

# Research (D4)

The following research is intended to break down the core elements of some of the existing rhythm games.

The research will include both VR and non VR games to enable an overview of the chosen design elements and whether these are different depending if the game is VR.

## Audio Shield

✓ [Click here for core analysis](#)

### Platform & input

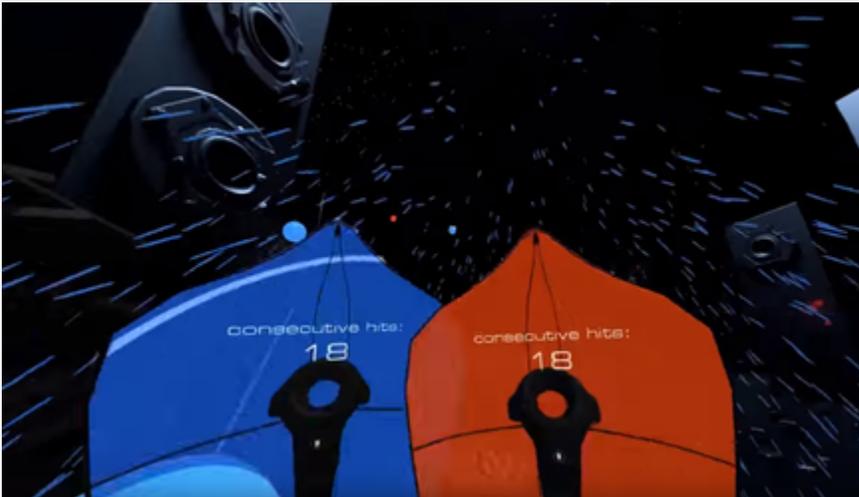
- PC with HTC Vive
- HTC Vive headset and motion controllers

### Core mechanic



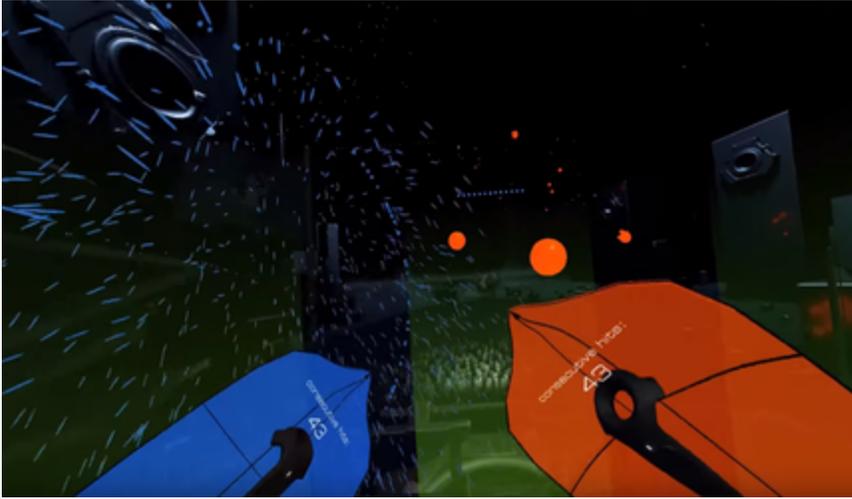
- Use the hand-held shields to block incoming orbs in 3D space that are generated by the music.
- The left and right hand shields are 2 different colours, just like the incoming beats. The player must block the beats with the same colour shield.
- Some beats are a combination of the two colours. These beats must be blocked by both shields.
- Player's own music library can be used as well as online cloud based music such as Spotify.

