

OCULAR ENTERTAINMENT SUITE
MYEPLAY

CORE AUDIENCE & CUSTOMER

LOCKED-IN SYNDROME & BOB

- Paralyzed from the eye down
- Limited use of eyes
- Still hear and be cognizant of the world around them



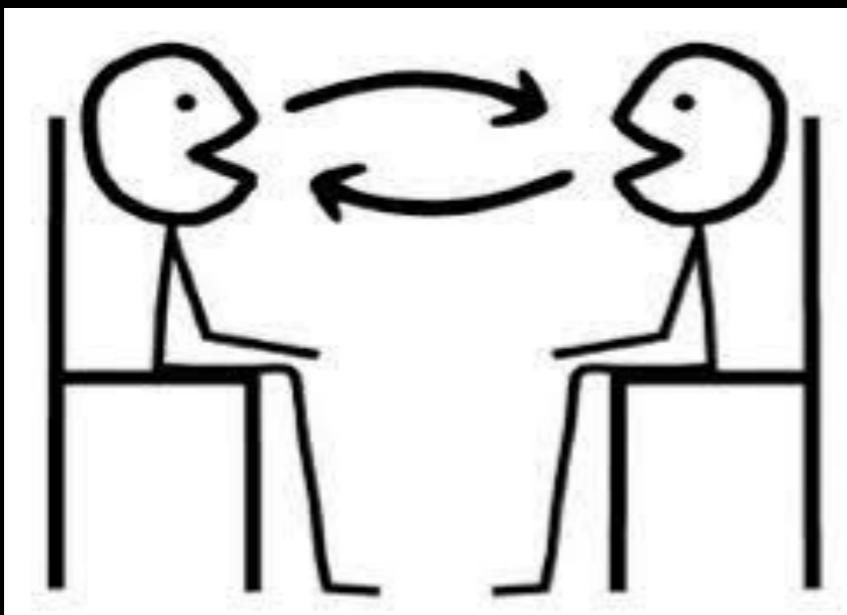
Bob and Bonnie Veillette pose for a photograph at home in Naugatuck, Conn., Friday, Jan. 11, 2008

PROBLEMS OF L.I.S. COMMUNICATION

How can you convey
your thoughts to
others?

AND

How can you interact
with your friends or
family?



PROBLEMS OF L.I.S.

ENTERTAINMENT

THE BATTLE
AGAINST BOREDOM

CONTINUES...

...CONTINUES

Imagine sitting in a chair
for hours not being able
to do anything fun...



WHY IS THIS STILL A PROBLEM?



A	B	C	D	End of word	
E	F	G	H	End of sentence	
I	J	K	L	M	N
O	P	Q	R	S	T
U	V	W	X	Y	Z
ñ	â	â	â	â	â
ó	â	â	â	â	â

- Bob's case is more severe than typical L.I.S. patients
 - Involuntary eye flutter
 - Limited-to-no vertical movement
- Other solutions focus on communication. Not much on interaction or entertainment.

OUR VISION



To help Bob:

