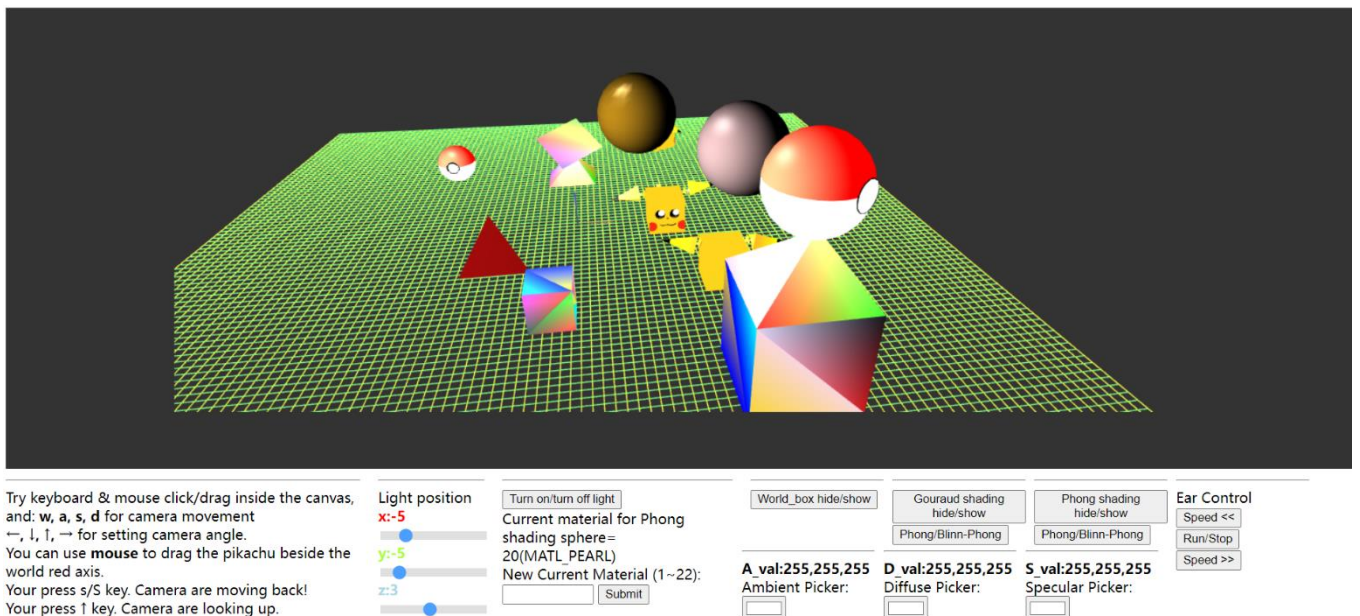
materials used for these objects obviously.

You can use your mouse to drag the Pikachu beside the world red axis wherever you are. To see how it works, you can just have a try!

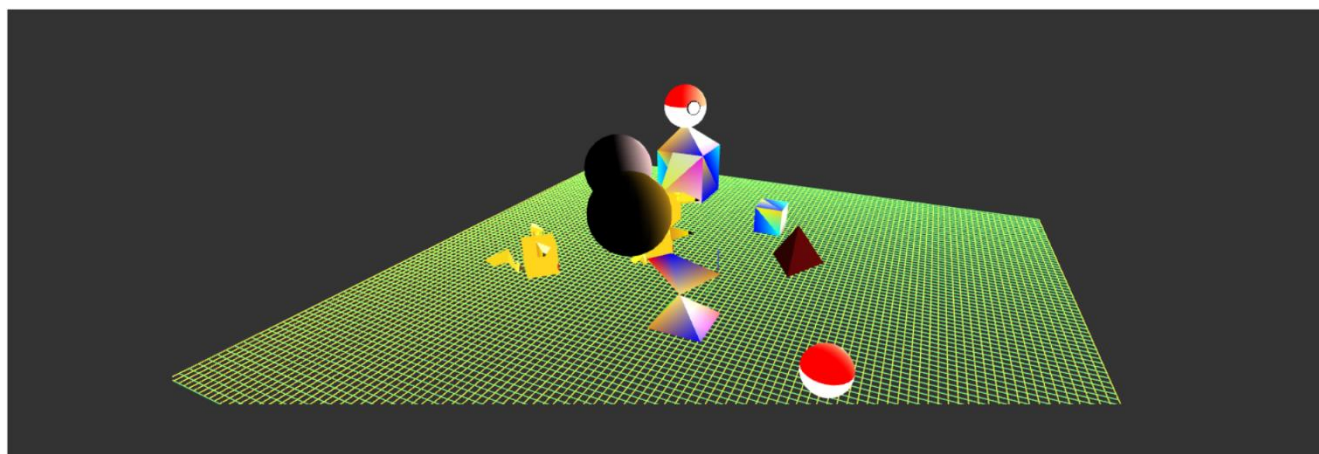
C) Results



(a)



