Inbetween

and up and about

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"Inbetween" is a 3D jump and run platformer game. You control a character, which has to jump onto different platforms and avoid obstacles, rivals and change between worlds in order to find the exit.

Features
- Single-player
- Hierarchical animation
- Self implemented physics
- Global camera rotation + around player

Our Story begins in the comfortable home of the Wombl-dom named Cynor. Like every evening and ehm, morning and every other time of the day he was sitting on his armchair holding his Smart-Device and enjoyed all it had to offer. But this very night, something was about to change his life forever. Suddenly a crackling sound which seemed to originate from a bright light at the ceiling, grew even louder. An opening appeared and with a loud WOOSH something... or someone came through it. Startling he looked at what appeared to be a fellow Wombl-dom, but he was not as colorful or as friendly looking as anyone he ever encountered. The intruder didn't wait long and stole his beloved Smart-Device before he could even move. The odd fellow used his shoes and suddenly he ascended into the air towards the bright light which looked like a wormhole. And here something went wrong. The foot of the thief got stuck while the hole was closing and after a loud PLOP the intruder disappeared and the funny looking shoe fell to the ground. Now on his feet and wondering what just has happened Cynor inspected the shoe. After some time he came to the conclusion that the shoe was a way of transportation and so he went outside to give it a try. Slipping on the shoe and

using it made the same thing appear in the air and he started to disappear. Cynor then reappeared in well... I don't know and neither does he. The only thing he knew for certain is that he wanted his Smart-Device back no matter the cost.

Gameplay

The player controls the main character, which can run and jump onto different objects. The character though cannot jump higher than a certain height, so if there is no way to go further it is possible to change the gravity to the opposite world which is situated just above, this happens through special places calles warps. He can then move on searching for an exit, but that world it is more risky, because different obstacles may appear that are dangerous for the character. There are 4 levels, and every single one has it's own typical objects and enemies. The player has at the beginning 3 lives - if he touches an enemy, he loses a life this way and a small heart appears above. Furthermore, there are some collectable goodies, that can give additional life to the player for every 4 collected goodies– in our game that are watermelons and apples. On every Level when the player reaches the warp he can press G and this way go to the next level. There is no way to go back to the previous level. If the character dies he than starts again in the same level he previously was. On level 4 there is a boss that has to be killed in order to find the female character and win the game.

Controls

You control the character with the WASD-keys of the keyboard. Every single arrow moves the character into the corresponding direction. The space key will be used for jumping. With the different F-buttons you can switch on and off different effects.

Key	Effect
F1	Show help
F2	Frametime on/off
F3	Wireframe mode on/off
F4	Texture Sampling Quality – Nearest Neighbour/Billinear
F5	Mip Mapping Quality – Off/Nearest Neighbour/ Linear
F6	Shadow mapping on/off
F7	Bloom on/off

F8	View frustum culling on/off
F9	Blending on/off
F10	Music on/off
F11	Change free/player camera
F12	Cel Shading – on/off
WASD	Move player
Space	Jump
Esc	Exit
Mouse	Move camera
Q	Decrease Exposure
E	Increase Exposure
Arrow Keys	Position lightsource

Technical Details

Types of objects in the game
- Main character
- Mushrooms - Mesh
- Power Ups - Collectibles
- Enemies
- Trees
- Stump of trees
- Stones
- Grass

Camera
The free camera can be rotated into every direction with the mouse. Additionally there is a player camera that follows the player wherever he goes.

Illumination
A global light source in the game – the sun which has a direction. Every Object reflects the light in special way. And every single object has a texture.

Further specialities

We have implemented View Frustim Culling, Hieararchical animation which can be seen on the main character, moveable camera around the player, bounding boxes, self-implemented physics.

Effects
- Shadow Mapping
- Cel Shading
- HDR
- Bloom

Additional Programms

All objects and the whole scene was created in blender and textured there.

Additional Libraries

-glew, assimp, glfw, soil, irrklang

External Links

We have used several sites to help us to implement our game:

- https://learnopengl.com/

- http://www.lighthouse3d.com/tutorials/view-frustum-culling/

- https://en.wikibooks.org/wiki/OpenGL_Programming/Bounding_box

- https://www.youtube.com/watch?v=vWU8EltWTfM&list=PLlrATfBNZ98fqE45g3jZA_hLGUrD4bo6_