BillAR
Augmented reality game on a pool board

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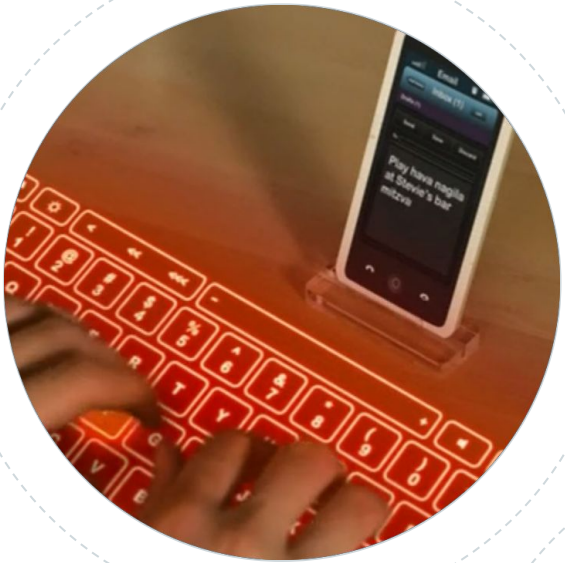
"Augmented reality is defined as computer-generated content—which typically includes graphics, audio and other sensory enhancements—that is superimposed over live images to enhance the real world"

- The Wall Street Journal



Strandbad Mitte
Kleine Hamburger ..
Free
446m
Newthinking Store
Tucholskystraße 48
350m
Sankt Oberholz
Rosenthaler Straße ..
Free
1012m