(b)



Try keyboard & mouse click/drag inside the canvas,
and: w, a, s, d for camera movement
←, ↓, → for setting camera angle.
You can use **mouse** to drag the pikachu beside the
world red axis.
Your press s/S key. Camera are moving back!
Your press → key. Camera are looking right.

Light position
x:-5
y:-5
z:3

Turn on/turn off light
Current material for Phong
shading sphere=
20(MATL_PEARL)
New Current Material (1~22):
Submit

World_box hide/show

Gouraud shading
hide/show
Phong/Blinn-Phong

Phong shading
hide/show
Phong/Blinn-Phong

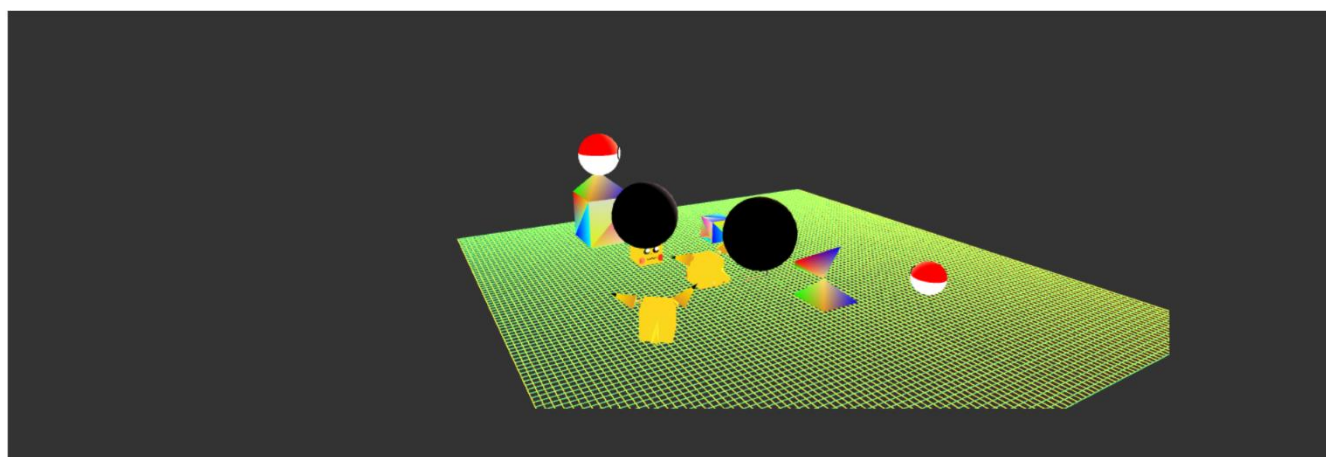
Ear Control
Speed <<
Run/Stop
Speed >>

A_val:255,255,255
Ambient Picker:

D_val:255,255,255
Diffuse Picker:

S_val:255,255,255
Specular Picker:

(c)



Try keyboard & mouse click/drag inside the canvas,
and: w, a, s, d for camera movement
←, ↓, → for setting camera angle.
You can use **mouse** to drag the pikachu beside the
world red axis.
Your press d/D key. Camera are going Right!
Your press ↑ key. Camera are looking up.

Light position
x:-5
y:-5
z:3

Turn on/turn off light
Current material for Phong
shading sphere=
20(MATL_PEARL)
New Current Material (1~22):
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World_box hide/show

Gouraud shading
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Phong/Blinn-Phong

Phong shading
hide/show
Phong/Blinn-Phong

Ear Control
Speed <<
Run/Stop
Speed >>

A_val:255,255,255
Ambient Picker:

D_val:255,255,255
Diffuse Picker:

S_val:255,255,255
Specular Picker:

(d)

(a), (b), (c), (d) are the different views for this world.

D)Scene-graph