### Feedback system



- Particle effects, explosion style on impact when the orbs are "destroyed"
- When an orb is missed, a trail effect shows where it came from
- Successful consecutive hits are placed as a world UI on the shields
  - Both shields show the same number

## Scoring system

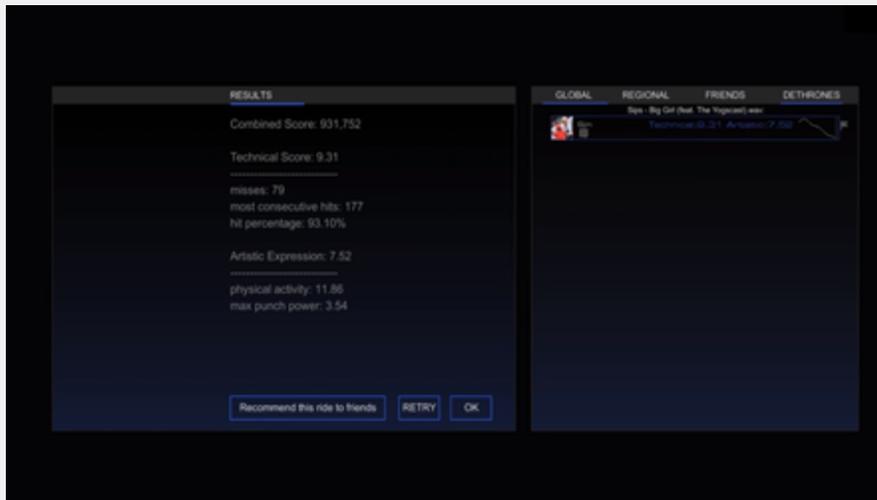


- There are two types of beats
  - Single beats approach as a single ball
    - Single beats award 1 combo point
  - "Multi-beats" approach as a ball followed by a thick trail
    - "Multi-beats" award multiple combo points depending on the trail's length

## Meta game



- 3 different shield types with different shapes
- 3 different difficulties : "normal" "hard" "harder"
- 2 different stages



- The game has a leaderboard that is based on two types of scores:
  - Artistic score depends on the intensity of player movement during the session
    - *There are a lot of controversies between players on forums about this as one can just wave their arms around a lot and get a perfect score.*
  - Technical score depends on how accurately the player has blocked the beats

Source: <http://store.steampowered.com/app/412740/Audioshield/>

## DJ Hero 2

✓ [Click here for core analysis](#)

### Platform & Input

- Xbox, PlayStation, Nintendo Wii
- Special turntable-controller provided with the game
- This is NOT a VR game



### Core mechanic

- Rhythm game that allows the player to become a DJ.
- Like Guitar Hero, DJ Hero is also built on the same basis to press the correct buttons in the right time to score
  - The turntable has 3 buttons, 2 sliders and the disc plate that can be rotated
- The player can choose a song and add additional sound effects during the gameplay when the inputs are used
  - When inputs are used in the correct time and way, the sound effect fit in the sound nicely but when used incorrectly, they sound awful.



### Feedback system

- Audiovisual feedback is present during both correct and incorrect scoring
- Pulsating light effect shows the correctly used input as well as on the side, a combo-meter is showing the successful sequences
  - The more correct inputs the player makes the bigger the bar
  - When the player fails to use the correct input, the bar resets
- Every input has a sound effect
  - When an input is incorrect, the player might be able to tell how it does not "sound right"

### Scoring system



- The player can score points by successfully performing input actions
  - There is no penalty for incorrect input in form of losing points
- Consecutively completing a set of actions give the player score multiplier up to 4x
  - The bar mentioned above is the multiplier bar that shows this multiplier number
  - Missed actions reset the multiplier to 1x
- The second bar to the right from the multiplier bar is the "Euphoria" meter which can be used to double the score multiplier when the bar is filled up completely.

## Meta game



- The game can be played as both single or multiplayer
- There are also options for cooperative and competitive game modes
  - This can be done online or offline as well