Summary

1. State of the art
2. Concept
3. Gameplay
4. Implementation
5. Demonstration
6. Evolutions

State of the art

Concept

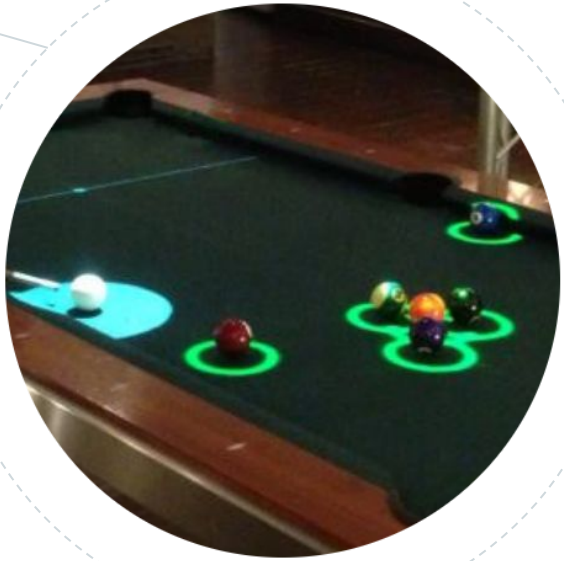
Gameplay

Implementation

Demonstration

Evolutions

1. State of the art



State of the art

Motion detection

State of the art

Virtual touch surface

→ Projected screen
→ Detect user input

State of the art

ARPool - arpool.ca

- → Augmented Reality
- → Real rules of pool g

State of the art

Concept

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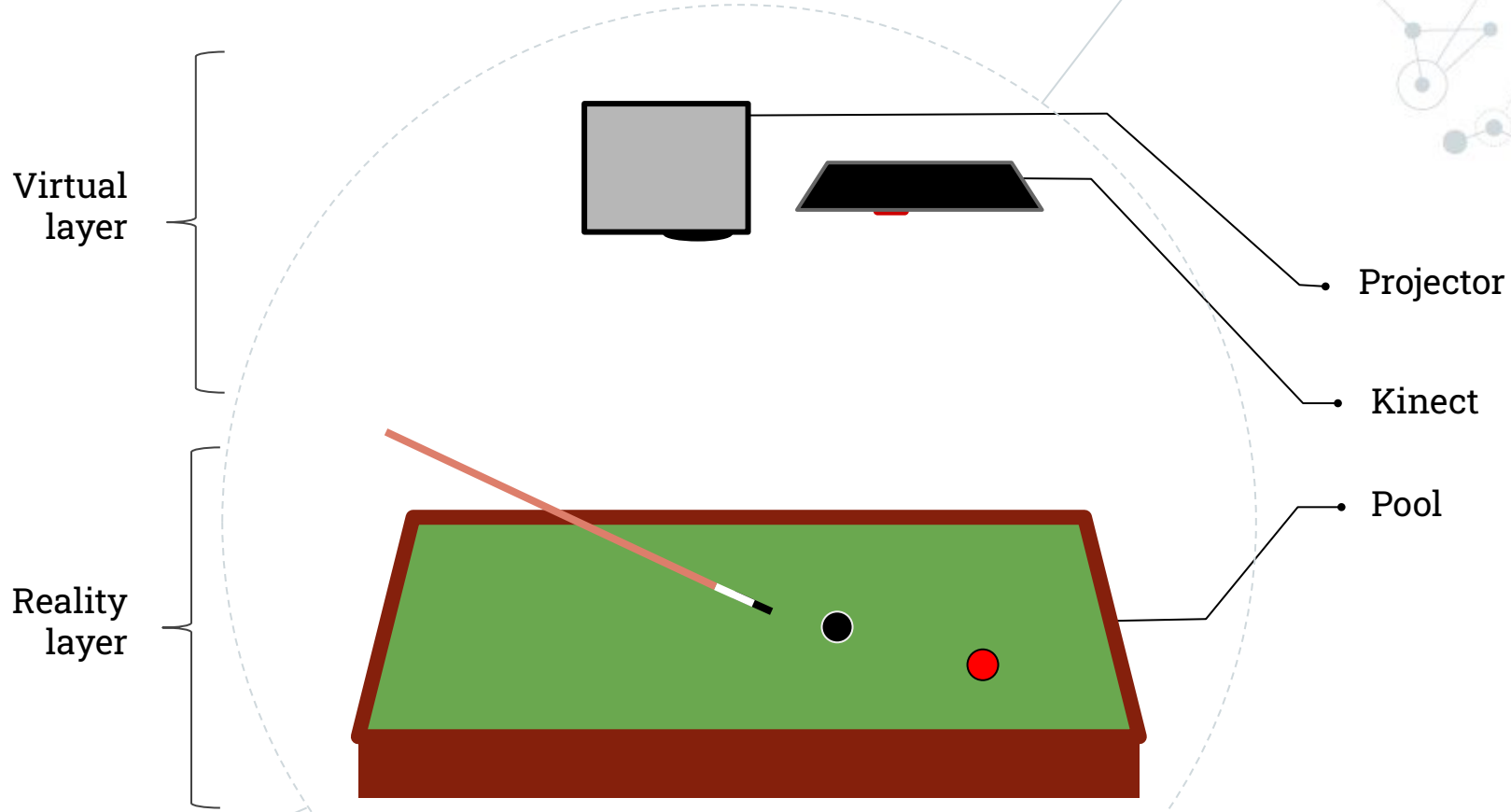
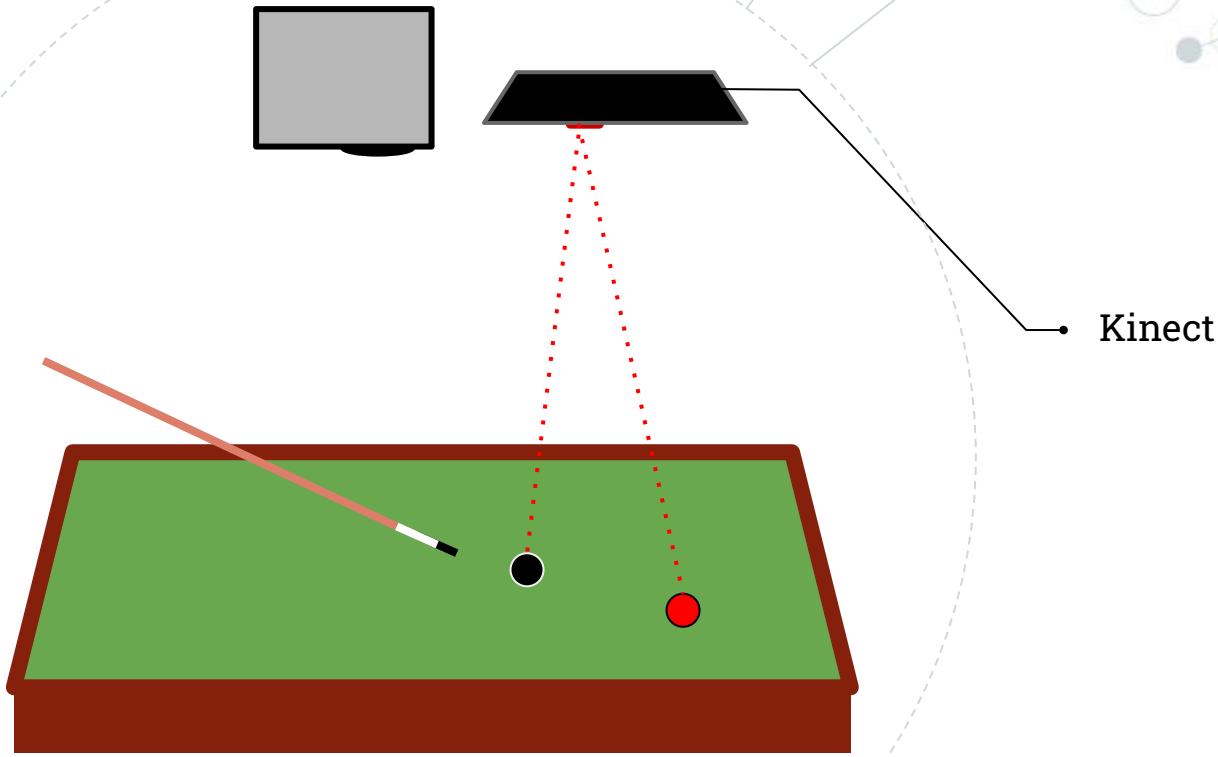
Evolutions

