

Computer Graphics Term project proposal

Penguin Adventure

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PPT 디자인 출처 : 잘이네

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Project title

‘Penguin Adventure’

A game in which player move character
and survive as long as possible
without hitting obstacles to gain high scores



Brief Description

How to play ?



move

space

jump

Rules !

1. Record the score as far as you go
2. Game over when you touch obstacles.
3. Depending on the level,
the number of obstacles increases.



Implementation details – Main home



```
<style type="text/css">
  a { ...
}

body {
  background: url('menu-bg.png') no-repeat center fixed;
  background-size: cover;
}

.game-title {
  position: relative;
  padding: 35px;
  top: 20px;
  text-align: center;
}
```

Penguin's Adventure

1인칭
시작하기

3인칭
시작하기

```
<body>
  <div class="game-title">
    <h2>
      Penguin's Adventure
    </h2>
  </div>
  <div class="btn-group">
    <button class="button" onclick = "location.href = 'mainScene_1st.html'">1인칭 <br/> 시작하기</button>
    <button class="button" onclick = "location.href = 'mainScene_3rd.html'">3인칭 <br/> 시작하기</button>
  </div>
</body>
```



Implementation details – 1st view



```
if (moveLeft) {  
    if(penguin_box.position.x < 10){  
        // Force x-values of vectors by -1*speed  
        var penguinVec = new THREE.Vector3(-1 * speed, oldVector.y,oldVector.z);  
    }  
    // Camera position equal to penguin position  
    camera.position.x = penguin_box.position.x;  
    camera.position.y = penguin_box.position.y;  
    camera.position.z = penguin_box.position.z + 0.5;  
}  
if (moveRight) {  
    if( penguin_box.position.x > -10){  
        //Force x-values of vectors by 1*speed  
        var penguinVec = new THREE.Vector3(1 * speed, oldVector.y, oldVector.z);  
    }  
    // Camera position equal to penguin position  
    camera.position.x = penguin_box.position.x;  
    camera.position.y = penguin_box.position.y;  
    camera.position.z = penguin_box.position.z + 0.5;  
}
```

Implementation details – 3rd view



```
camera.position.set(0, 7, -10);  
camera.rotation.y += 0.005;  
camera.rotation.x += 0.001;
```

```
camera.lookAt(meshes["penguin"].position);
```



Implementation details - Obstacles



```
function ObstacleMaker() {
  var mod = (Math.random() * 10).toFixed(0);
  var pos = (Math.random() * 10).toFixed(0);
  var x_pos = (Math.random() * 10).toFixed(0);
```

```
//speed up
if (i == 10) {
  timesleep = 7000;
  timerId = setInterval(ObstacleMaker, timesleep);
} else if (i == 30) {
  timesleep = 5000;
  timerId = setInterval(ObstacleMaker, timesleep);
} else if (i == 70) {
  timesleep = 3000;
  timerId = setInterval(ObstacleMaker, timesleep);
} else if (i == 120) {
  timesleep = 1000;
  timerId = setInterval(ObstacleMaker, timesleep);
} else if (i == 150) {
  timesleep = 700;
  timerId = setInterval(ObstacleMaker, timesleep);
}
```

```
function moveObstacle(object) {
  const curVec = object.getLinearVelocity();
  object.setLinearVelocity(
    new THREE.Vector3(curVec.x, curVec.y, -obstacleSpeed)
  );
  object.__dirtyPosition = true;
  object.__dirtyRotation = true;
}
```

127.0.0.1:8887 내용:

Game Over :(
your score is : 1016

Try again?

확인

취소



```
// In the event of a collision with an obstacle
function obstacleCollistion(collisionObject) {
  console.log(collisionObject.name);
  var returnValue = confirm('Game Over :( \n your score is : ' + score + '\n\n Try again?')
  if(returnValue){ // confirm
    location.reload();
  }else{ // cangle
    location.replace("home.html");
  }
}
```



Implementation details – Timer & Score



```
function countTimer(){
  // count seconds and scores
  secs++;
  score++;

  // change seconds to minute and hour
  if(secs >= 60){
    secs = 0;
    mins++;
    if(mins >= 60){
      mins = 0;
      hrs++;
    }
  }

  h = hrs ? hrs > 9 ? hrs : "0" + hrs : "00";
  m = mins ? mins > 9 ? mins : "0" + mins : "00";
  s = secs > 9 ? secs : "0" + secs;

  // display time and score
  display.innerHTML = h+"-"+m+"-"+s+"s";
  display2.innerHTML = "Score : " + score;

  timerDuration();
}
```

PUSH THE START BUTTON!

