



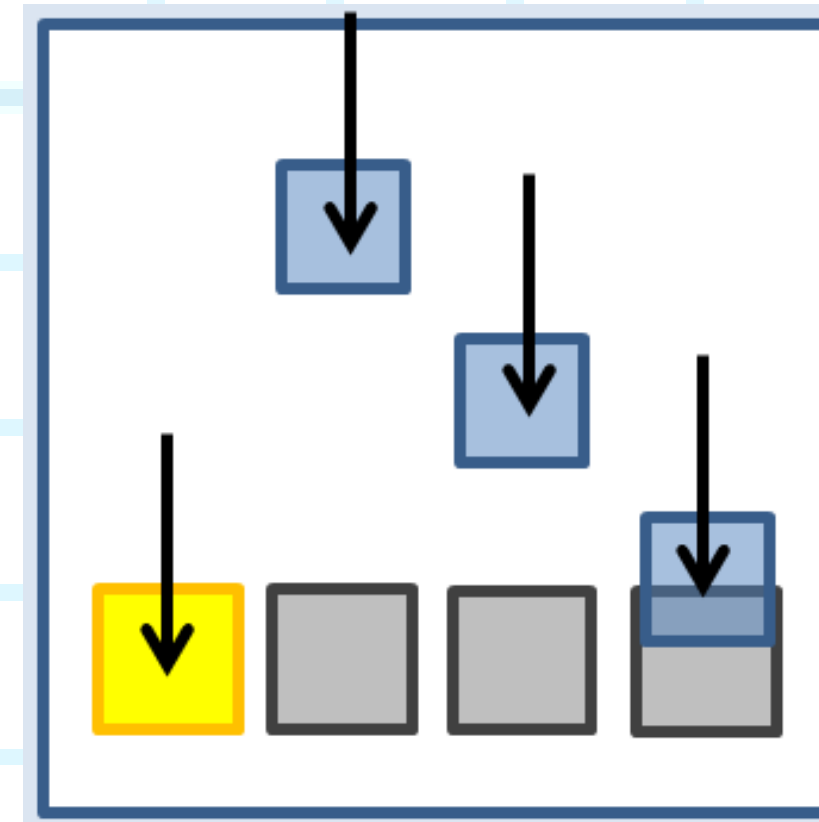
Designing Rhythm Game Interfaces for Touchscreen Devices

Philip Peng, Faculty Advisor: Stephen H. Lane

<http://beatsportable.com>

<https://play.google.com/store/apps/details?id=com.beatsportable.prototypes>

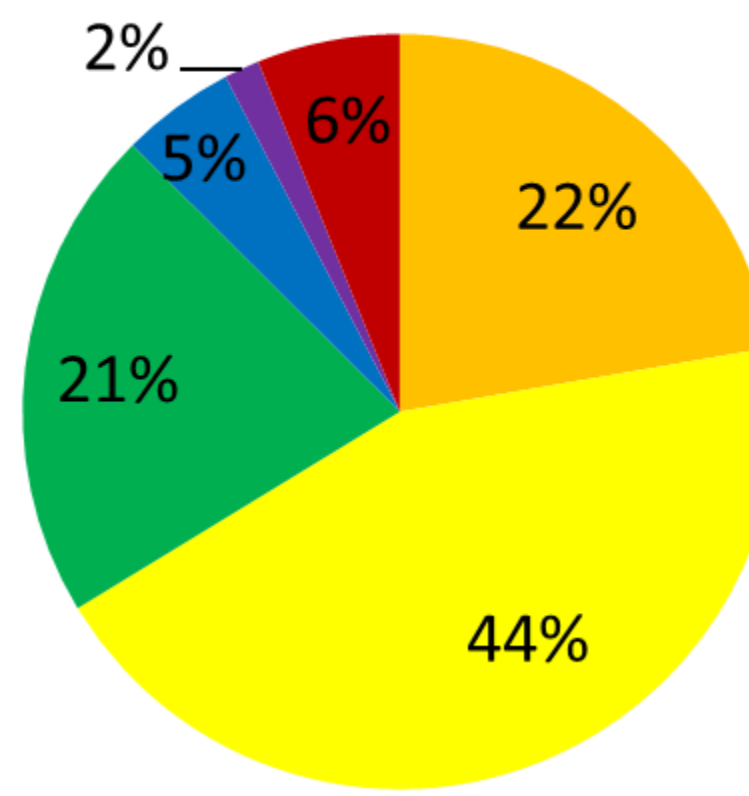
Design 1: Fall



Feedback:

Category	Ratings	Avg
Challenge	★★★★★	3.69
Intuitive	★★★★★	4.18
Fun	★★★★★	3.76
Unique	★★★★	2.43
Overall	★★★★	2.33