- Experience Comfort
- Enjoy Fun Interaction
- Endulge in Pastimes

CORE CONCEPTS

USER PLATFORM

MEDIA PLAYER

GAMES

ORGANIZATION

I. TEAM & PRODUCT RISKS

II. SOFTWARE PROCESS

III. REQUIREMENTS, METHODS, OUTCOMES

IV. ADDRESSING THE PROBLEM

V. SOFTWARE ARCHITECTURE

VI. DEMOS & CONCLUSION

TEAM AND PRODUCT RISKS

Team Risks

- Difficult Schedules
- 9-member team
- Inadequate skillsets

Mitigation

- Constant Communication
- Complementary sub-teams
- Single programming language

Product Risks

- Does not meet requirements
- Incomplete features
- Unintuitive UI

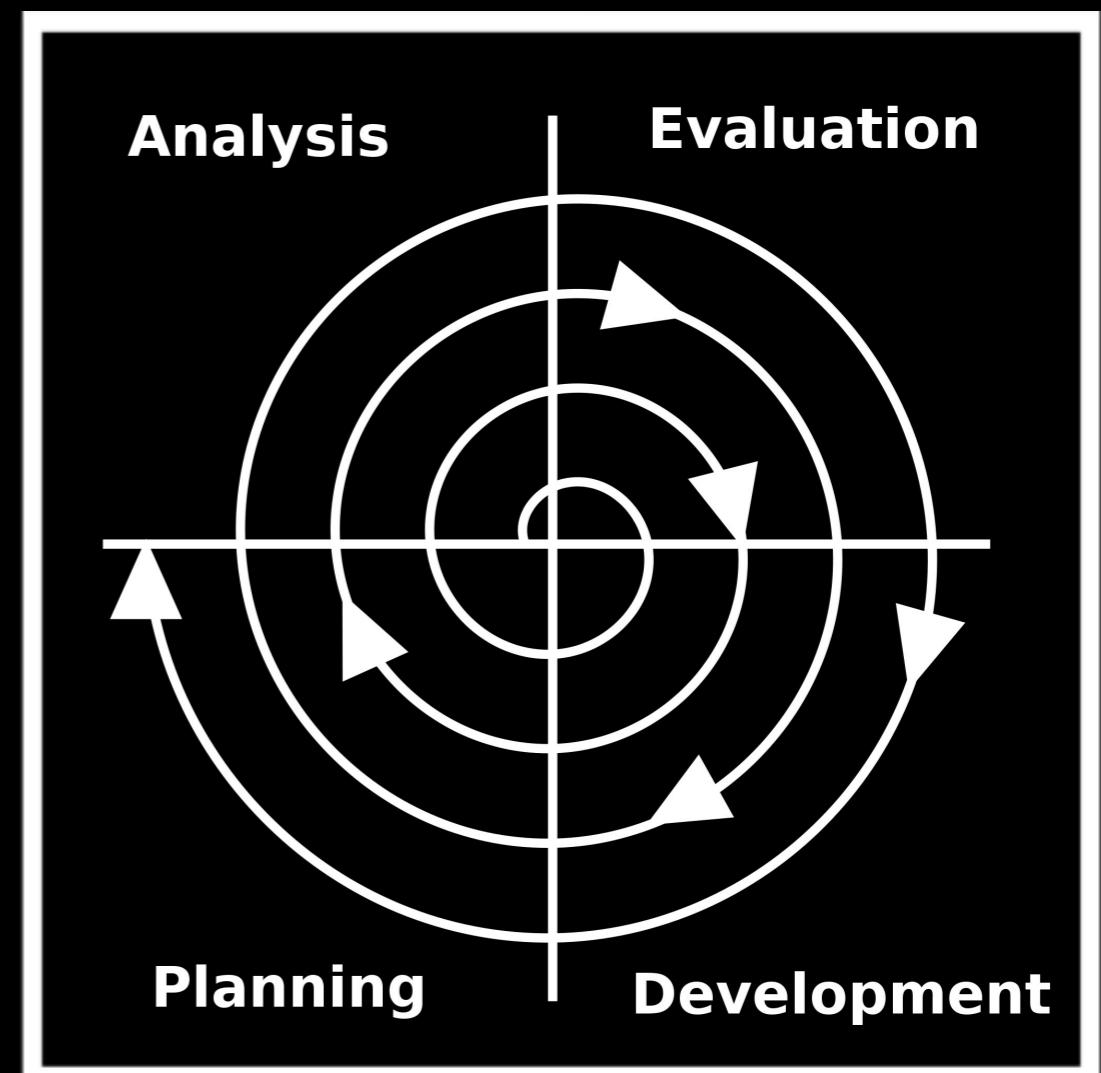
Mitigation

- Communication with professor
- Spiral development, sub-teams
- Standard UI elements

SOFTWARE PROCESS

SPIRAL DEVELOPMENT MODEL

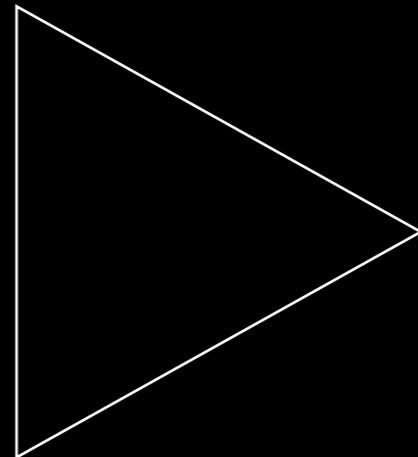
- Analyze, Evaluate, Develop, Plan
- Weekly project meetings
- Regular Updates via Slack
- Working code at all times



REQUIREMENTS, METHODS, AND OUTCOMES

REQUIREMENTS

- Intuitive
- Interactive
- Usable



OUTCOMES

- Rotating Interface
- Games & Media
- Vertical Controls

METHODS

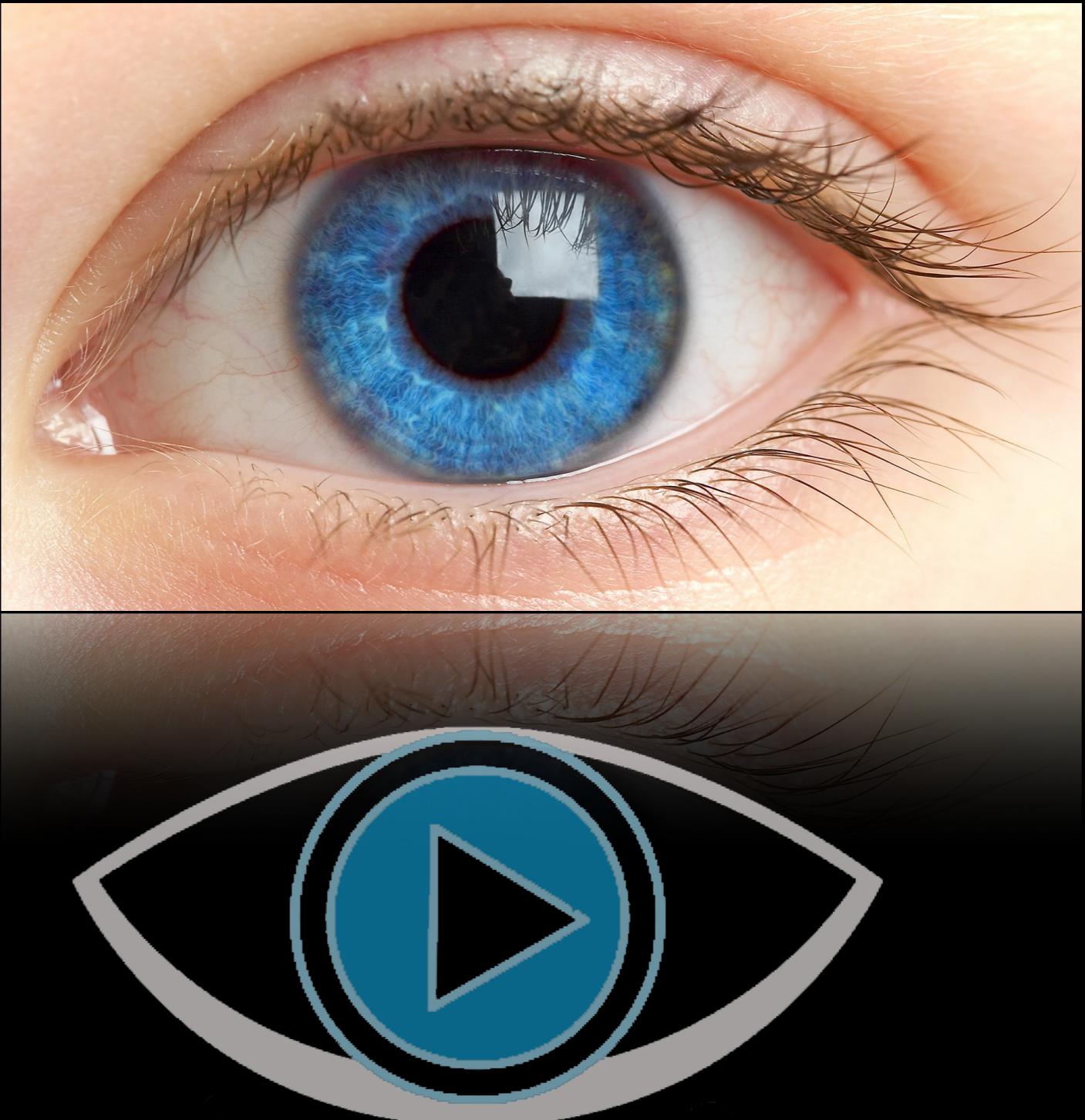
- Spiral Development
- Parallel Development
- Divide and Conquer