Source: <http://uk.ign.com/games/dj-hero-2/ps3-57891>

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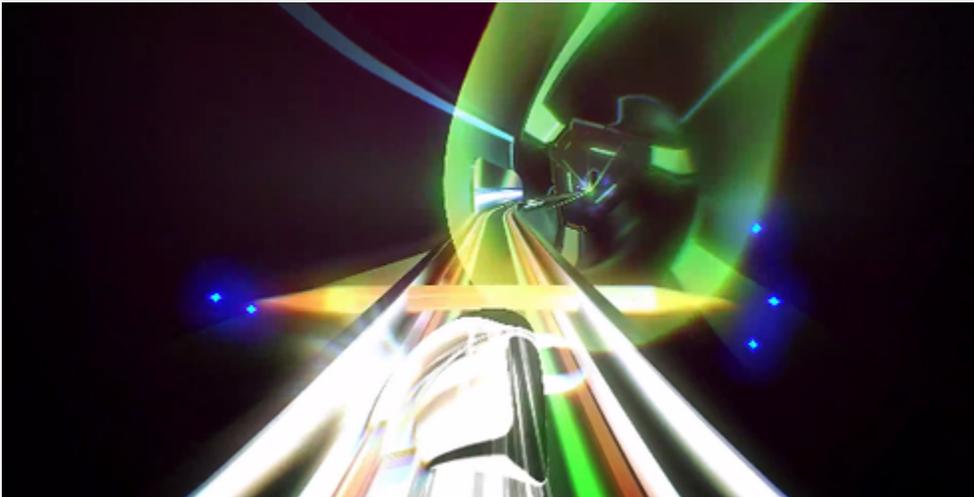
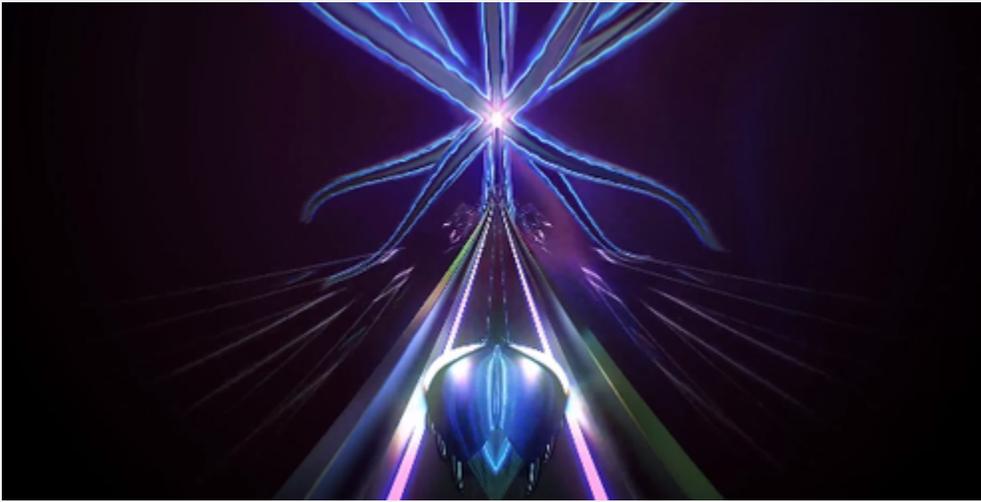
## Thumper

▼ [Click here for core analysis](#)

### Platform & Input

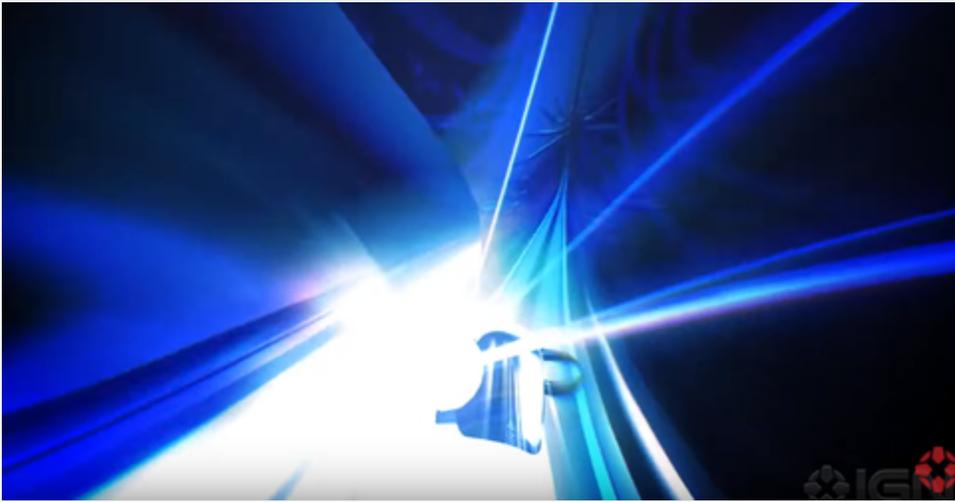
- PC, PlayStation, Nintendo Switch, Xbox One
- Supports both VR and non-VR
- Oculus, HTC Vive, OSVR
- Can be played with gamepad, keyboard/mouse and tracked motion controllers