2. Concept

Concept

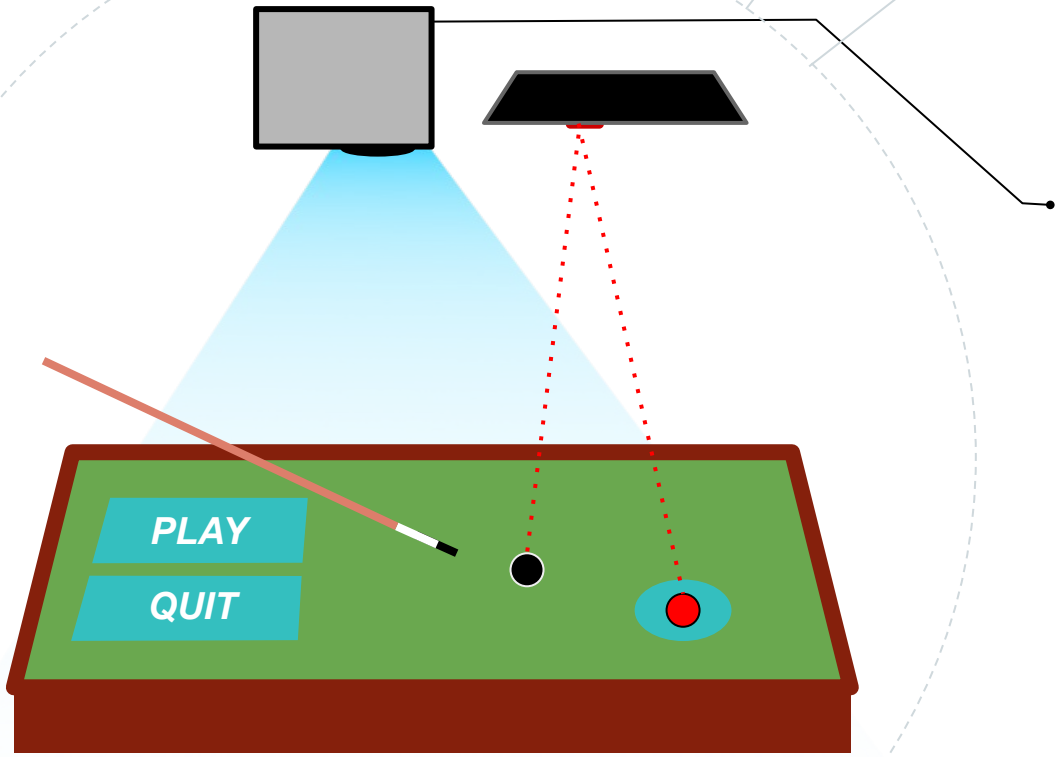


Concept



→ **Object tracking**

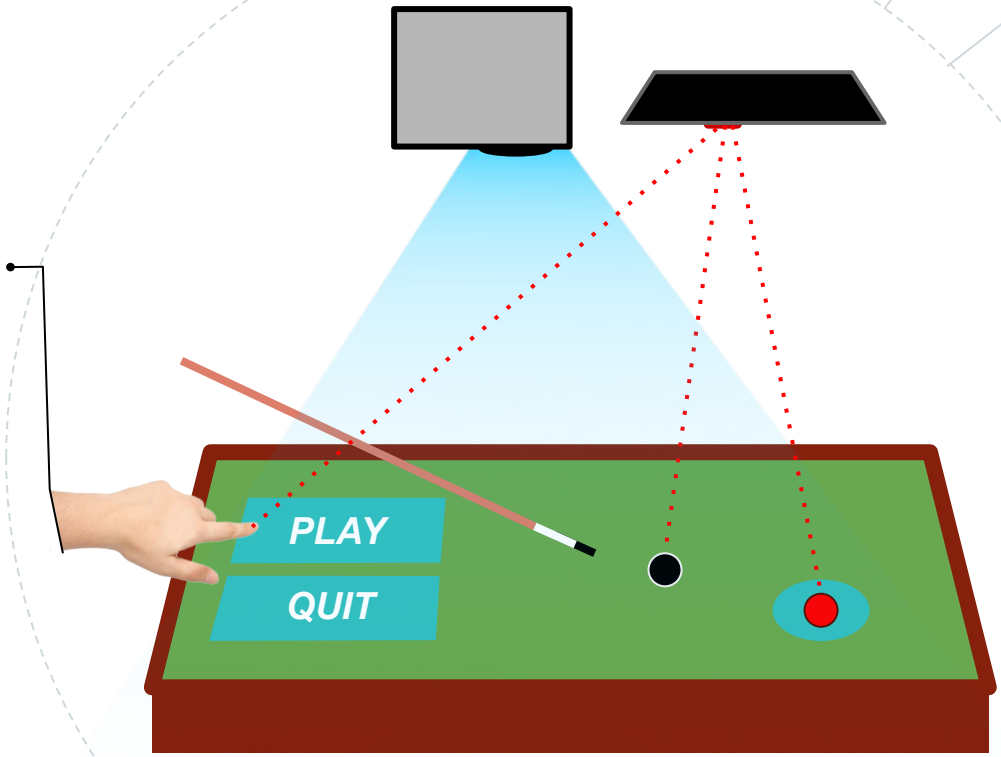
Concept



→ **Object tracking**

→ **Interface projection**

Concept



→ **Object tracking**

→ **Interface projection**

→ **Touch detection**

State of the art

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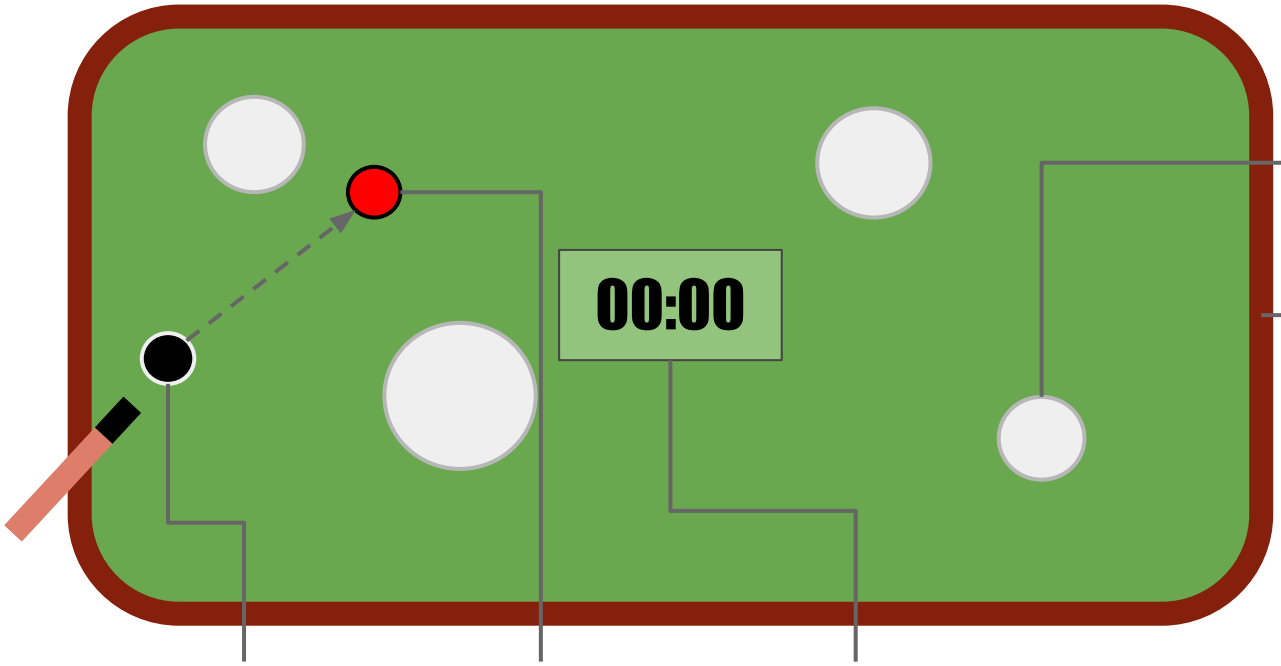
3. Gameplay