PRODUCT AND KEY QUALITIES

- *MyePlay* is an entire application suite as opposed to only having a singular function.
- It is custom-tailored for Bob and his case of L.I.S.
- Vertical-only controls allow for familiar controls.
- Games are multiplayer for interactive fun his with loved ones.
- Videos in custom YouTube channel are geared towards Bob's interests.

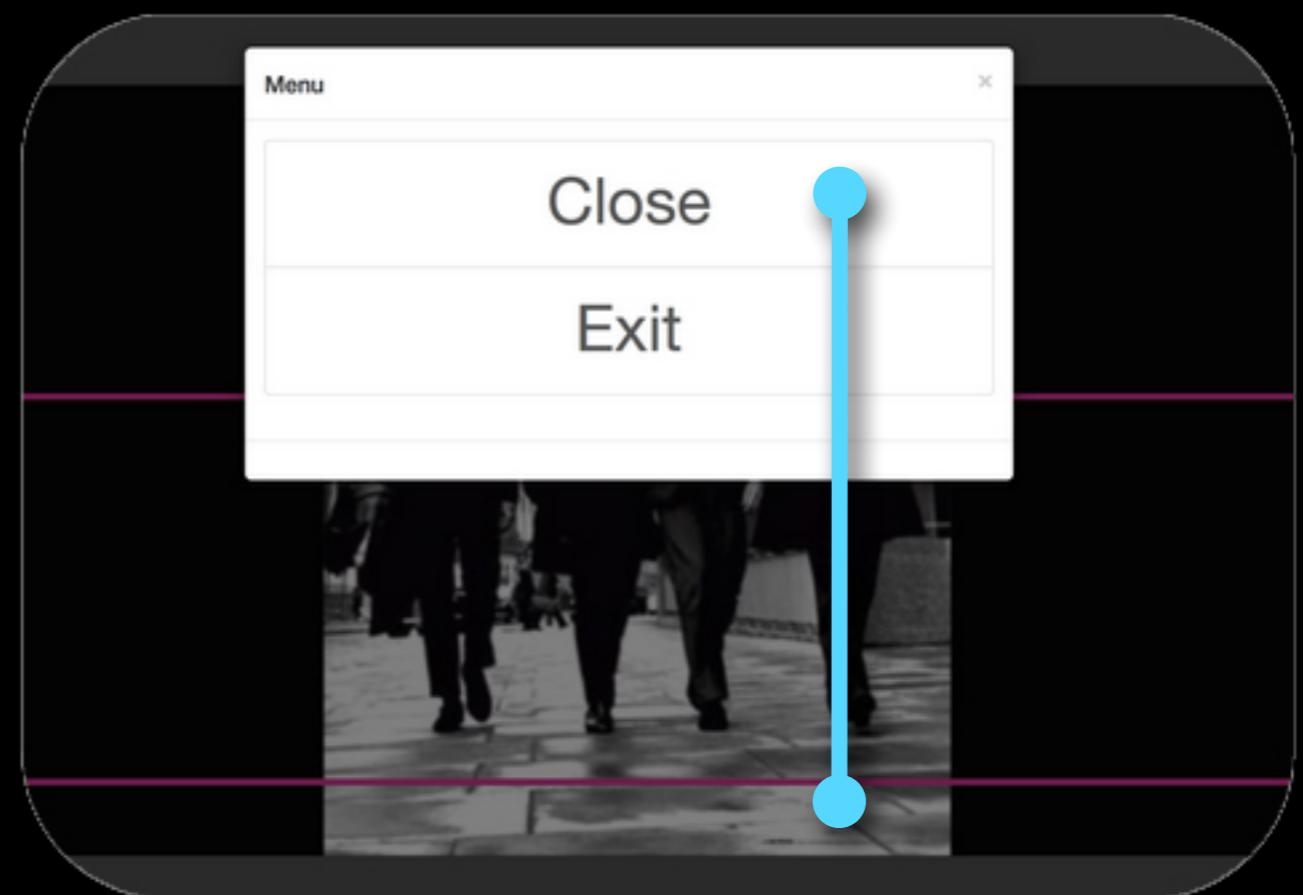
THE PEOPLE PROBLEM

- Bob is the "people."
- L.I.S. is the "problem."
- *MyePlay* is designed to specifically address Bob and his condition.



THE PEOPLE PROBLEM (CONT.)

- Bob's case of L.I.S. only allows for vertical eye movement.
- *MyePlay*, and its controls, are designed to work purely vertically.



THE PEOPLE PROBLEM (CONT.)

- Bob has a hard time interacting with people and accessing entertainment.
- *MyePlay* has multiplayer games for unspoken human interaction,
- and easy-access entertainment through a custom **YouTube** channel.



