

應用 Hololens 2 於 撞球運動的輔助

Billiards Guidance
Applied To Hololens 2 (Mixed Reality)

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指導教授 楊傳凱

1

SITUATION

2

TASK

3

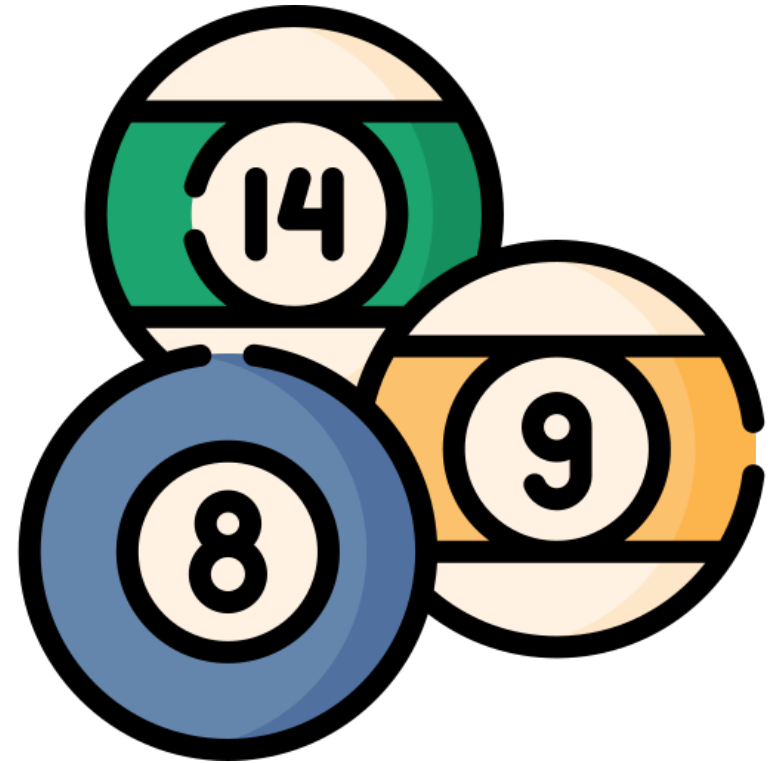
ACTION

4

