

XNA Based Game Design & Development

RhythmHit

School: School of Computer Science & Technology

Major: Computer Science & Technology

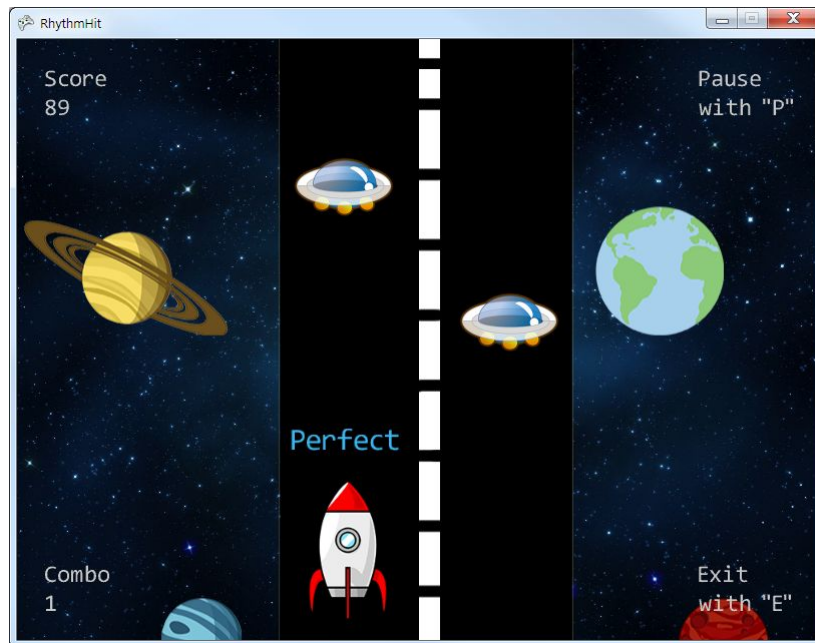
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Date: 2015-07-25

1 Features

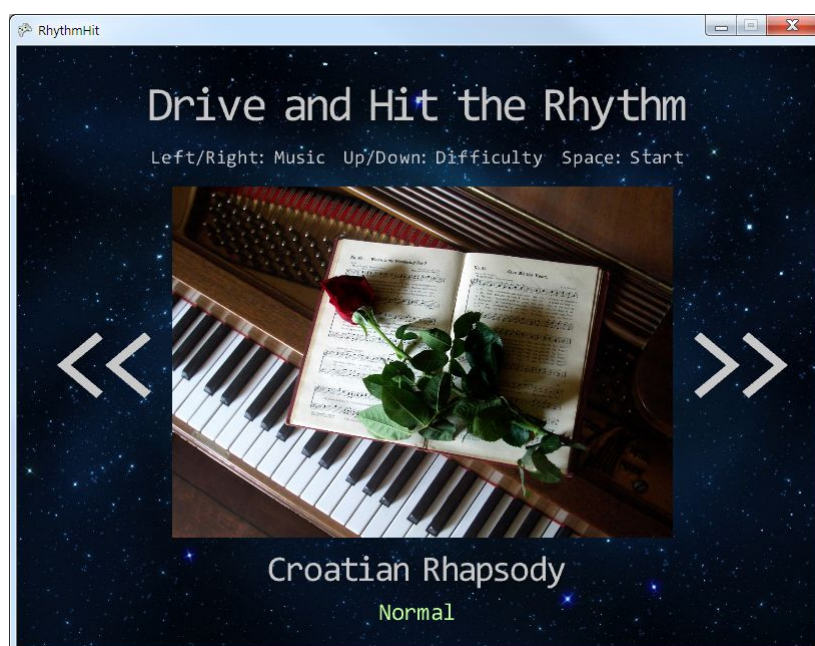
Summary: We renamed this game to RhythmHit, and change the HOW-TO-PLAY completely. It's not a car driving game, but a music game!

Play Mode: Control the car to hit (not avoid!) the hazard with rhythm, try to get as much score as you can.



Rhythm: Hazards will appear with rhythm, and when you hit the hazard there will be a sound effect. Different music has different sound effect.