TECHNICAL CHALLENGES

LIMITATIONS

Eye-Tribe Accuracy

Eye-Tribe & the Internet

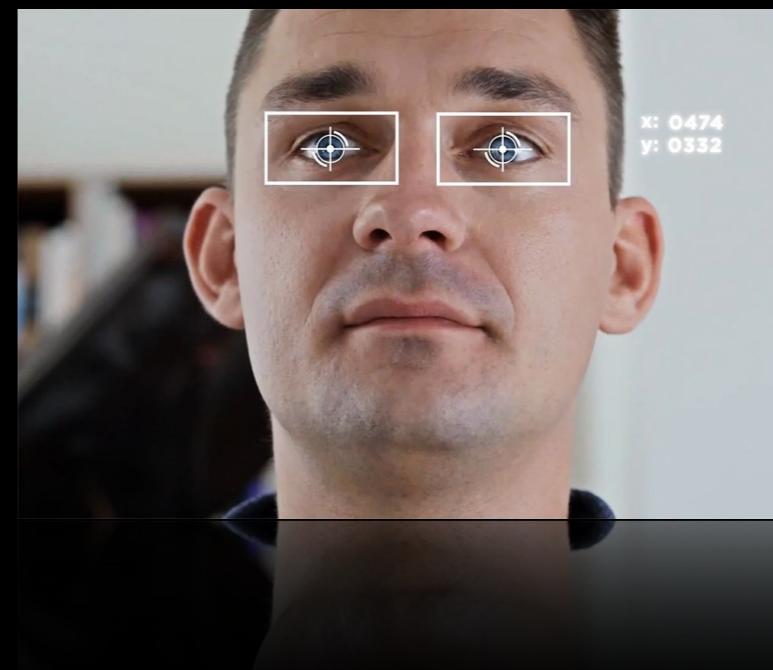
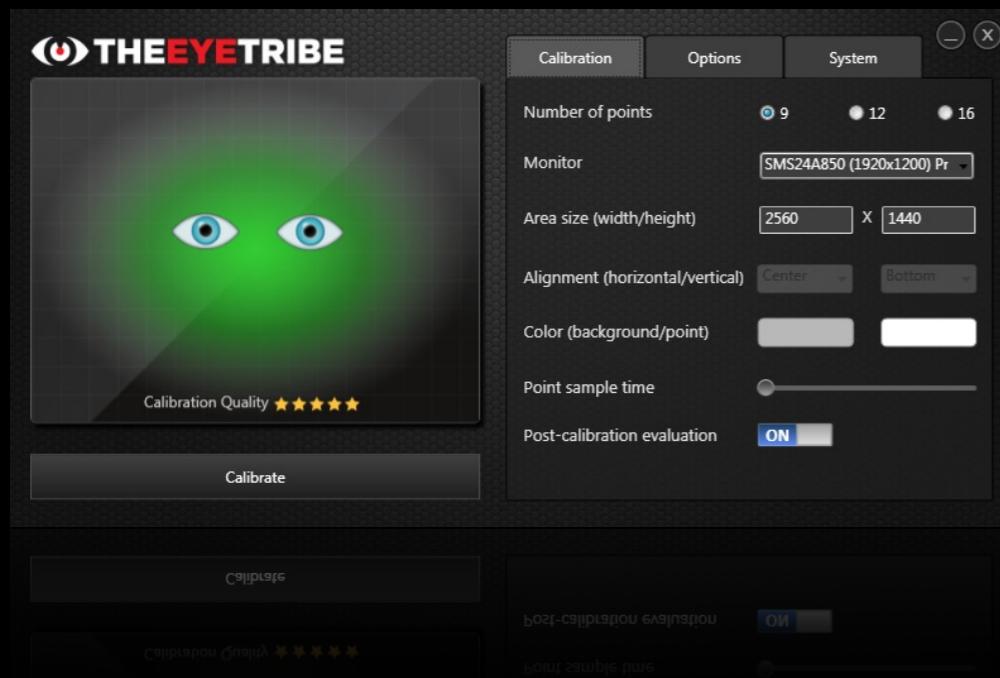
Movement Limitations