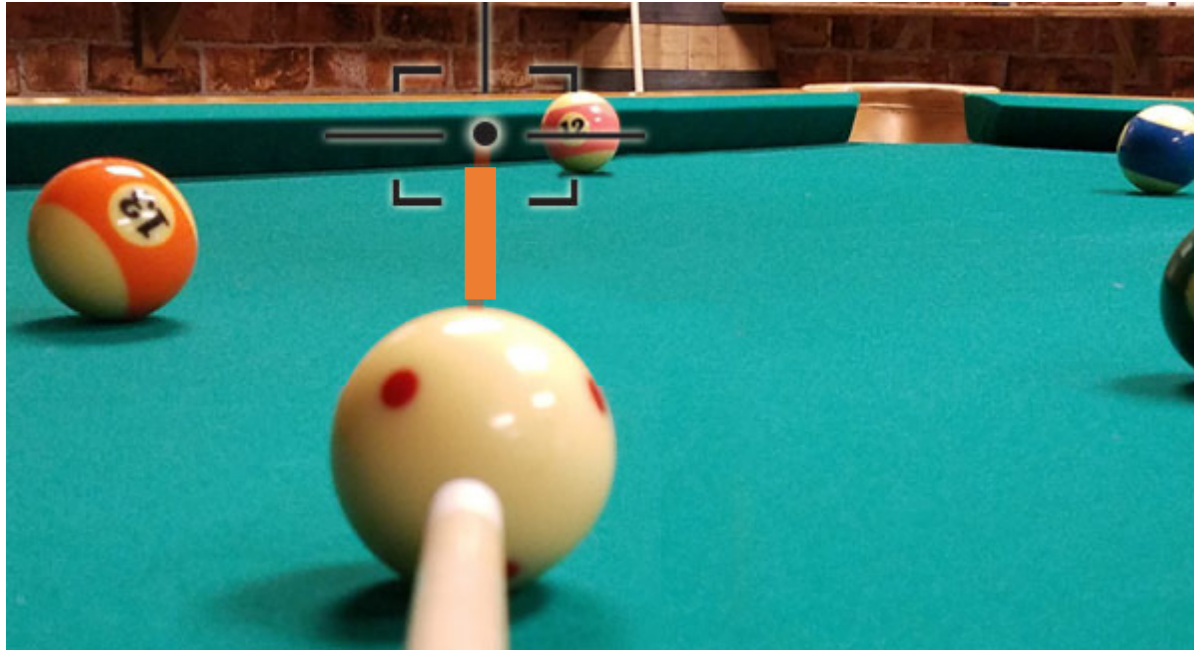
RESULT



SITUATION



Difficulties



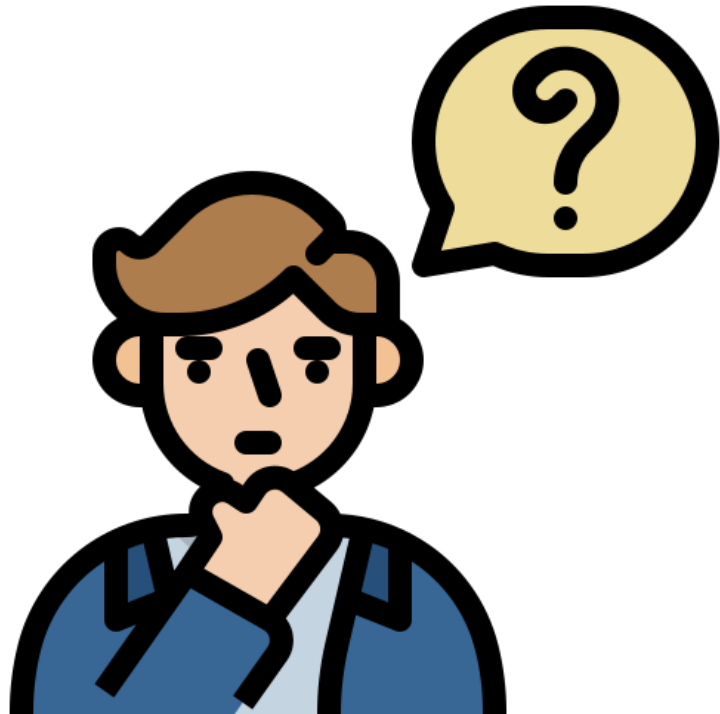
Giving Aiming Path to Users

Current Solution



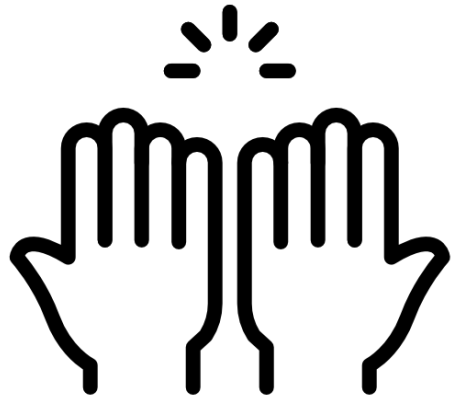
Hololens 2 X Billiards





TASK