### Core mechanic



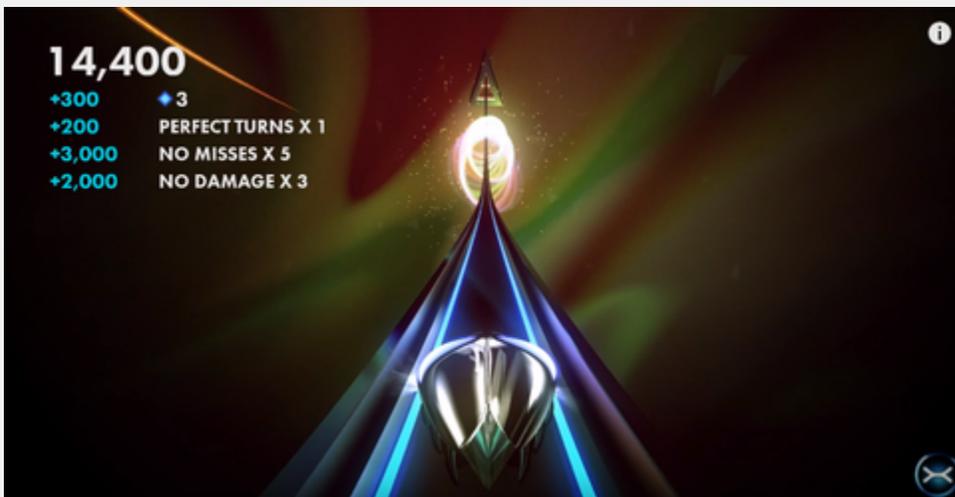
- 3D rhythm racing game where the player has to avoid obstructions on the beat
- The player is a space beetle sliding rapidly on a futuristic metal track
- Obstructions that appear on the track can kill the beetle so they must be avoided or fought by pressing the correct buttons in the correct times
- Obstructions can be avoided by left and right turn, "jump" and duck. Some obstructions have to be destroyed with attack button
- If the player fails at an obstruction the beetle dies and is restarting from the latest checkpoint

## Feedback system



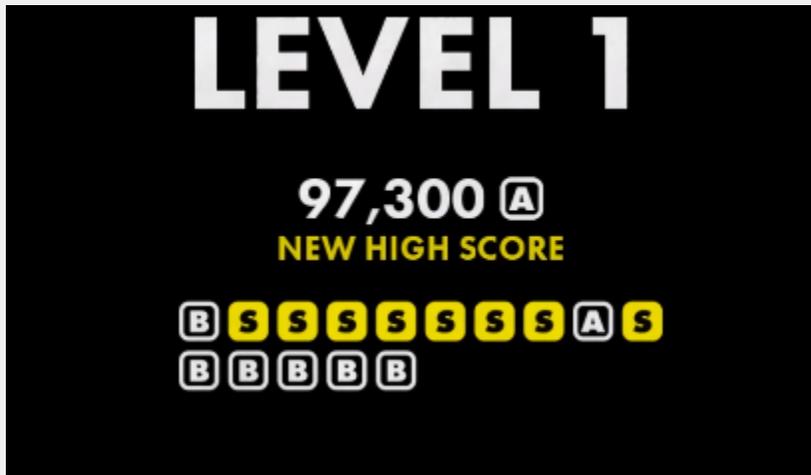
- There are both audio and visual feedback as well as haptic feedback on use of some devices
- The basic music of the game is very monotone and dark
  - When the player successfully avoids obstruction beats are played that add to the soundtrack
  - This type of audio feedback helps the player to rely on the rhythm to score correctly
- Visual feedback is shown as a variety of particle and lighting effects

### Scoring system



- The player receives points for collection blue gems (obstructions on the track)
- Perfect turns, no misses and no damage also adds to the score.
- There are a big range of multiplier options and advanced scoring possibilities