MITIGATION

Error correction algorithm

Web Technologies

Event-based Controls



SOFTWARE ARCHITECTURE

EQUIPMENT

EyeTribe

LANGUAGES

Javascript, HTML, CSS

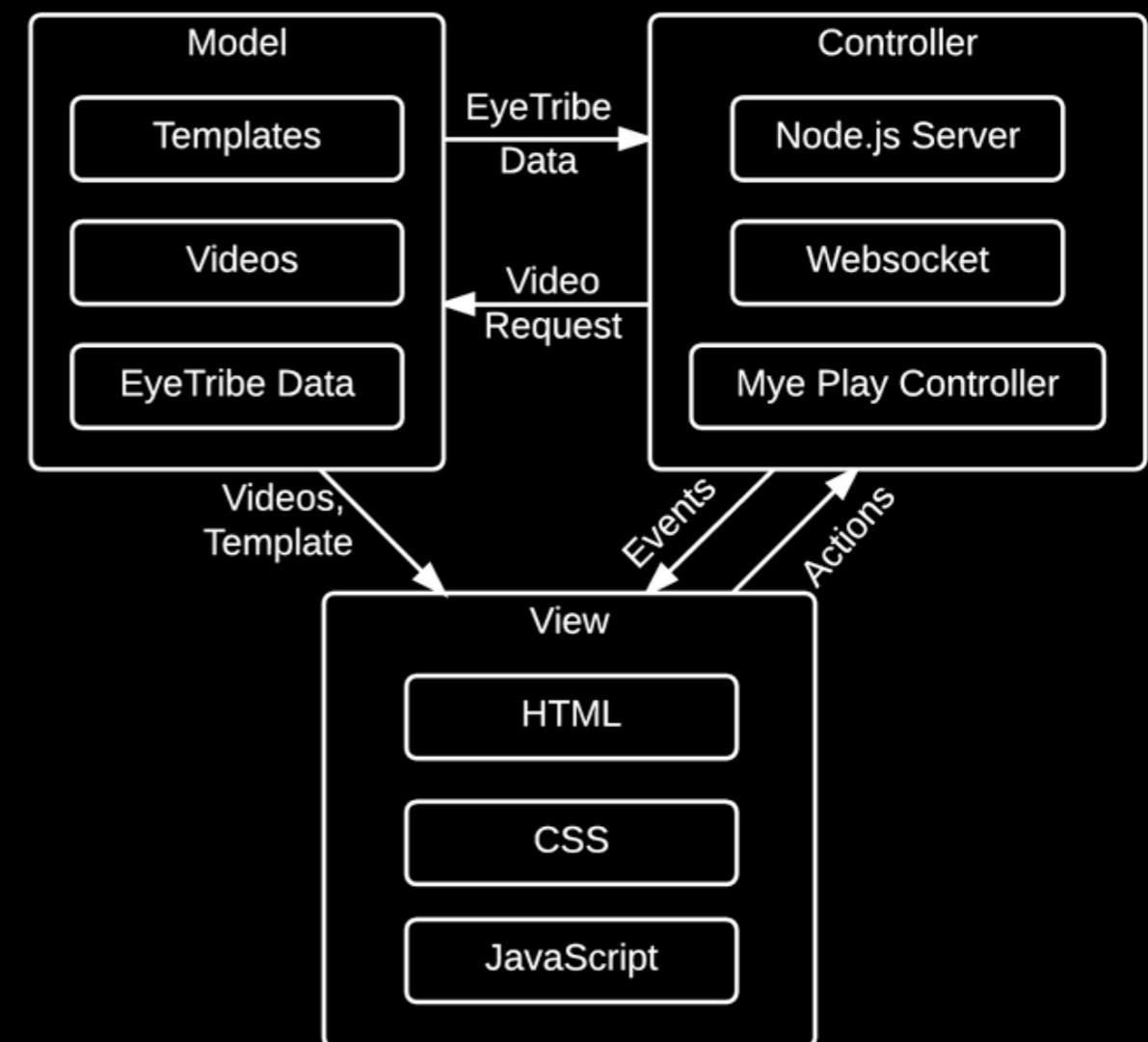
FRAMEWORKS

JQuery, NodeJS, Bootstrap

PROJECT MANAGEMENT

Slack, Asana, BitBucket

MYEPLAY MVC ARCHITECTURE

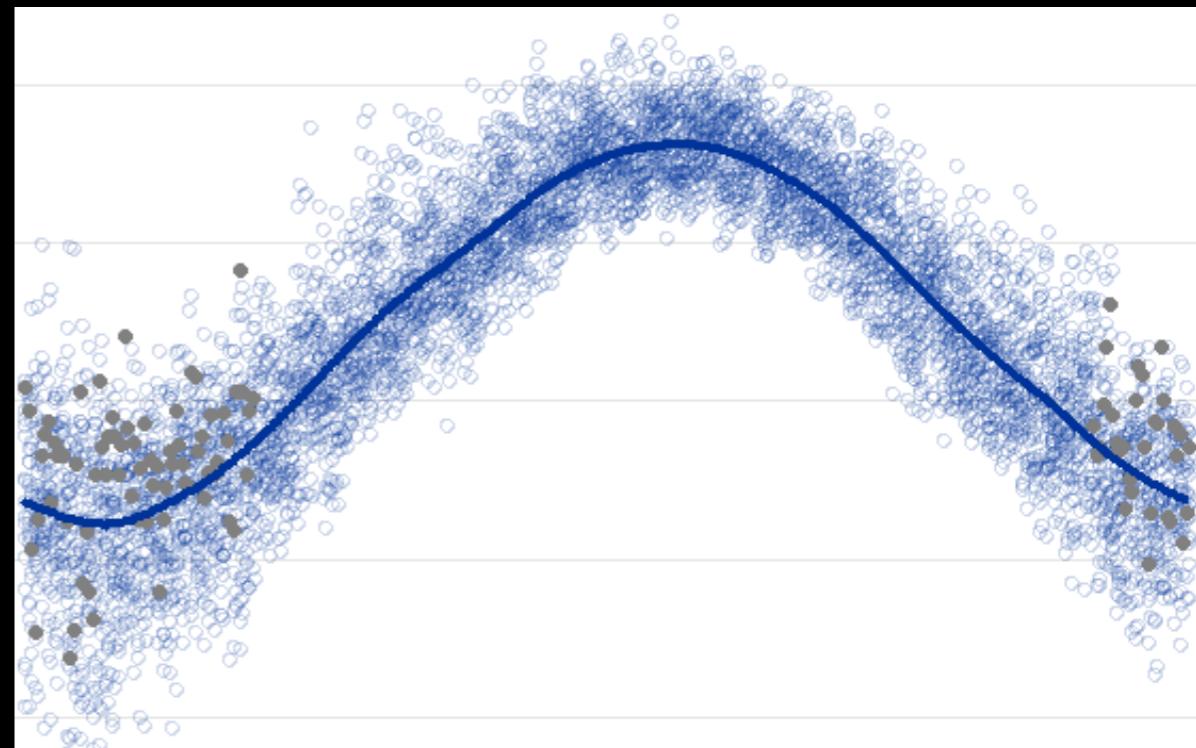


SYSTEM DESCRIPTION

SMOOTHING ALGORITHM

- Moving average filter
- Scaling formula
- OUT = Scaled Output
- IN = Raw Input
- ET = Eye Tracker Coordinate (MIN / MAX)
- S = Screen Coordinate (MAX / MIN)
- CSS webkit translation