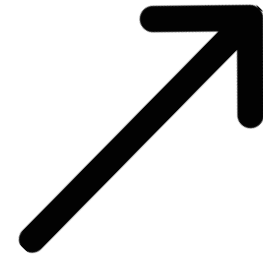
Innovation



Intuitive

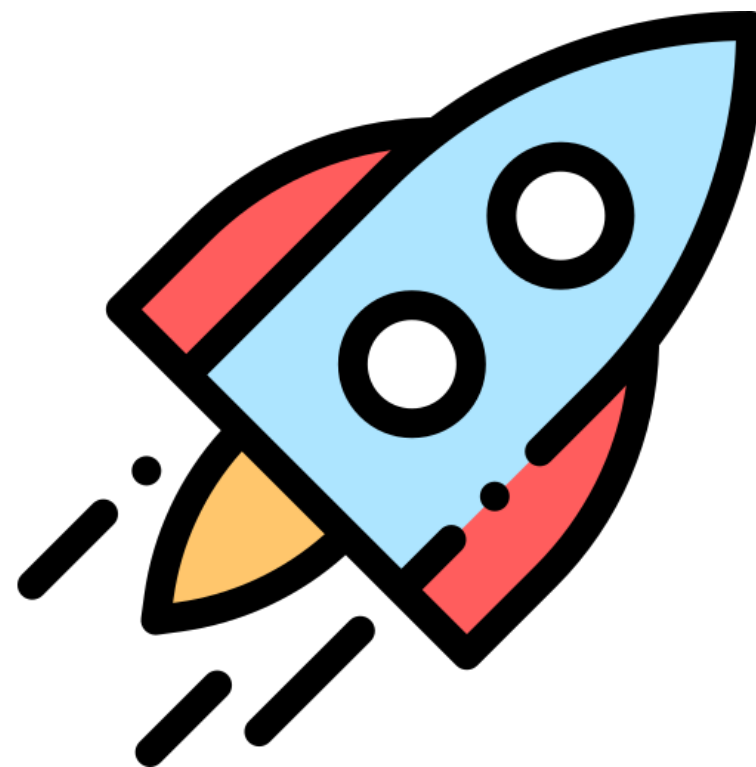


Easy to Use

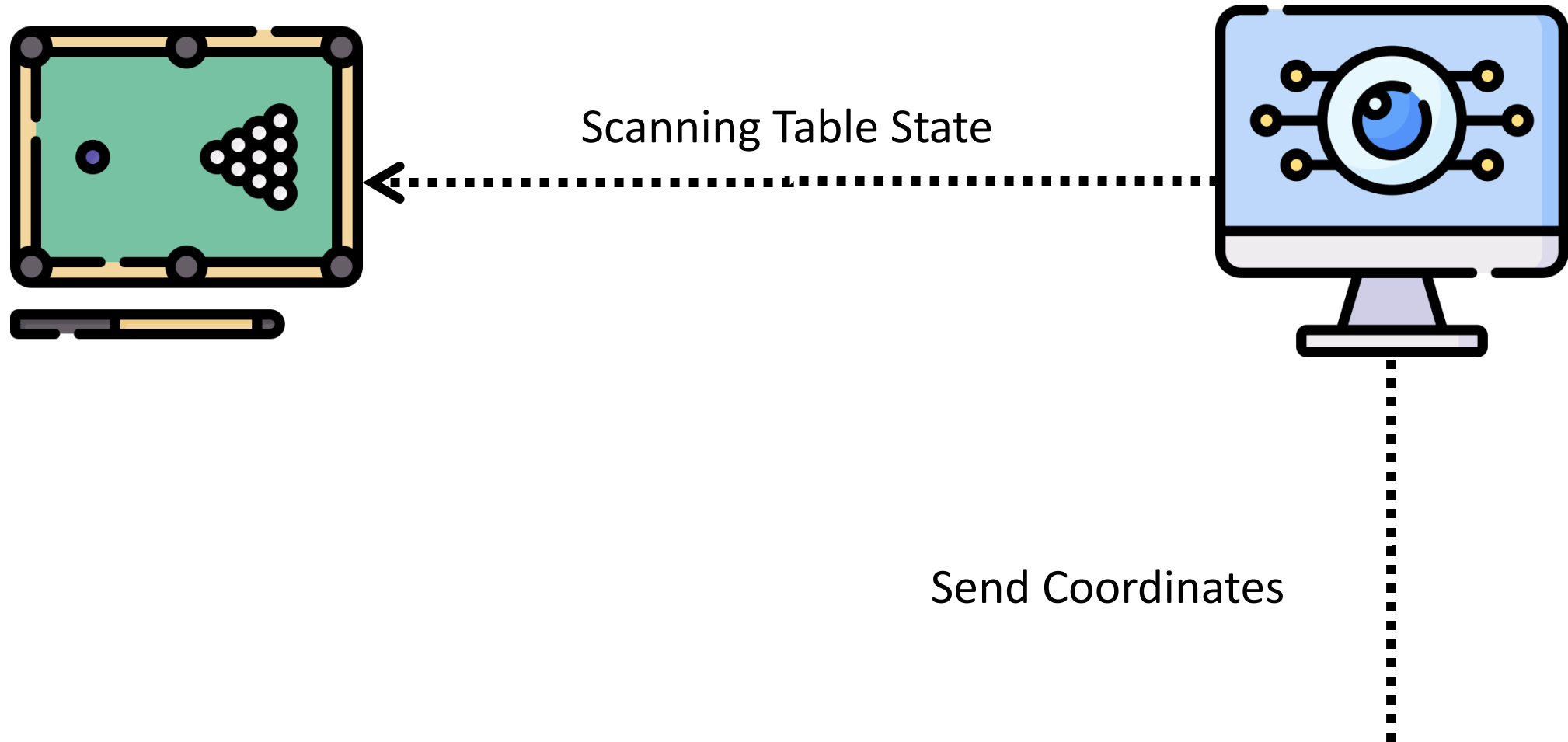


Recommended Path

ACTION



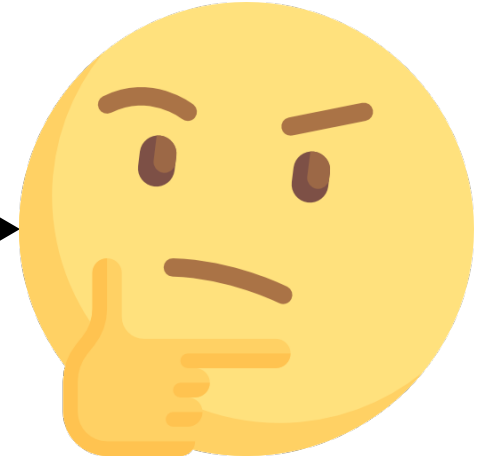