### Meta game



- The game is divided into levels
  - The levels are decided into sections, each marked with a checkpoint
- The player can receive a rank for every section
  - Ranks are "C", "B", "A" and "S" where C is the lowest and S is the highest
- Receiving ranks are based on the accuracy of dodging and attacking the obstacles
- The better the accuracy the higher the rank

Source: <https://thumpergame.com/manual/>

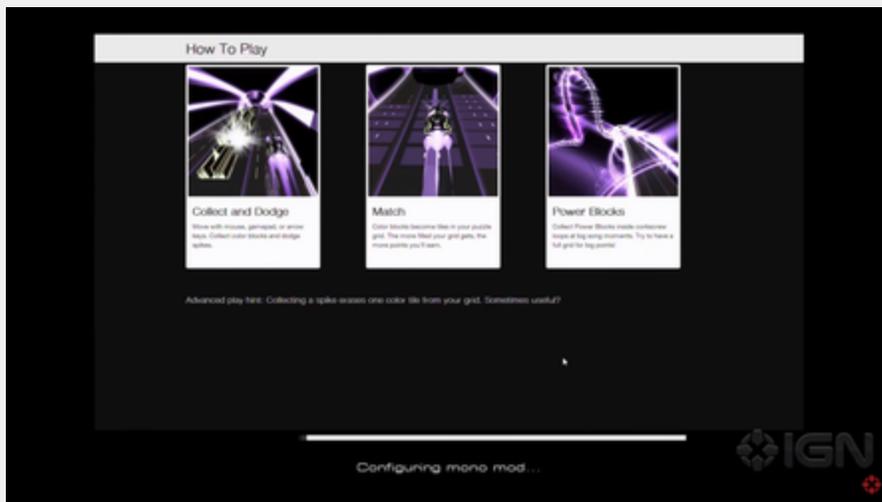
## Audiosurf

✓ [Click here for core analysis](#)

### Platform & Input

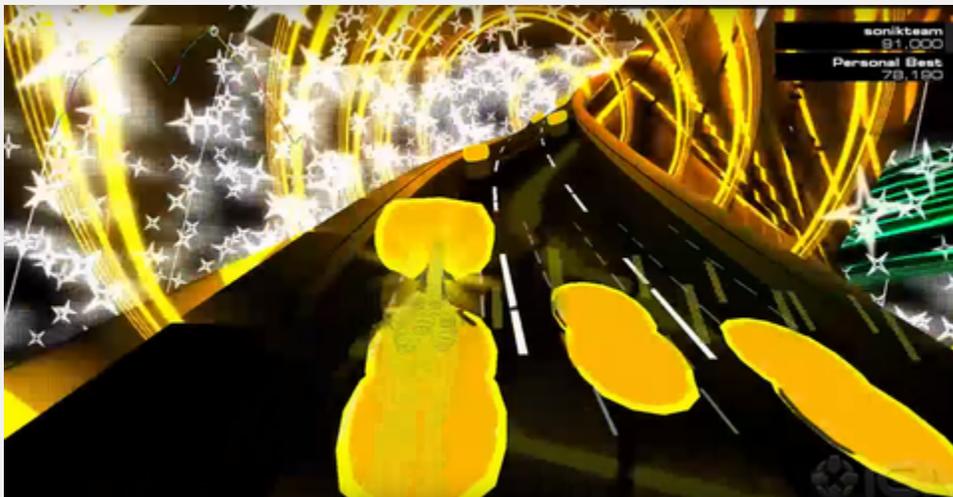
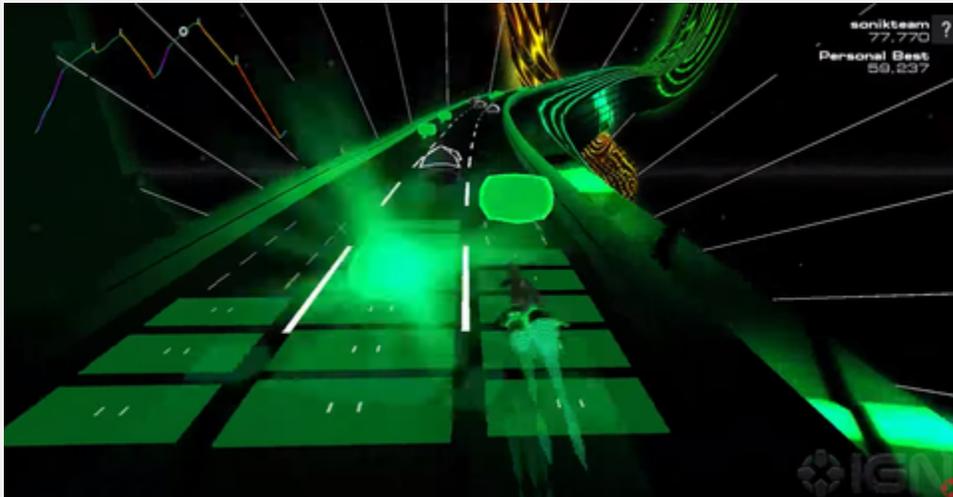
- PC
- Gamepad controller