$$OUT = \frac{(IN - ET_{MIN} + S_{MIN}) * S_{MAX}}{ET_{MAX} - ET_{MIN} + S_{MIN}}$$



SYSTEM DESCRIPTION

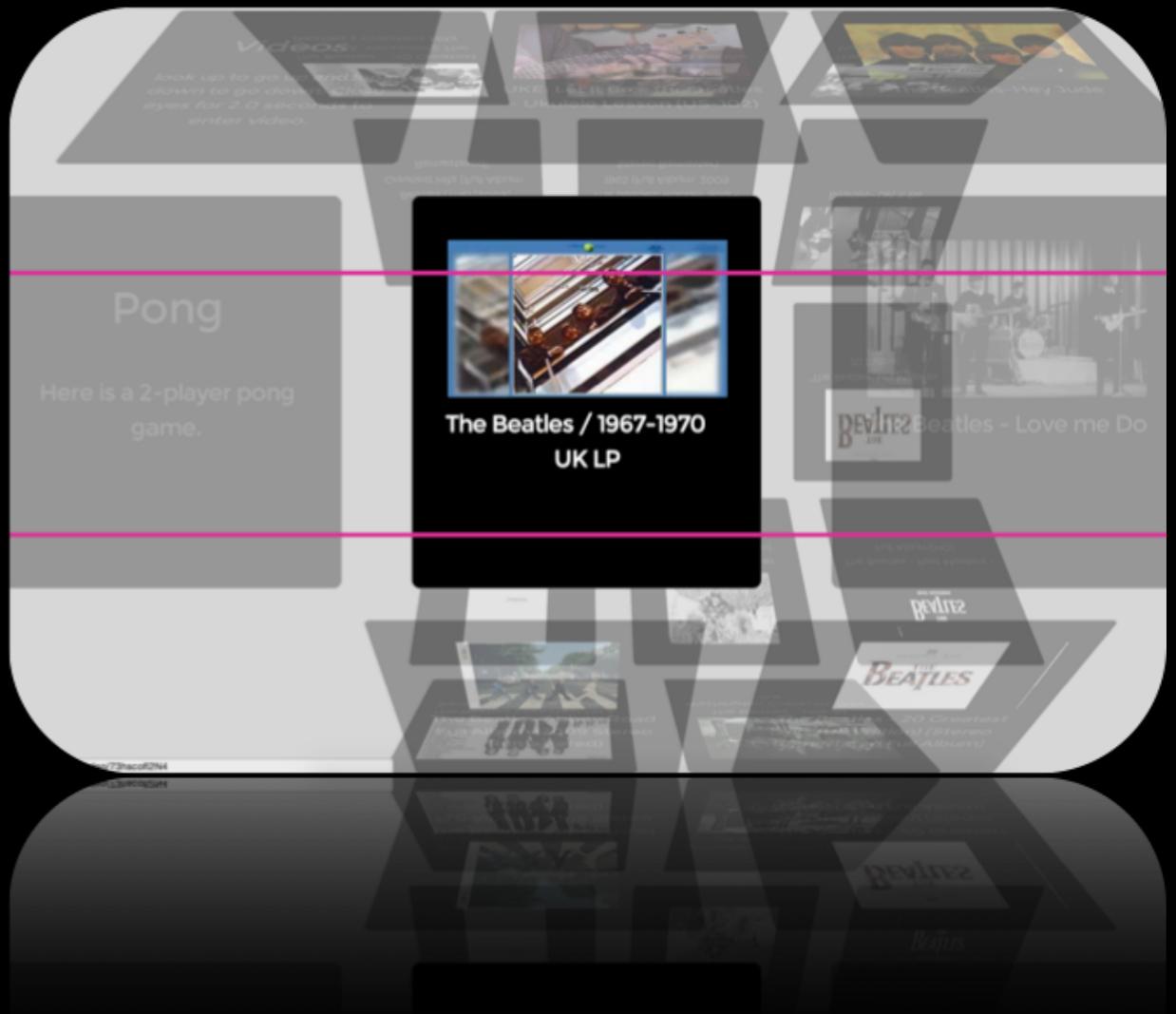
EVENT-BASED CONTROL

- Create custom events in Javascript, Ex:
 - "myeplay-stream-up"
 - "myeplay-down"
 - "myeplay-close"
- Streaming vs Singular events



