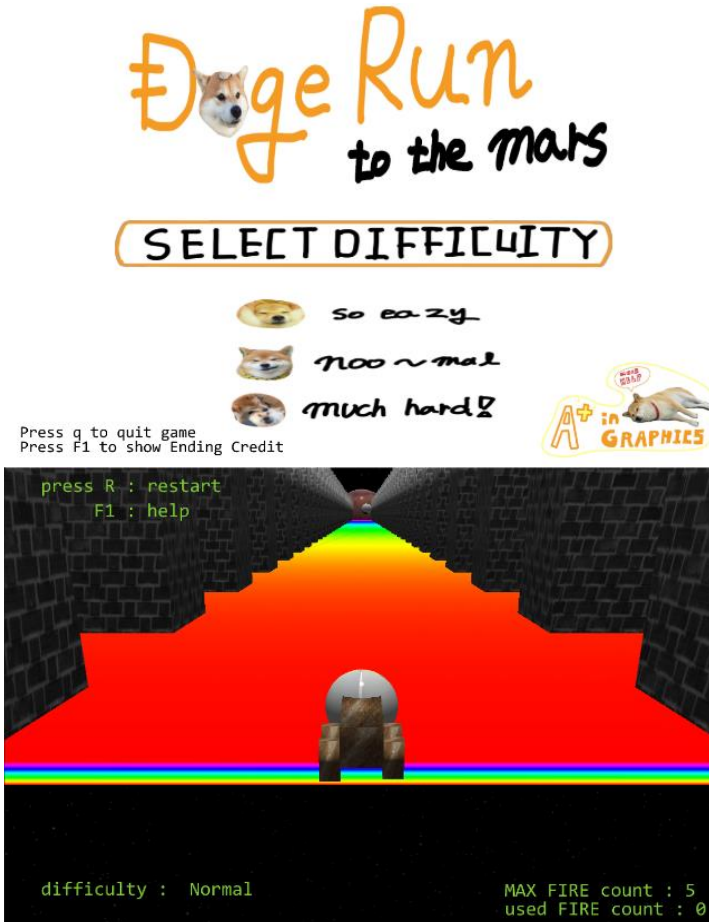


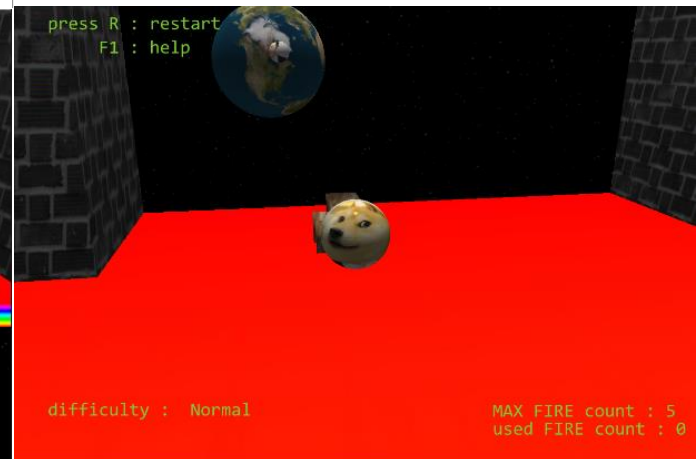
DOGE RUN TO THE MARS

: FINAL PROJECT



Project Leader: Kim Doyeol
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Class : Computer Graphics 2021-1
Professor : Lee Sungkil
Special thanks to Kabosu, who is known for Doge
Also thanks to The Emperor of Mars, Elon Musk
Thanks for playing our game
Intro video from channel ZimoNitrome
url : <https://youtu.be/000a17ru3ms>

Back to Start Page : Press F1



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SWE3008, 2021 SPRING

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DESIGN

We made a long, straight map, and a building at a certain distance on the edge of the map. The buildings on both sides are made of black brick walls, and the boards are envisioned with rainbow-colored bridges. At each end of the map are Earth and Mars, respectively, and the Earth slowly rolls behind the player.

SCENARIO

There exists Doge who wants to go to Mars and Elon Musk who interferes with him in the Game. Your goal is to reach Mars without crashing with Elon. It would be pretty hard if you choose hard level

TITLE SCREEN & HELP SCREEN & RESET & MULTIPLE DIFFICULTY

After you watch intro Image, you can see intro title page. At the top of the page, there is game title, below game title, you can choose 3 different level, Easy, Normal(Noomal), Hard.

In each different Level, The producing period of ball, the speed of the ball being produced is different. Also, the chance that you can breath fire to front, Background Music is different.

In title screen, you can go to ending scroll page.

In in-game phase, you can see Help Screen(F1), can reset(R).

HAND DRAWN 2D IMAGES

Title, Help, Buttons.. and many things are hand-drawn 2d images.

3D SHADING

We used the Blinn-phong shading mechanisms to implement the light above the head.

RESIZABLE WINDOW & ASPECT-RATIO VIEWPORT

Interface is adapted when windows is resized, and Using Aspect Matrix, player can see constant In-game viewport.

TEXT RENDERING

In-game interface is composed by Text rendering.

SOUND RENDERING(SOUND-CLIPS THAT WE CREATED ON OUR OWN)

Elon's sound is 3d-sound-rendered. Also we rendered ourselves background music using irrKlang.

We had recorded some sound clip, one of Doge's 'grrr kangkang' sound is recorded by ourselves.

TEXTURED 3D SKYBOX/SPHERE/CUBOID(CYLINDER)

Buildings & board(cuboid), Player(cuboid & sphere), Obstacles(sphere), skybox(sphere) are 3D textured.

Instead of circular cylinder, we used cuboid mesh.

Dynamic 3D Camera movement

When you are pressing left button of mouse in 3rd person view, you can dynamically change camera position.

PARTICLE SYSTEMS

When player collides with buildings, coin particles will appear around the player.

When you press E button in in-game phase, fire particles will appear in front of the player.

PHYSICS ON GRAVITY AND ACCELARATION

We can jump. This game has Gravity Acceleration. This Acceleration makes you stuck on rainbow floor.

Also, we support collision detection for every object interaction such as fire particle attack, player-obstacle, etc.

DEFORMABLE 3D CHARACTER ANIMATION

Player character(Doge) legs animation(swinging) is implemented.

MACHINE INDEPENDENT RENDERING

We used Time-gap for calculating velocity, acceleration, displacement to achieve machine independent rendering.

VIDEO RENDERING

We render the video that describe the concept and scenario in the introduction part of the game.

DISCUSSIONS - PARTICLE COLLISION

There were some problems of bad performance. First was about fire particles, as we created large amount of particles (1200). Especially when 1-person view, we observed the frame drop. It was because every single particle should calculate collision with all obstacles, in each single frame. Second was about obstacle number. At beginning we did not erased obstacles outside the game boundary which caused frame drop after some few minutes. Therefore, we erased the obstacles outside boundary so we could achieve good performance.

Reference

BGM

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