Gameplay - Golf-like Game

Start



Zones to pass through (or stop in)

Pool board

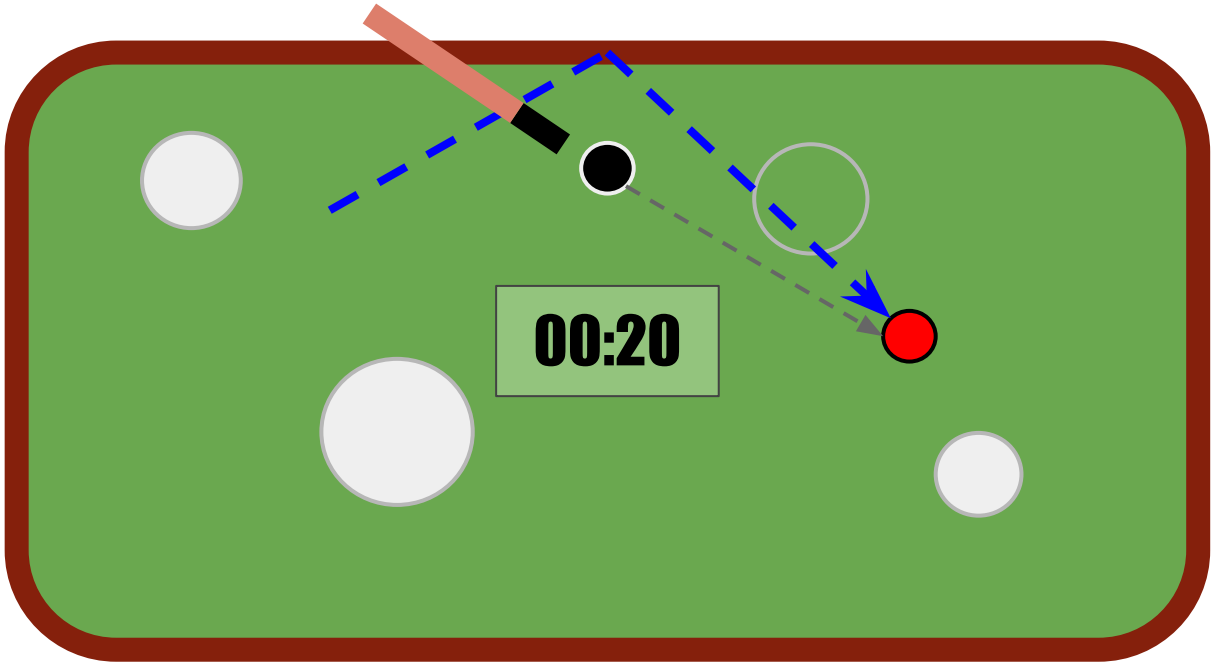
Black ball

Player's ball

Scoreboard

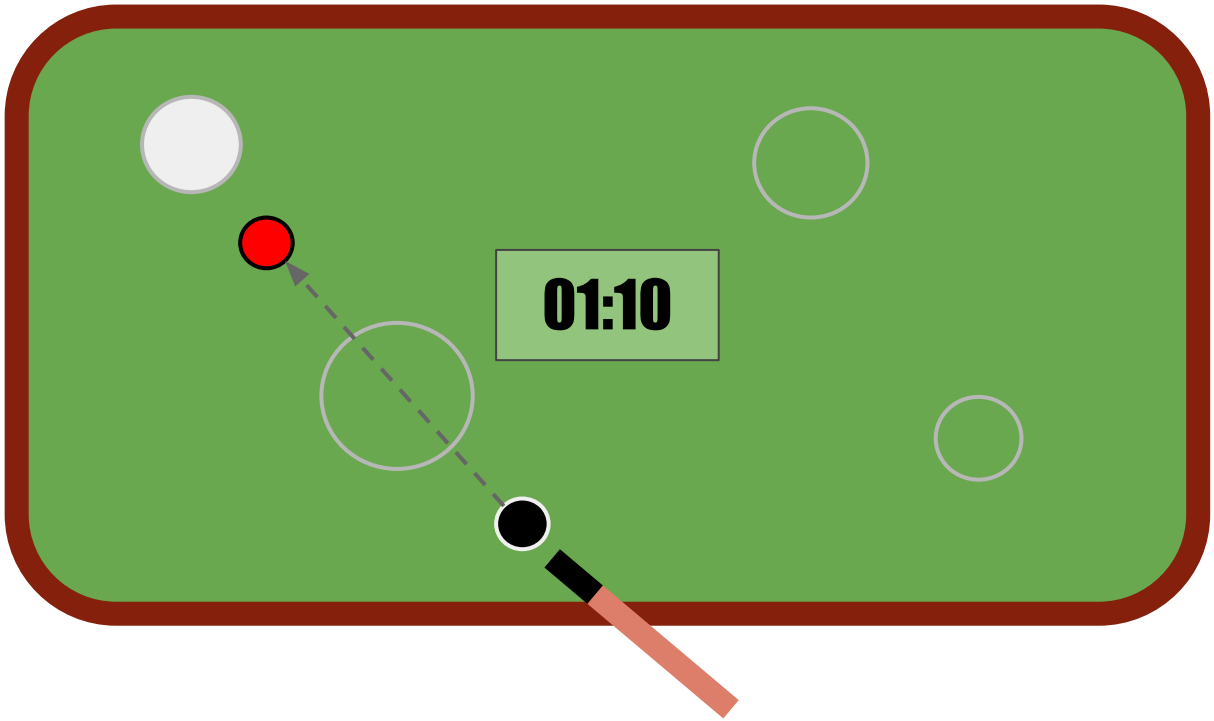
Gameplay - Golf-like Game

In progress



Gameplay - Golf-like Game

In progress