SYSTEM DESCRIPTION PLATFORM

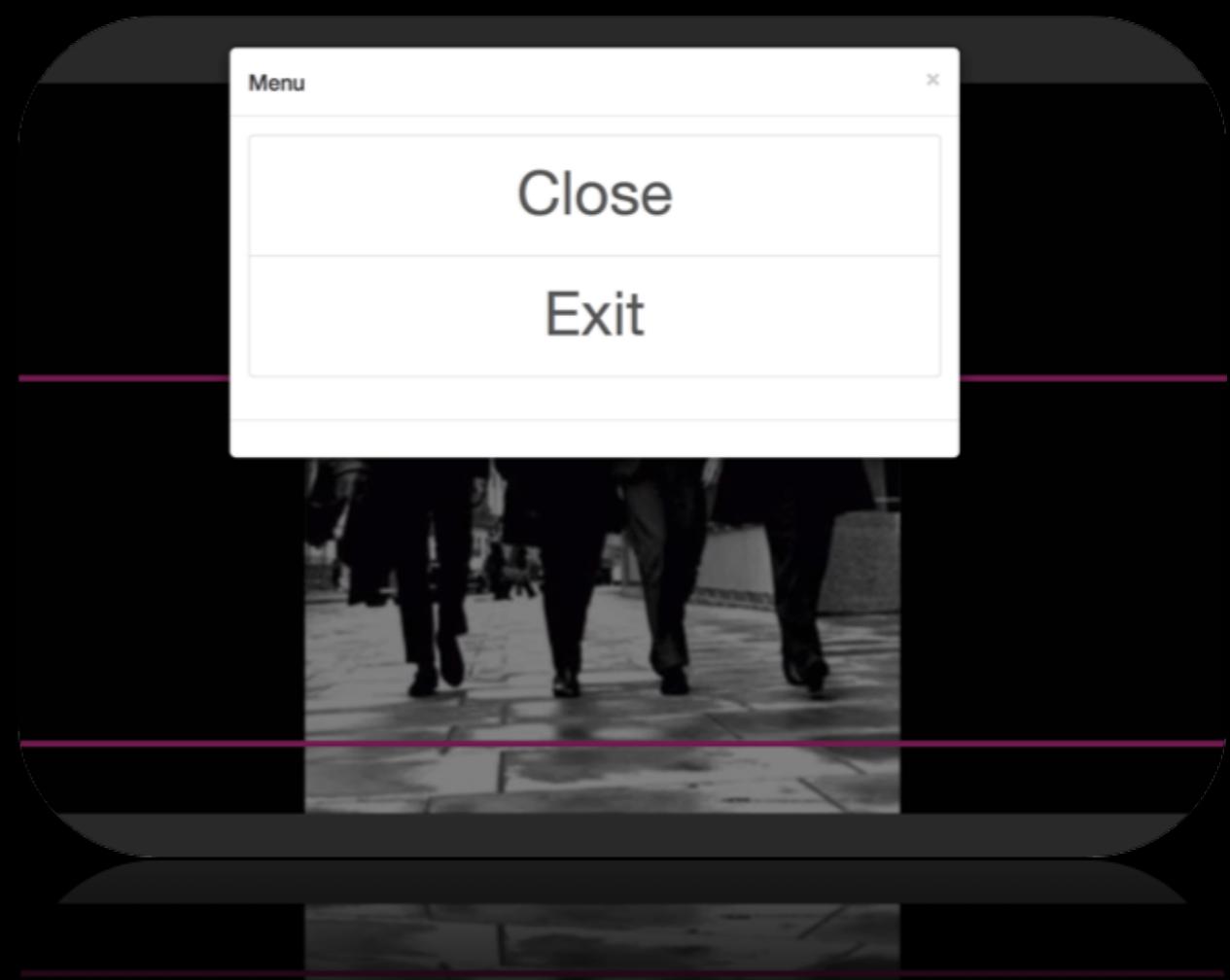
- Rotating infinite interface
- Controls: Up, Down, Close
- Multiple tiles constantly visible
- Threshold bars for feedback
- White cursor for feedback



SYSTEM DESCRIPTION

MEDIA PLAYER

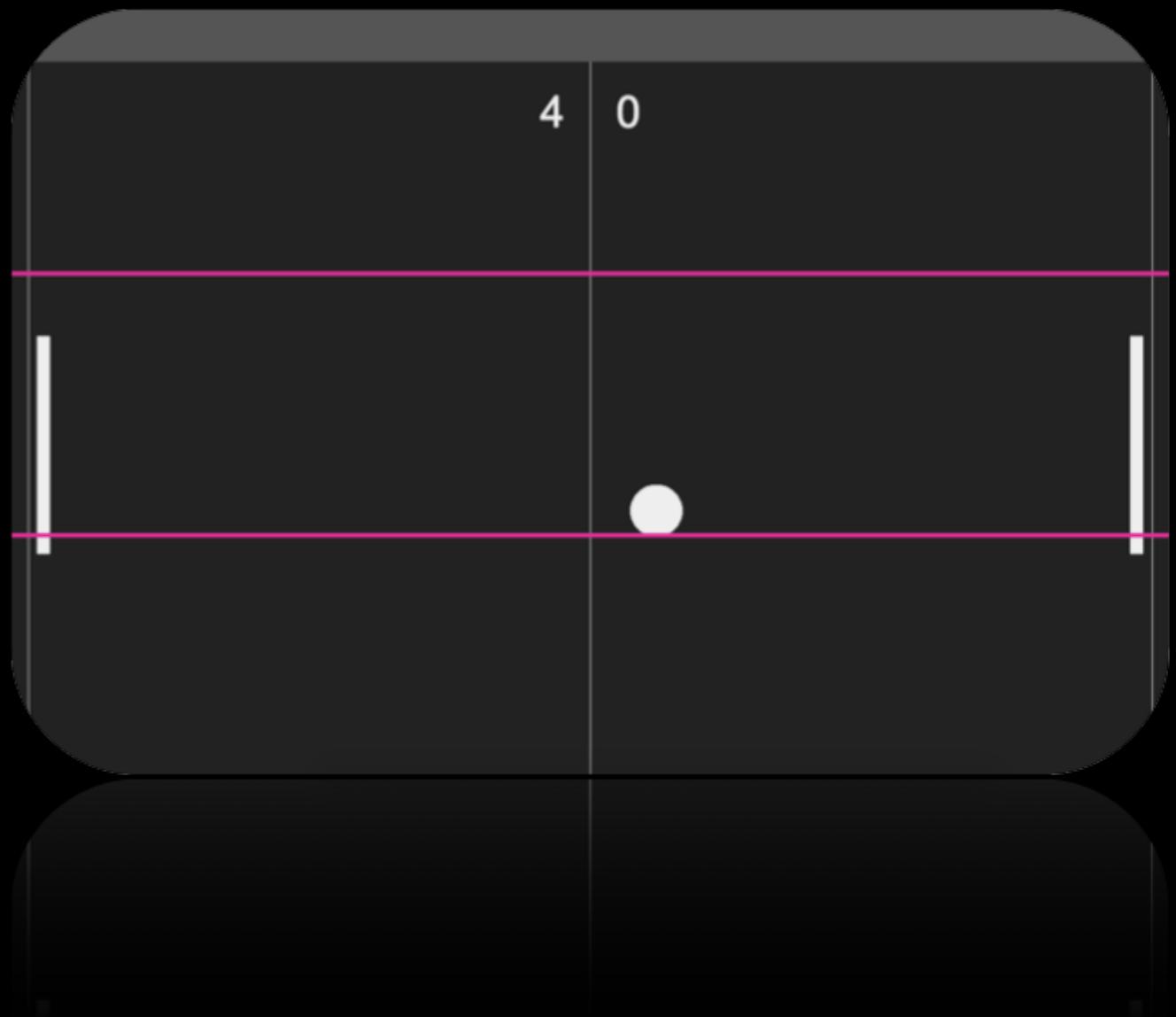
- YouTube API
- Custom Video Channel
- Navigation via Modal
- Actions
 - Play, Pause, Close, Exit