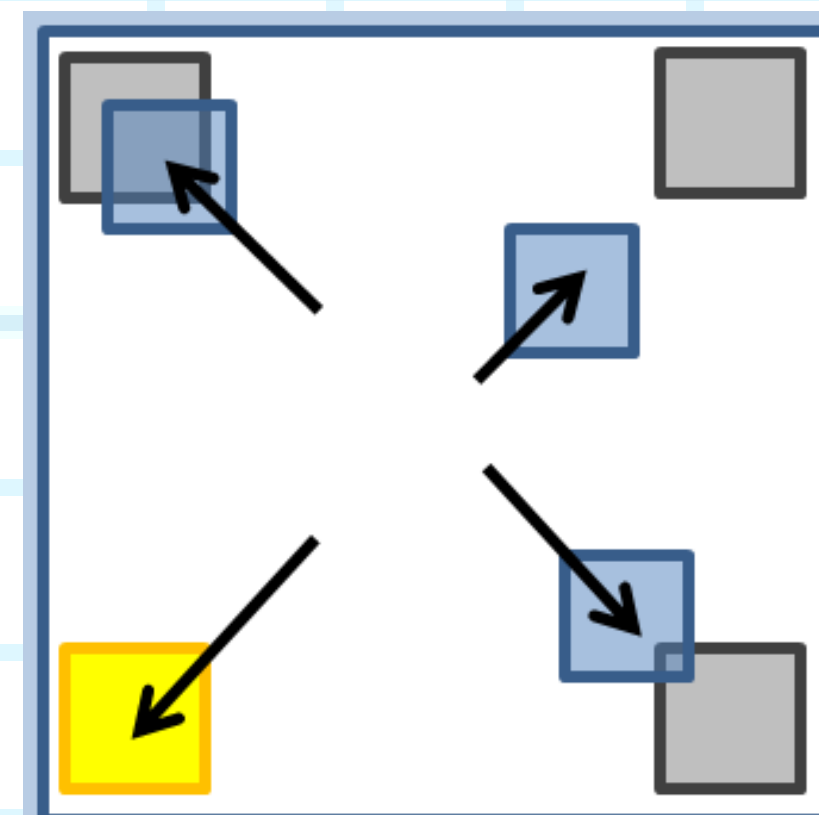
Timing Accuracy:



Moving notes fall toward fixed hitboxes from top to bottom

Rhythm Games: *Dance Dance Revolution, Guitar Hero, Beatmania IIDX*

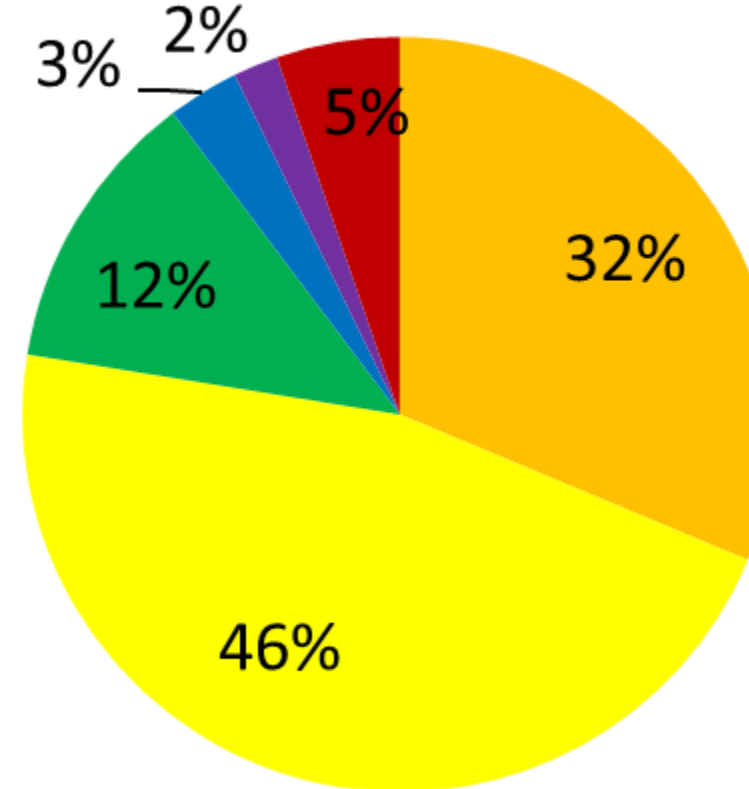
Design 2: Spread



Feedback:

Category	Ratings	Avg
Challenge	★★★★★	3.84
Intuitive	★★★★★	3.94
Fun	★★★★★	3.75
Unique	★★★★★	3.97
Overall	★★★★★	4.00

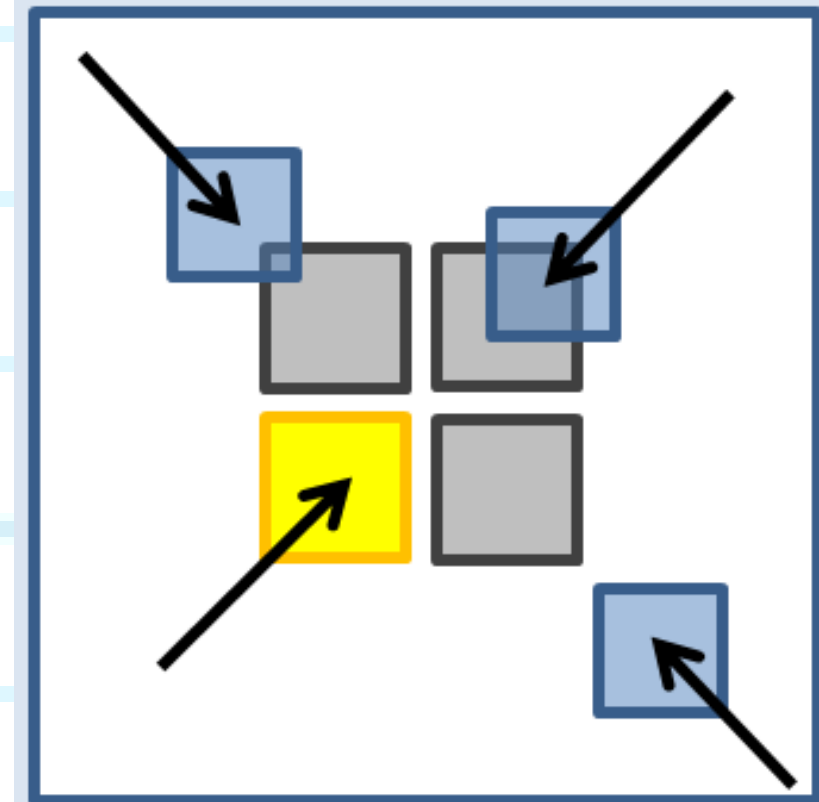
Timing Accuracy:



Moving notes slide toward fixed hitboxes from centre to corners

Rhythm Games: *none*

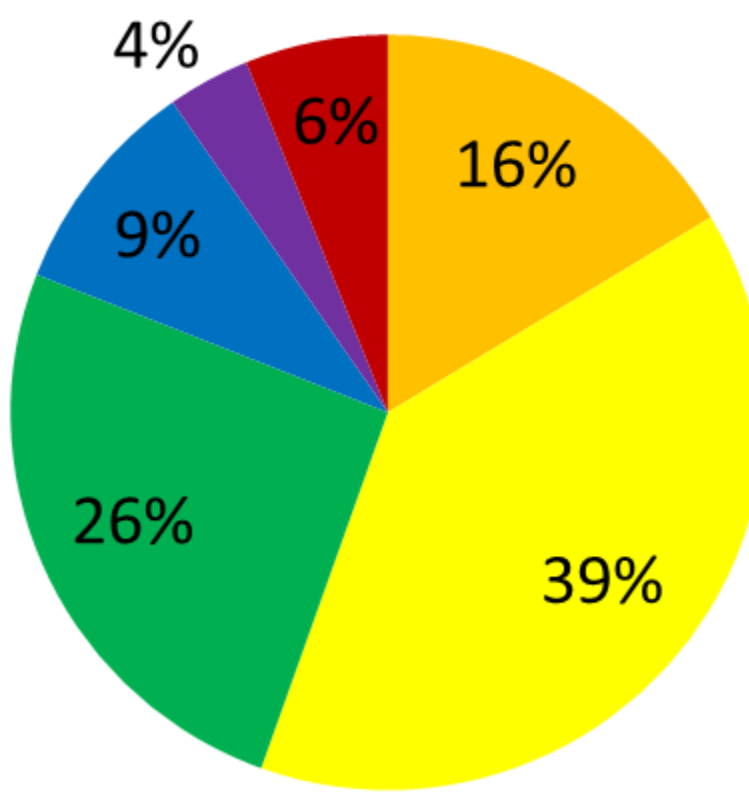
Design 3: Focus



Feedback:

Category	Ratings	Avg
Challenge	★★★★★	3.79
Intuitive	★★★★★	3.76
Fun	★★★★★	3.42
Unique	★★★★★	3.79
Overall	★★★★★	3.54

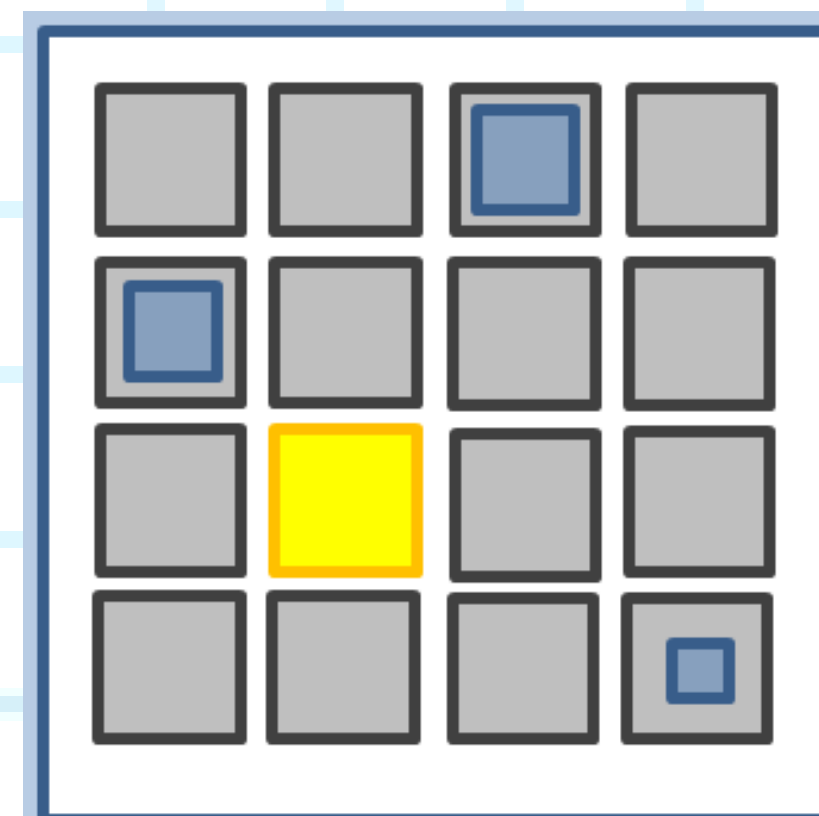
Timing Accuracy:



Moving notes slide toward fixed hitboxes from corners to centre

Rhythm Games: *Gitaroo Man Lives!, Hatsune Miku: Project DIVA*

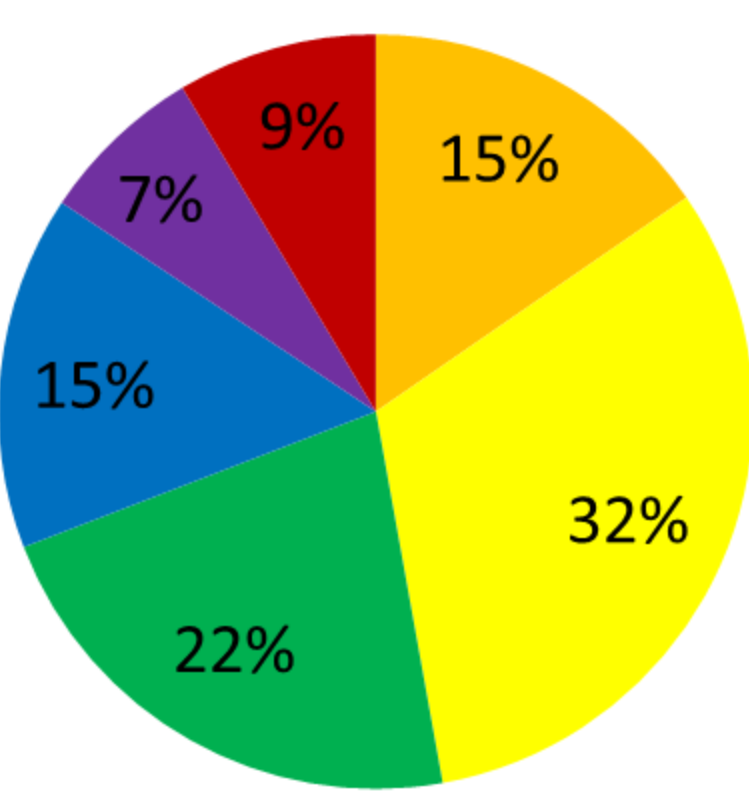
Design 4: Grid



Feedback:

Category	Ratings	Avg
Challenge	★★★★★	4.27
Intuitive	★★★★★	3.81
Fun	★★★★★	4.14
Unique	★★★★★	3.85
Overall	★★★★★	3.98

Timing Accuracy:



Expanding notes grow in fixed hitboxes at grid points

Rhythm Games: *jubeats*

Abstract:

This project focuses on comparing different touchscreen interface designs for rhythm games. This is accomplished through the development of "Beats2 Prototypes", a rhythm game for Android tablets, and analysis of collected gameplay data

Implementation:

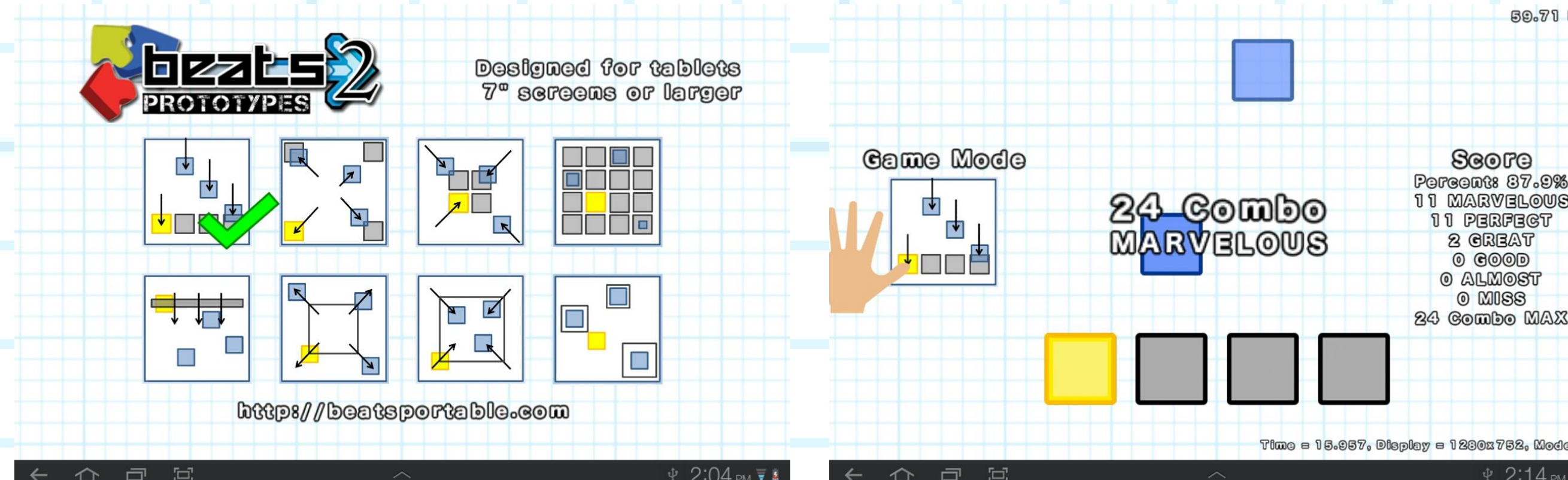


Fig 1. Screenshot of mode selection

Fig 2. Screenshot of gameplay

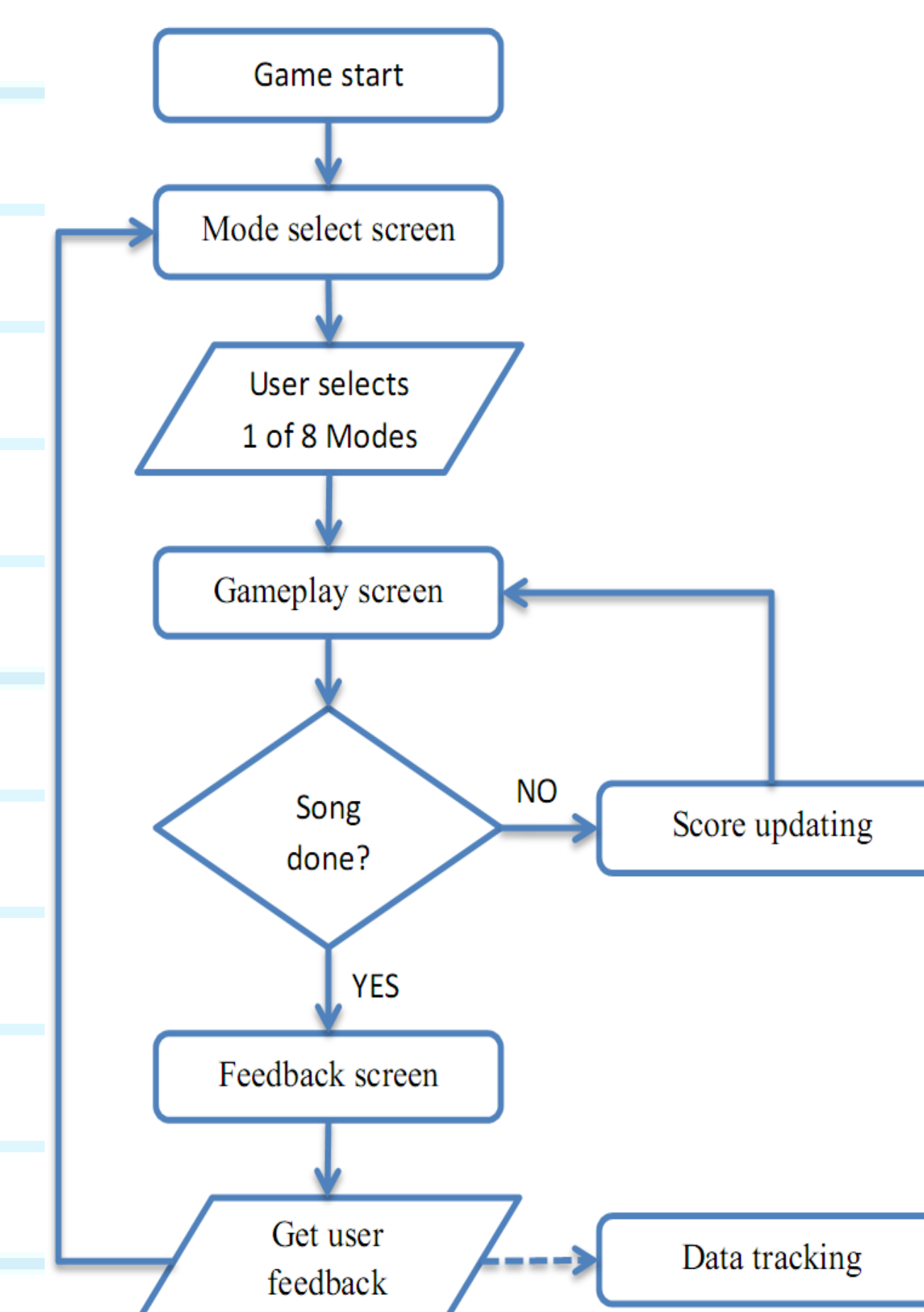


Fig 3. App gameflow diagram



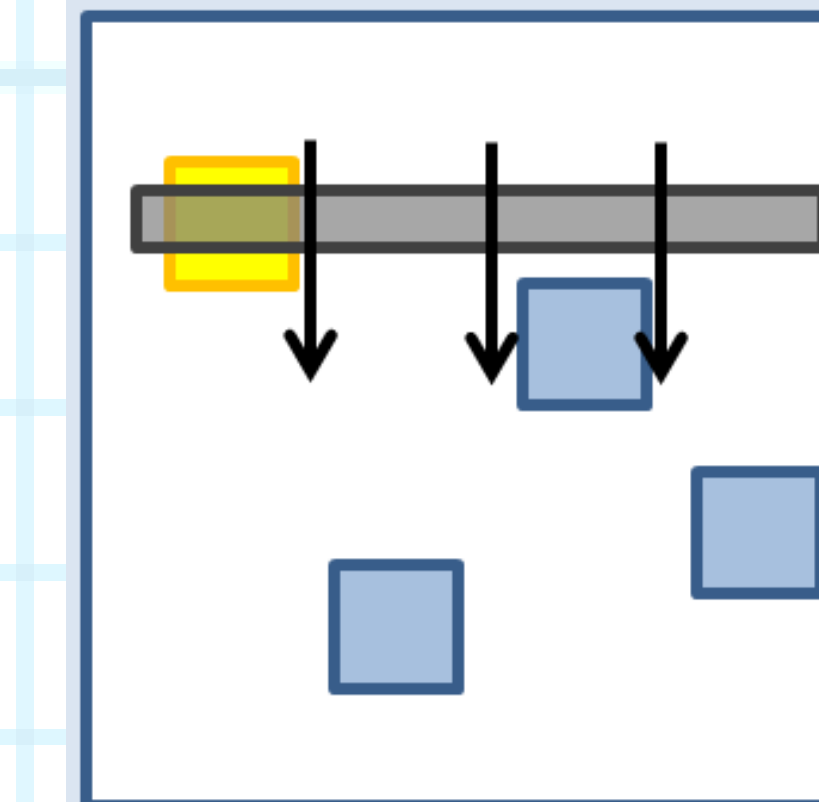
Fig 4. Timing accuracy chart

Results:

Using collected data on accuracy charts and feedback ratings, the following relative ratings of each rhythm game mode were concluded:

Mode	Timing Accuracy	Game Enjoyability
#1: Falling Notes	Great	Poor
#2: Spreading Notes	Great	Great
#3: Focusing Notes	Good	Poor
#4: Grid	Poor	Great
#5: Sliding Hitbox	Good	Good
#6: Expanding Hitbox	Bad	Bad
#7: Collapsing Hitbox	Bad	Bad
#8: Appearing	Poor	Great