### Core mechanic



- 3D futuristic rhythm racing game, similar to Thumper
- The player can use his own music library as well as online music libraries similarly to DJ Hero
- The player is riding along a music-based generated track where he must avoid obstacles to compete the level
- The track is divided into three section where the player can move in
  - The lanes have either obstructions or collectables on them

### Feedback system



- The visual feedback system is very powerful
  - Lighting and particle effects are shown on every input and action
- The audio feedback system has less effects than the previously evaluated games
  - A very low audio feedback is given upon picking up collectables
  - There is a very slight feedback upon mistakes

Source: <https://www.youtube.com/watch?v=XSUQHAwUQ3Y>

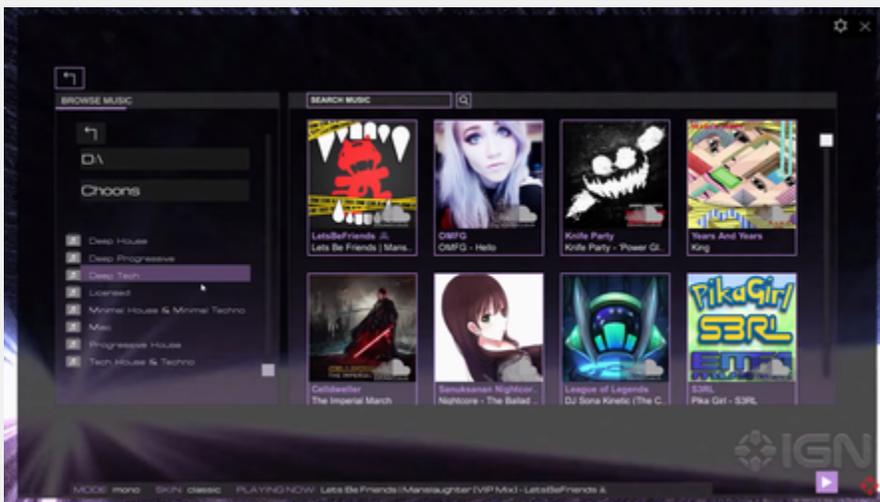
## Scoring system

Blocks	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
Purple (1)	36	73	119	174	236	303	375	451	531	612	695	775	854	929	1001	1070	1136	1199	1260
Blue (2)	72	146	239	348	472	606	750	902	1062	1152	1390	1550	1708	1858	2002	2140	2272	2398	2520
Green (3)	108	219	358	522	708	909	1125	1353	1593	1836	2085	2325	2526	2787	3003	3210	3408	3597	3780
Yellow (5)	180	364	598	870	1180	1515	1875	2255	2655	3060	3475	3875	4270	4645	5005	5350	5680	5995	6300
Red (8)	288	583	955	1393	1888	2424	3000	3608	4248	4896	5560	6200	6832	7432	8008	8560	9088	9592	10080
Blocks	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
Mono (3.33)	120	243	398	580	786	1010	1251	1504	1768	2041	2316	2585	2846	3097	3337	3567	3787	3997	4200