SYSTEM DESCRIPTION

GAMES

- Simple, first video game
- Vertical movement
- Variable difficulty
- Multiplayer
- First game for now is Pong



DEMO OF A USER SCENARIO

POST-MORTEM

RISKS

Project Risks

- Large team
- Coordinating schedules
- Inadequate skills

Missed Risks

- Merge conflicts
- Task distribution vs flexibility
- User Interface Design

```
1 <<<<< HEAD
2
3 Here is the original change.
4 =====
5 Here is the modified change.
6 >>>>> 58326c301d09b58f3ac23d616e73f7b478424cc5
7
```

POST-MORTEM

REFLECTION

What went well?

- Identifying team skills
 - Task distribution
 - Spiral development model

What could be done better?

- User interface design
 - Eye tracking control
 - More games

What would we do differently?

- Define API's in advance
 - Avoid too many features



LESSONS LEARNED

- Less is more
- Resource management
- Expect the unexpected

Thank you for your attention,
and we hope to see you around!

-THE TEAM AT MYEPLAY



EXCLUSIVE BEHIND-THE-SCENES CONTENT

EXTRA SLIDES
JUST IN CASE

PRODUCT AND KEY QUALITIES

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down to go down. Close eyes for 2.0 seconds to enter video.

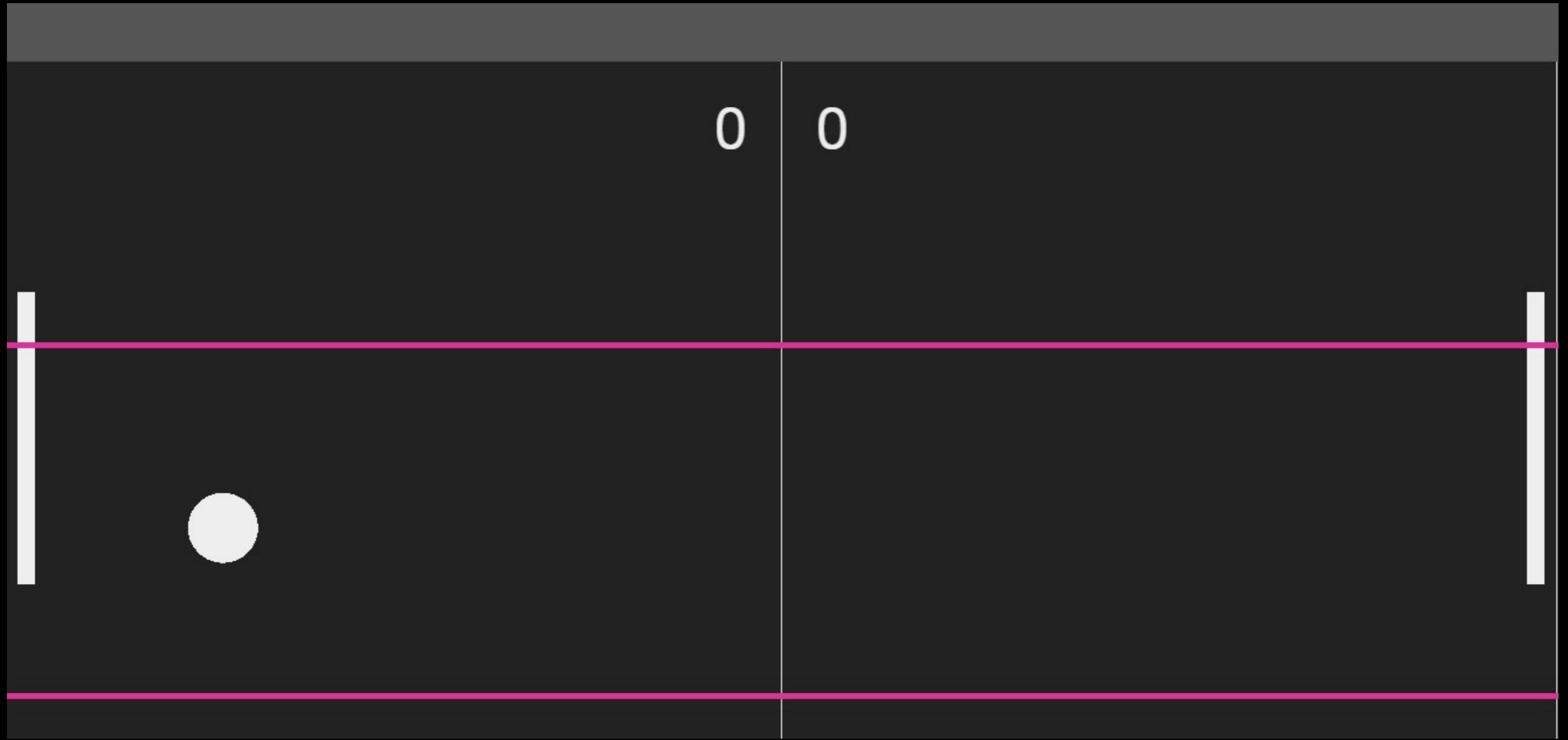
Send a file

To send this video to [REDACTED]

[REDACTED] OS [Send a file]

Pong

Here is a 2-player pong game.



0.9

1 0



The Beatles - Don't Let Me Down

EVE

After a mid-call, how many new
JAR AVI - Set the Beat art

Videos

look up to go up and look
down to go down. Close
eyes for 2.0 seconds to
enter video.

Pong

Here is a 2-player pong



[The Beatles] 20 Greatest
Hits US Version the best of
the beatles

1.2

20

GREATEST HITS

THE
BEATLES

Menu

X

Resume

Exit