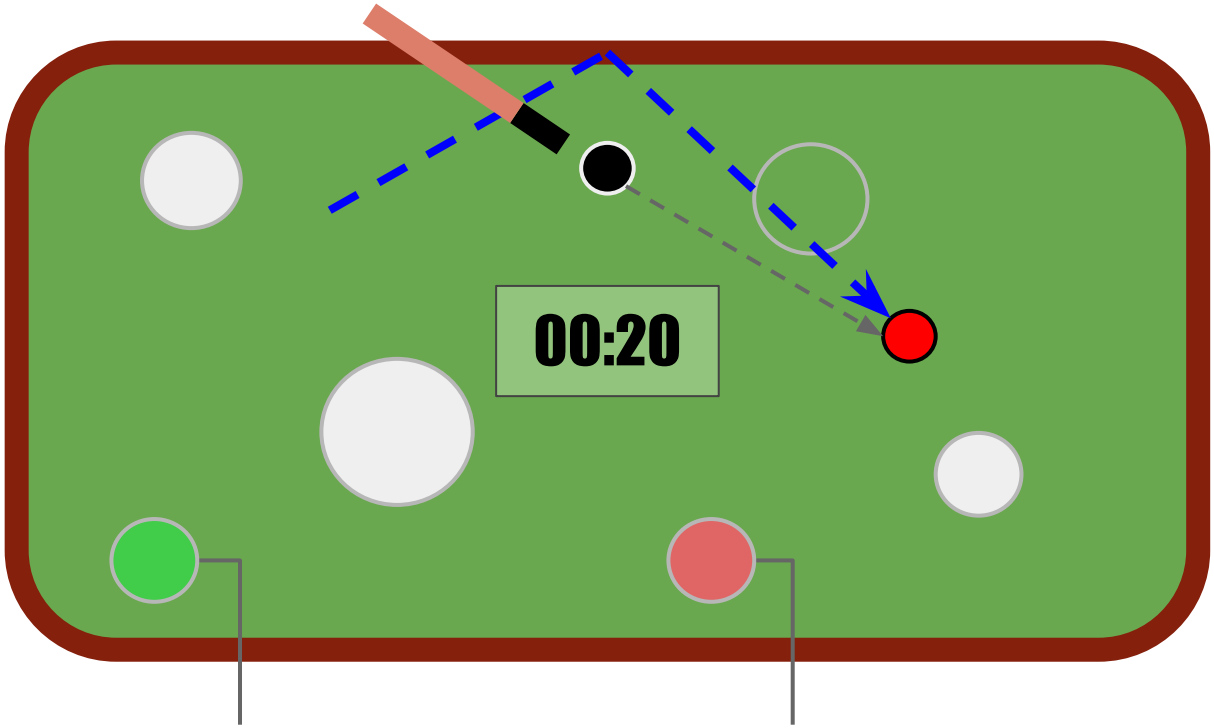


Gameplay - Golf-like Game

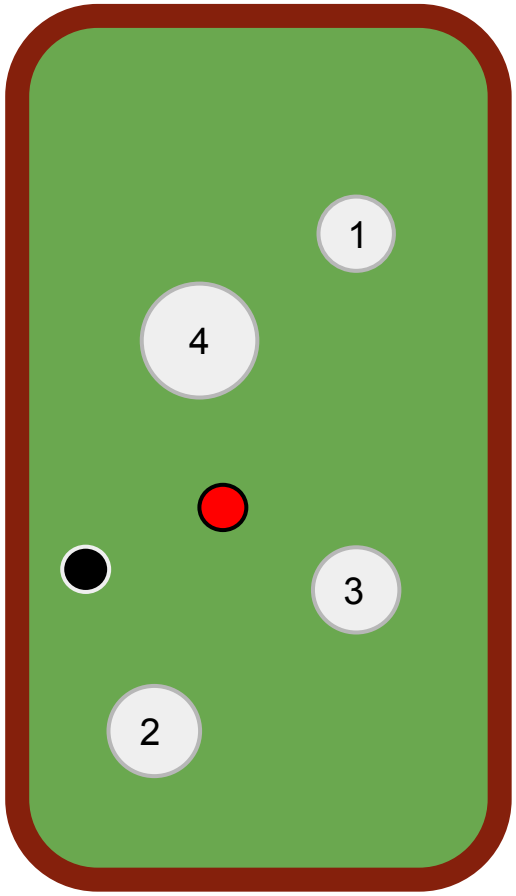
End

Gameplay - Golf-like Game

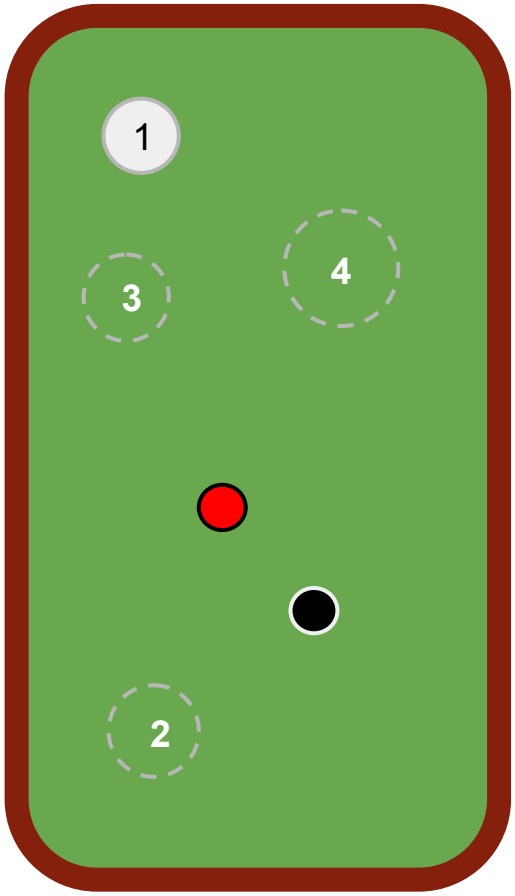
Bonus and Penalty



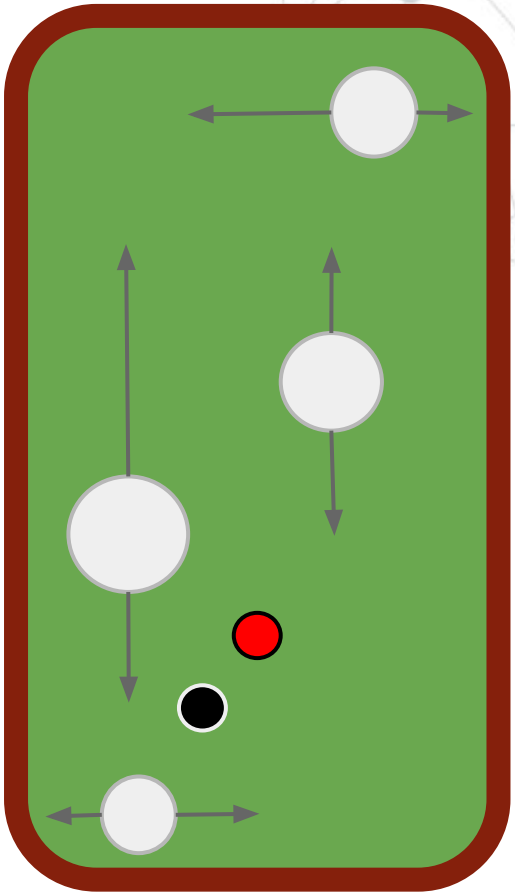
Gameplay - Variants



Ordered Mode



Snake Mode (Hidden + Random)



Moving Mode

Gameplay - Evaluation

Is it fun?

Various modes

Diversity in the gameplay

Easy to play...

Replayability

...but challenging

State of the art

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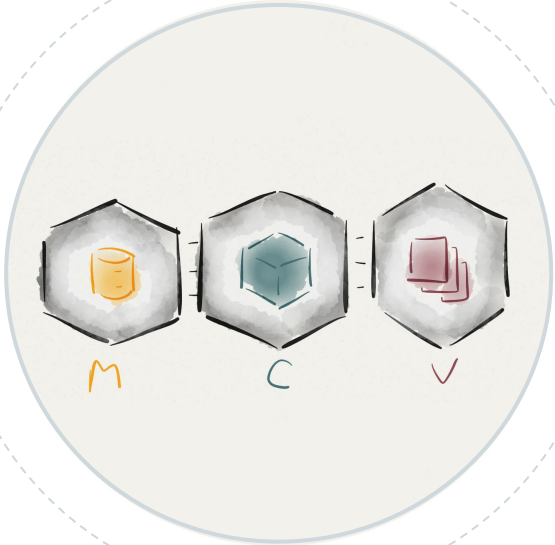
Evolutions