- Very complex scoring system
- Score is give on picking up collectables
  - Amount depends on colour of the collectable

Source: [http://audiosurf.wikia.com/wiki/Puzzle\\_Scoring](http://audiosurf.wikia.com/wiki/Puzzle_Scoring)

## Meta game



- There is a leader board based meta game feature, similar to Audioshield, described above

Source: [http://store.steampowered.com/app/235800/Audiosurf\\_2/](http://store.steampowered.com/app/235800/Audiosurf_2/)

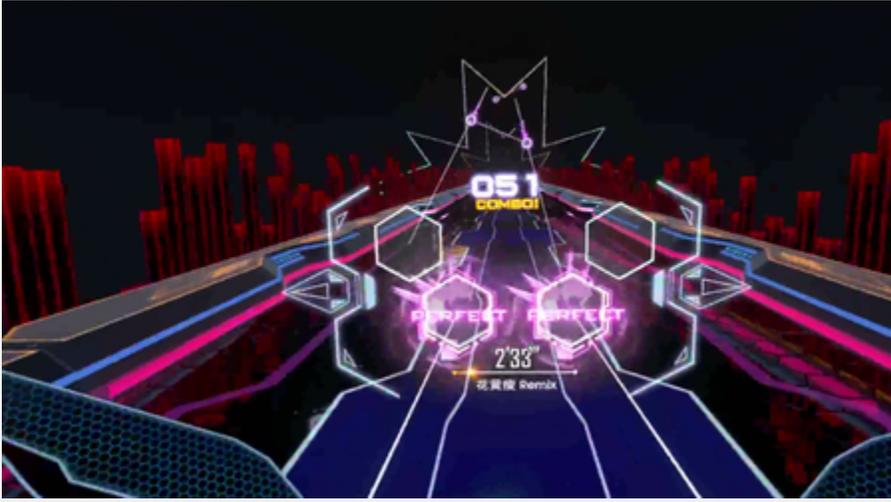
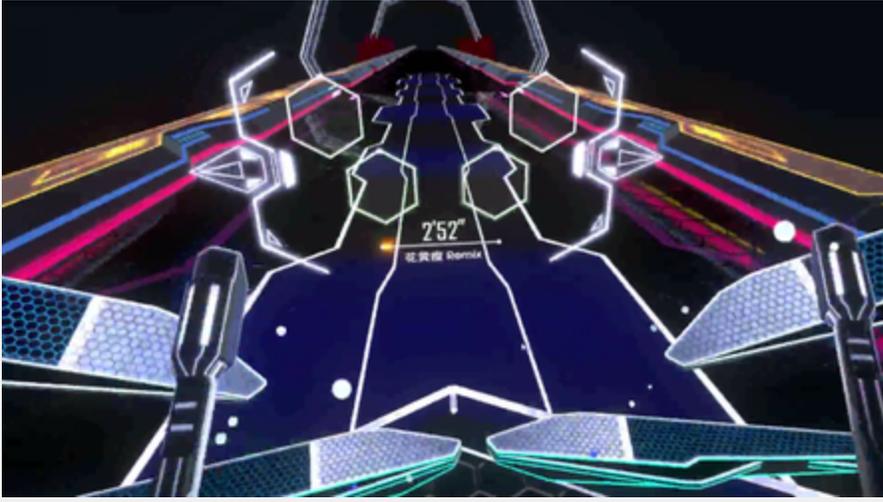
## Audio Beats

✓ [Click here for core analysis](#)

### Platform & Input

- PC
- HTC Vive with 360 motion tracking, headset and controllers
- VR only

### Core mechanic



- The player can choose a song from his library to play
- In this VR rhythm action game, the player must hit the right notes at the right times, using 4 platforms
- The 4 platforms are matched with 4 receivers where the beats arrive
- The player must hit the corresponding platform at the right time to receive score

**Designer Note**

- There is very small information about this game from mainly non-English sources due to its recent release on Steam (January, 2017).
- Personal research on this game was not possible to be completed due to the lack of the technical equipment.
- Areas of highlight is the connection between the platforms and the receivers. This is similar to our game's basic idea where using mixer platform to control the corresponding lights.