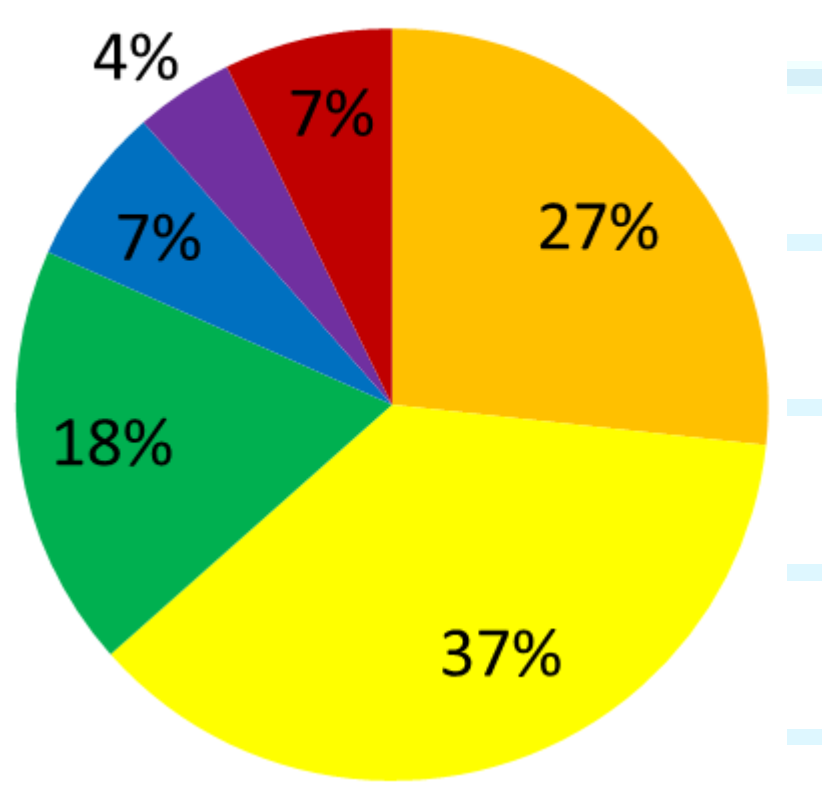
Design 5: Slide



Feedback:

Category	Ratings	Avg
Challenge	★★★★★	4.39
Intuitive	★★★★★	3.50
Fun	★★★★★	4.07
Unique	★★★★★	4.10
Overall	★★★★★	3.80

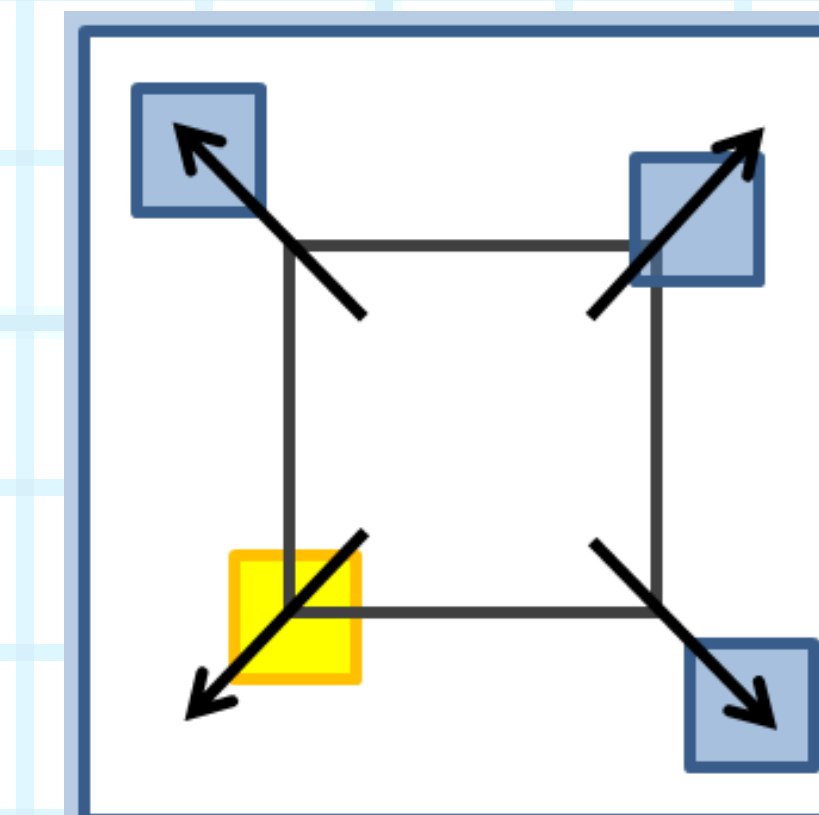
Timing Accuracy:



Moving hitbox fall toward fixed notes appearing from top to bottom

Rhythm Games: *DJMax Technika*

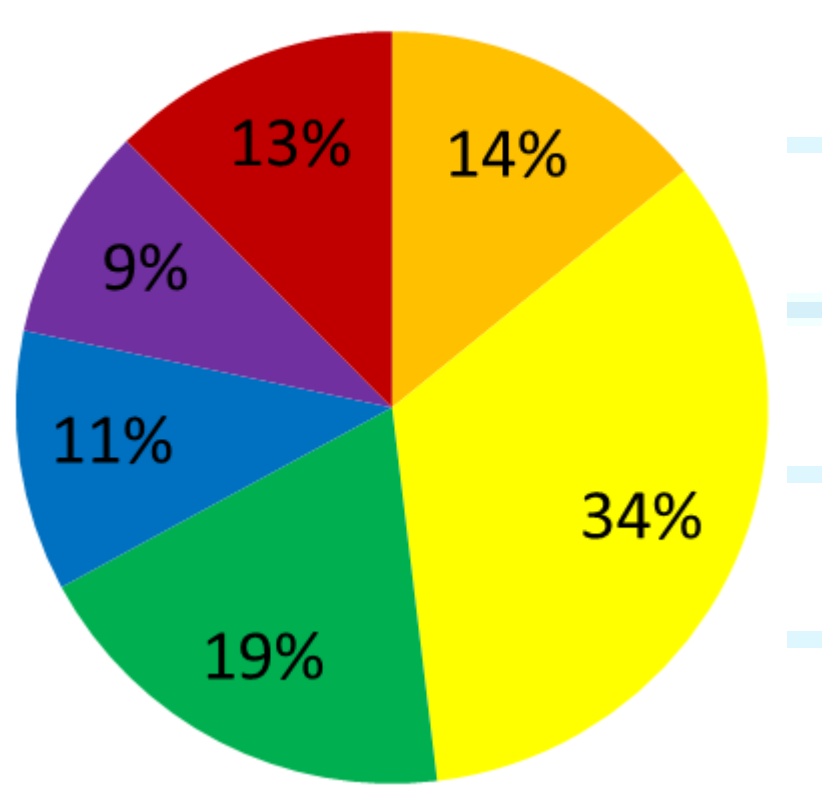
Design 6: Expand



Feedback:

Category	Ratings	Avg
Challenge	★★★★★	4.56
Intuitive	★★★★	2.84
Fun	★★★★★	3.36
Unique	★★★★★	4.54
Overall	★★★★★	3.41

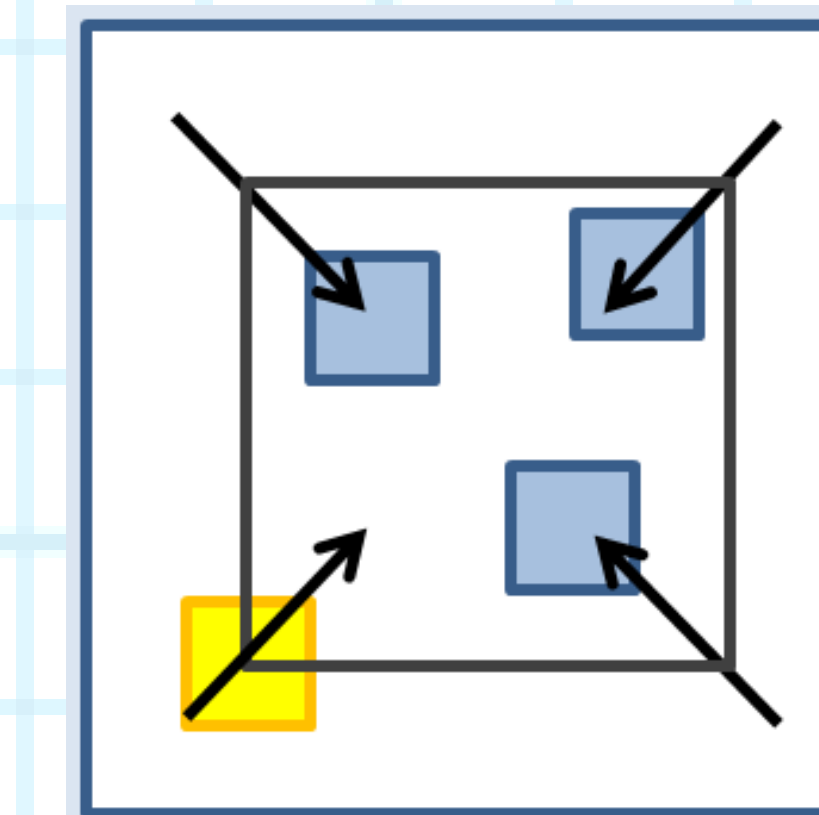
Timing Accuracy:



Expanding hitbox grows toward fixed notes from centre to corners

Rhythm Games: *none*

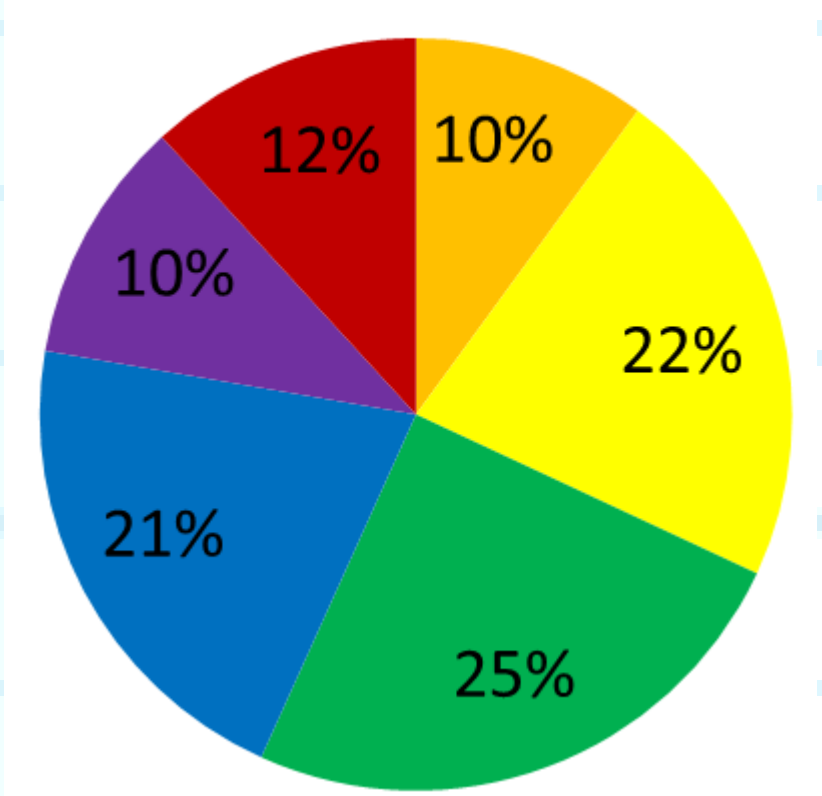
Design 7: Collapse



Feedback:

Category	Ratings	Avg
Challenge	★★★★★	4.26
Intuitive	★★★★	2.65
Fun	★★★★★	3.04
Unique	★★★★★	4.18
Overall	★★★★★	3.23

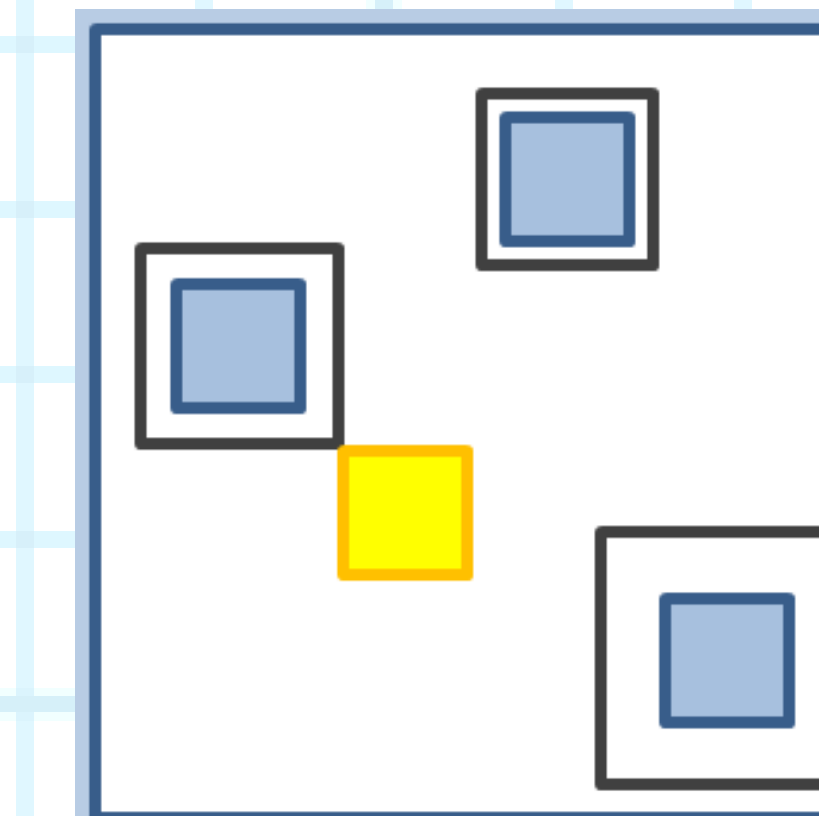
Timing Accuracy:



Collapsing hitbox shrink toward fixed notes from corners to centre

Rhythm Games: *none*

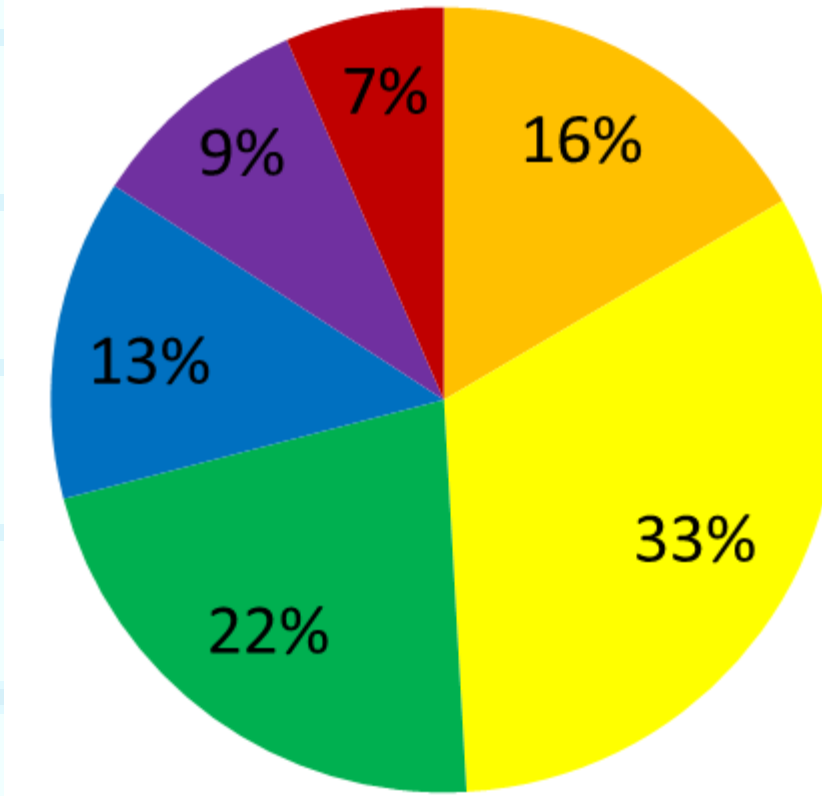
Design 8: Appears



Feedback:

Category	Ratings	Avg
Challenge	★★★★★	3.93
Intuitive	★★★★★	4.13
Fun	★★★★★	4.33
Unique	★★★★★	4.02
Overall	★★★★★	4.20

Timing Accuracy:



Collapsing hitboxes shrink around fixed notes appearing at grid points

Rhythm Games: *osu! Tatakae! Ouendan!*