Score : 0

GAME START



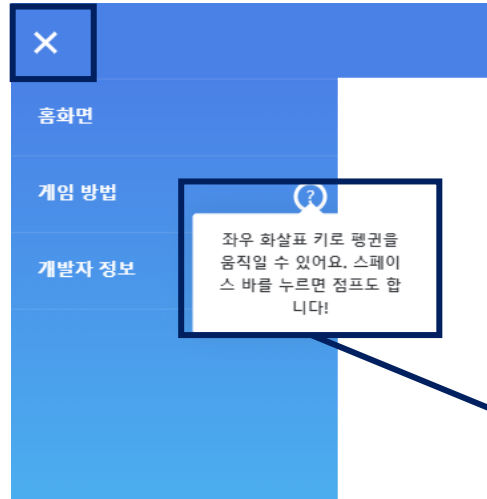
00:01:35s

Score : 95

GAME START

```
.btn-success.disabled:hover,
.btn-success[disabled]:hover,
fieldset[disabled] .btn-success:hover,
.btn-success.disabled:focus,
.btn-success[disabled]:focus,
fieldset[disabled] .btn-success:focus,
.btn-success.disabled.focus,
.btn-success[disabled].focus,
fieldset[disabled] .btn-success.focus {
  background-color: #5cb85c;
  border-color: #4cae4c;
}
```

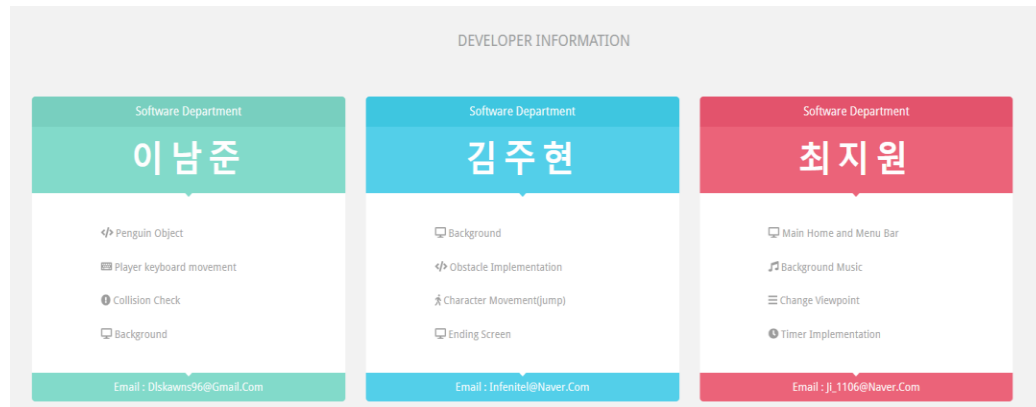
Implementation details - Menu bar



```

<!-- menu -->
<div class="header"></div>
<input type="checkbox" class="openSidebarMenu" id="openSidebarMenu">
<label for="openSidebarMenu" class="sidebarIconToggle">
  <div class="spinner diagonal part-1"></div>
  <div class="spinner horizontal"></div>
  <div class="spinner diagonal part-2"></div>
</label>
<div id="sidebarMenu">
  <ul class="sidebarMenuInner">
    <li><a href="home.html">홈화면</a></li>
    <li>게임 방법<span class="help-tip">
      <p>좌우 화살표 키로 평권을 움직일 수 있어요. 스페이스 바를 누르면 점프도 합니다!</p>
    </span></li>
    <li><a href="info.html" target="_blank">개발자 정보</a></li>
  </ul>
</div>

```



Developer Information screen

```

.help-tip:before {
  content: '?';
  font-family: sans-serif;
  font-weight: normal;
  color: ■ rgb(255, 255, 255);
}

```

```

.help-tip:hover p {
  display: block;
  transform-origin: 100% 0%;
  -webkit-animation: fadeIn 0.3s ease;
  animation: fadeIn 0.3s ease;
}

```



Demo Video



Penguin's Adventure

1인칭
시작하기

3인칭
시작하기



Key Feature

‘Advantage’

Anyone can **enjoy easily on the web**, and various fun
elements are added by **utilizing WebGL**



Key Feature

» Two game modes

First person view and Third person view

» Various forms of obstacles and music

Snowman, Rocks, Ice Sheet etc.

» Background changes over time

As the sun slowly sets from daytime,
the background darkens and becomes night

» Level of difficulty

Over time, obstacles appear faster
and the game becomes more difficult



Team Members



이남준

Student ID : 20153659

Email : dlskawns96@gmail.com

- Penguin Object
- Player keyboard movement
- Collision Check
- Background
- Final presentation



김주현

Student ID : 201835434

Email : infenitel@naver.com

- Background Screen
- Obstacle Implementation
- Character Movement(jump)
- Ending Screen
- Final PPT



최지원

Student ID : 201835538

Email : ji_1106@naver.com

- Main Home and Menu Bar
- Background Music
- Change Viewpoint
- Timer Implementation
- Final PPT

GitHub : https://github.com/dlskawns96/WebGL-Penguin_Adventure





Thank you