Select Music: You can select and play with different music and beatmap (file recorded the rhythm).



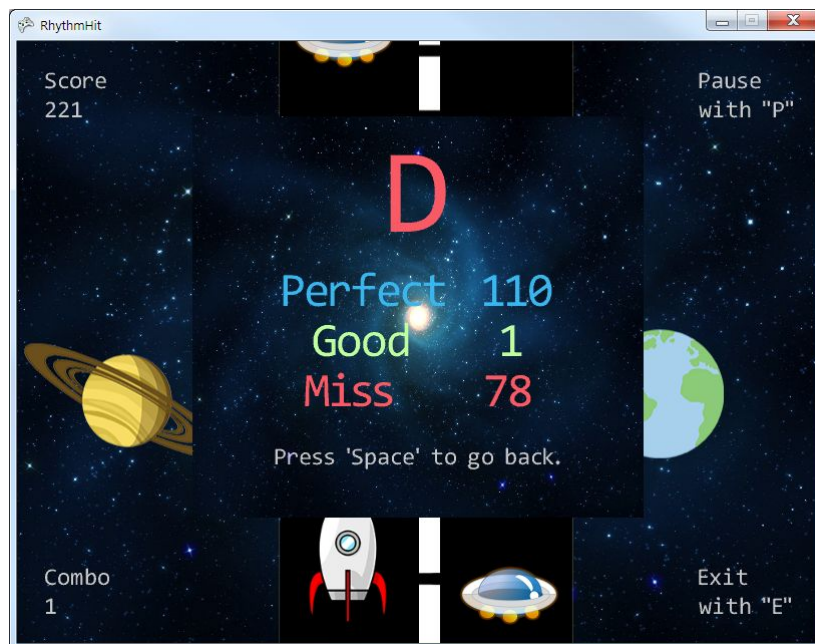
Select Difficulty: You can select difficulty from Easy, Normal and Hard. For each music we provided three beatmaps.

HUD: Show score, combo and some tips in gaming.

Judgment: Show judgment (Perfect, Good or Miss) when you hit or miss a rhythm.

Pause/Resume and Exit: You can pause/resume or exit game at any time.

Game Over Scene: Show final rank and judgments count.



More Beautiful: The background, fonts and color we select beautify this game in a great deal.

2 Usage

Select music, control the car to hit the rhythm, enjoy music with rhythm!

Title Scene: use **Left/Right arrow** to select music, **Up/Down arrow** to change difficulty, **Space** to start game.

In Game: use **Left/Right arrow** to move car left/right, **F** to switch full screen/window, **P** to pause/resume, **E** to exit. When game over, press **Space** to back to Title Scene.

3 Challenges

Beatmap: It's hard to create beatmap. A good beatmap will cost lots of time and require the talent of music and rhythm. And to use the beatmap in script, you need to design your own format.

Solution: We choose JSON to store beatmap, because it's easy to use and easy to extend. Our beatmap contains lots of information about the audio and the rhythm.

We use a script to convert osu! (a popular music game) beatmap to my format. For parse JSON format beatmap in C#, we use a library named SimpleJSON.

Generate Hazards with rhythm: In DriveFast, hazards are generated with a fixed frequency. We need to generate the hazard with the rhythm.

Solution: Our beatmap record the rhythm time, so we read the time list from beatmap when game start, and use a variable to record the next rhythm time. By comparing the music play position and the rhythm time every frame, we can generate hazard and move to next rhythm time.

Game over bug: After the last hazard is generate, the index may overflow and cause game crash. And game won't stop after all rhythm.

Solution: We add end mark in beatmap to tell the script that the game is over. And we stop the game and show Game Over Scene when the music is stop.

4 Contribution

For RhythmHit, I defined its play mode. I designed the beatmap format. I made all beatmaps with my python script. I added music and sound effect. I added script to make hazards generated with rhythm. I used new background, fonts and color to beautify RhythmHit in a great deal.

Thanks for my teammate Yang Zhifei, he added lots of features and made lots of improvement for RhythmHit.

Ratio of my individual contribution is: 50%.