4. Implementation

Implementation



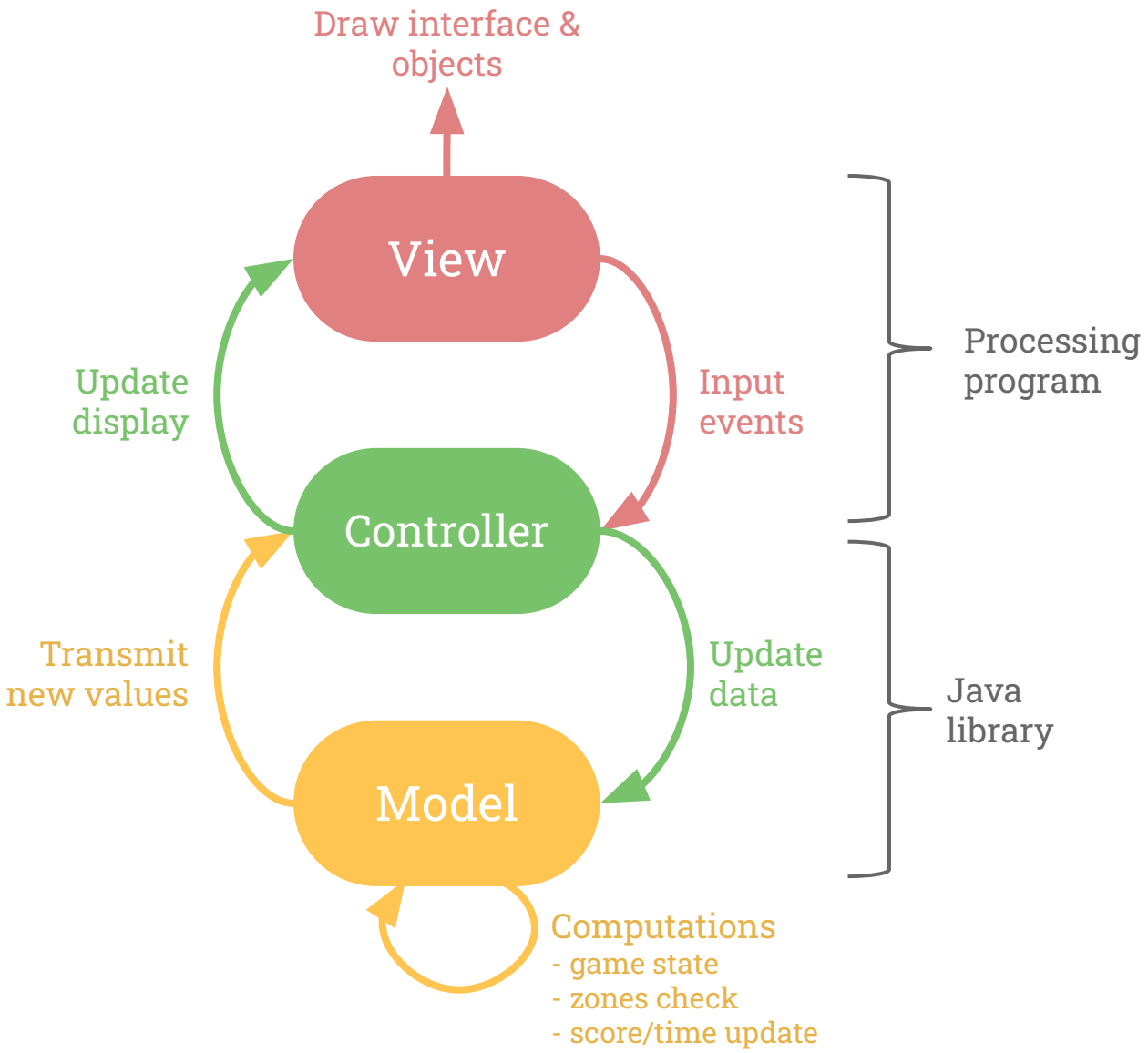
MVC paradigm

Generic, modular and reusable code

Java, Processing

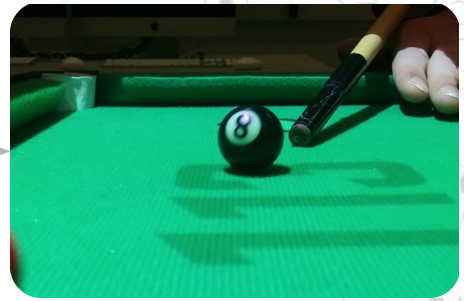
PapARt library

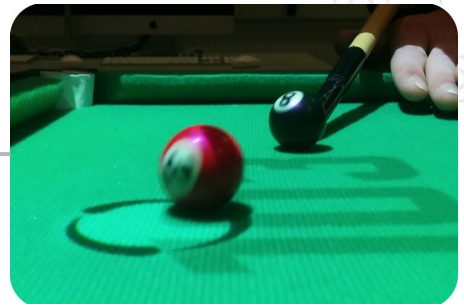
Implementation - MVC

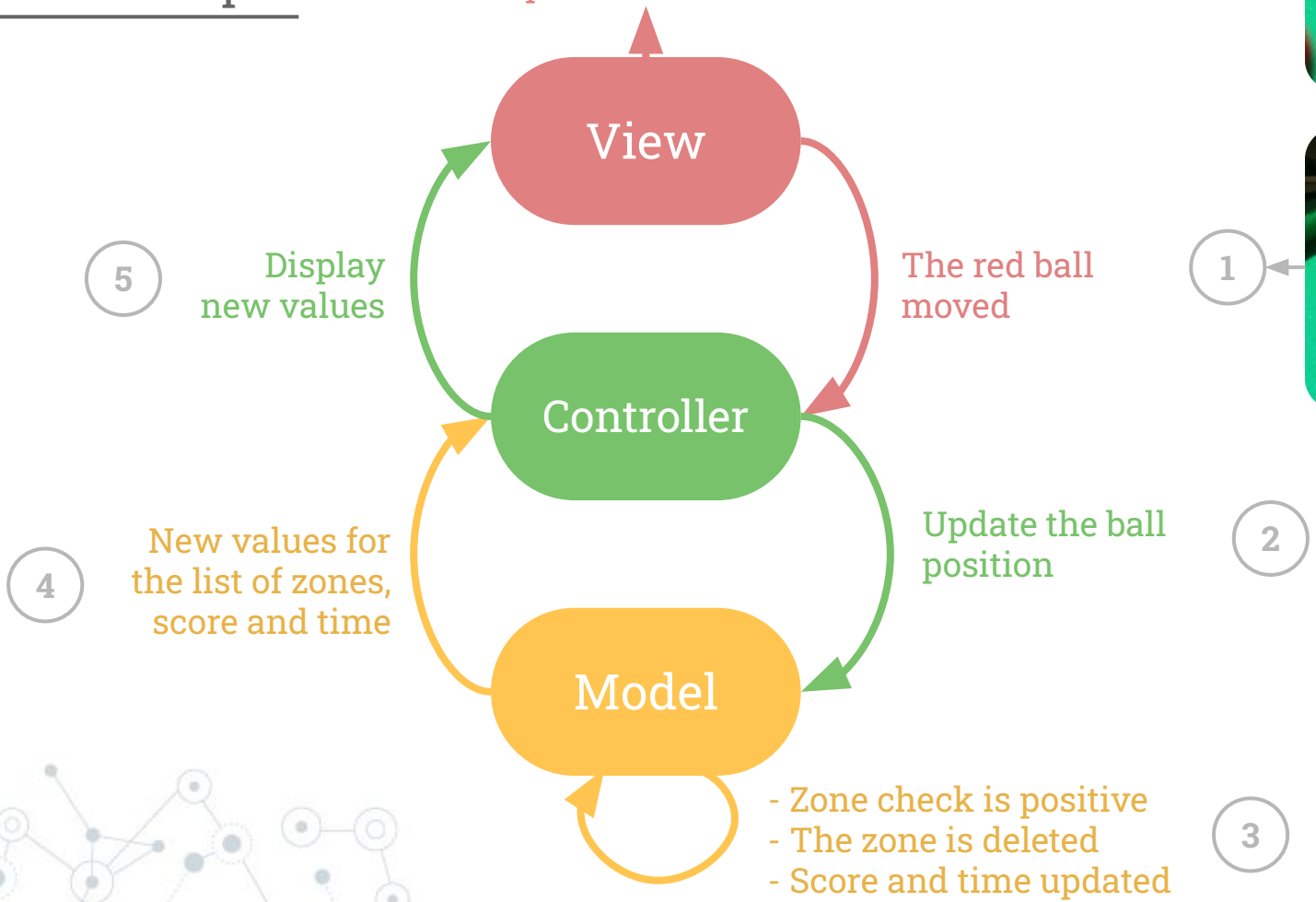


Implementation - MVC

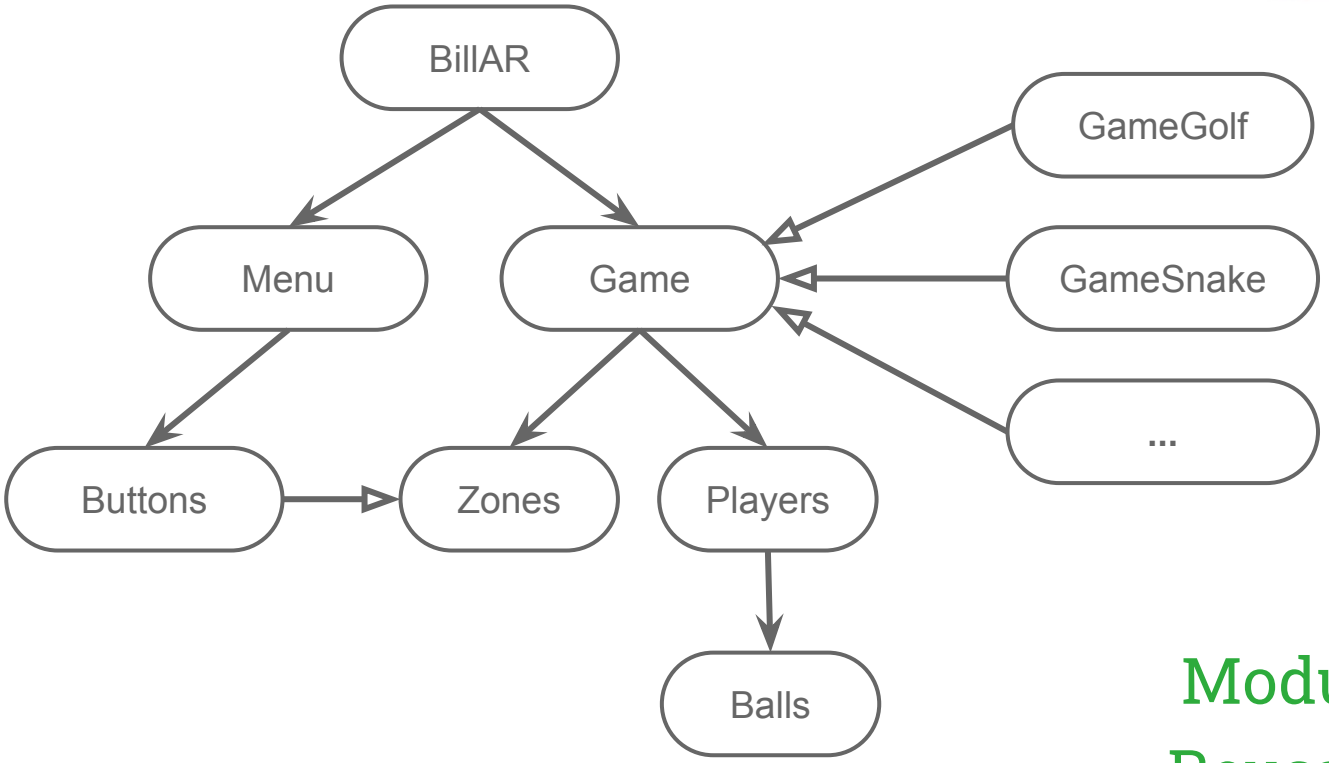
Example





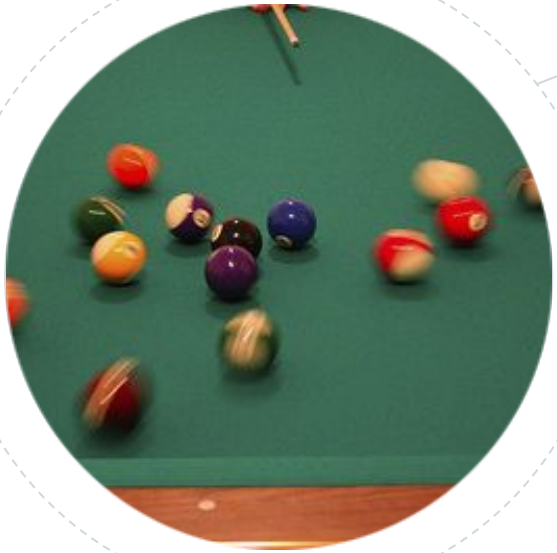


Implementation - Java Library



Modular
Reusable

Implementation - Limitations



Kinect precision

Ball tracking

Color detection

Computing time

State of the art

Concept

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Evolutions

5. Demonstration

Score : 0
18

State of the art

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6. Evolutions

Evolutions

Optimizations

→ Improve the gameplay based on user feedback
→ Improve ball tracking

Features

→ Larger set of games
→ Multiplayer mode
→ Memorize user data (progress, scores)
→ Dynamic sound output

Conclusion

Proof of concept

Demonstration of PapARt

Usable games

Thank you for your attention