Control Flow



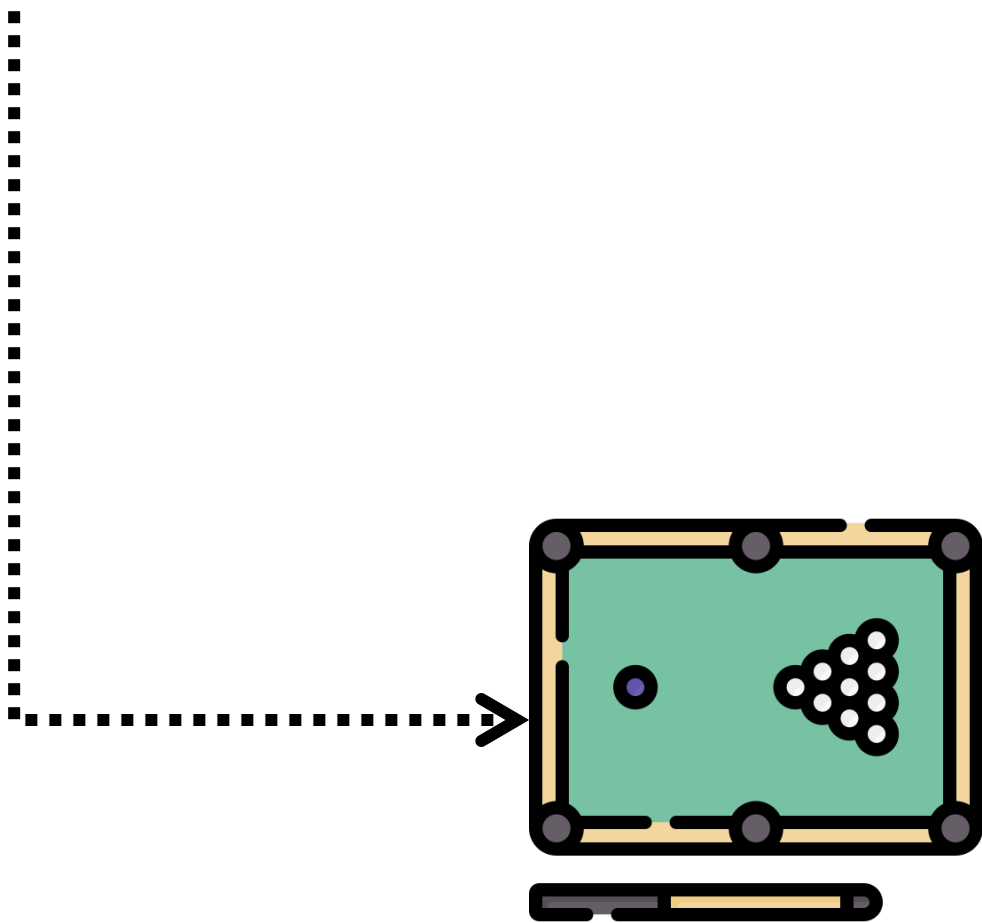


Send Path

Get Path



Find Best Path



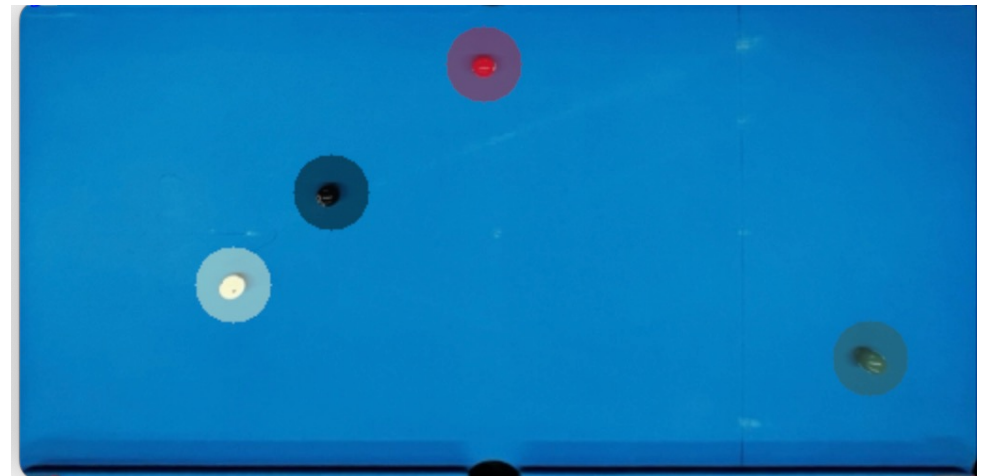
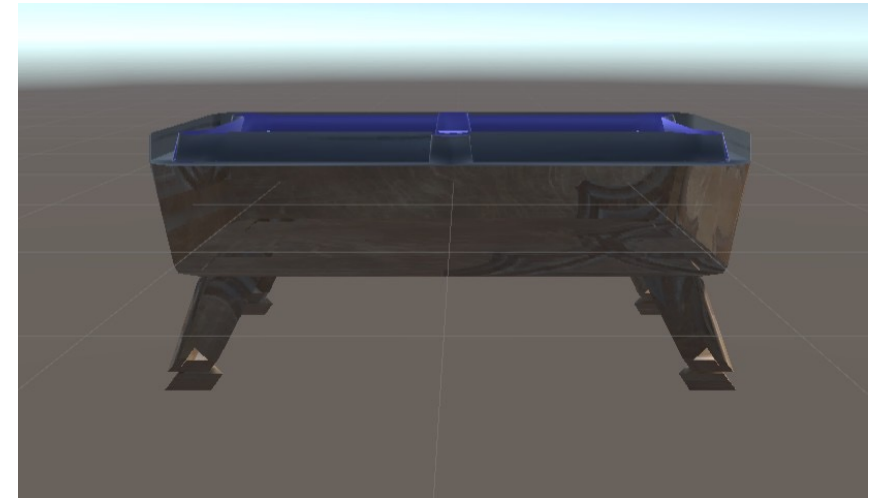
Project Virtual Table

Work Division

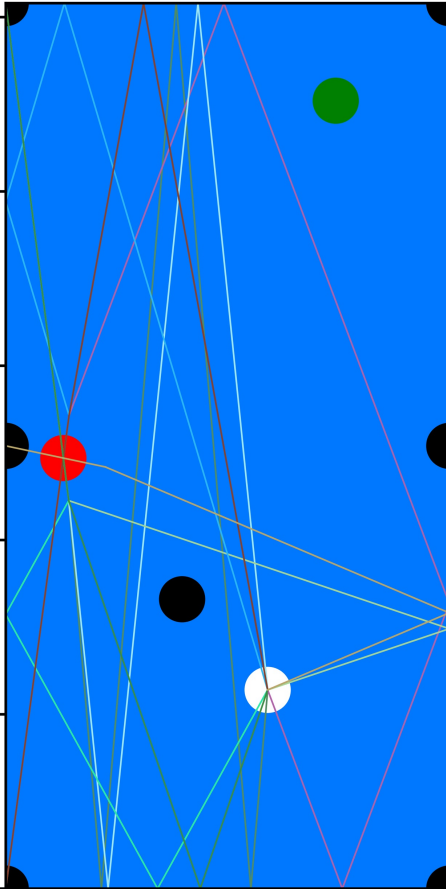


Hololens 2 Application Development

Computer Vision Processing



Work Division



Arithmetic Billiards Algorithm (Traditional)

Genetic Algorithm (RL)

RESULT



Demo



BILLIARDS GUIDANCE APPLIED TO HOLOLENS 2 DEMO

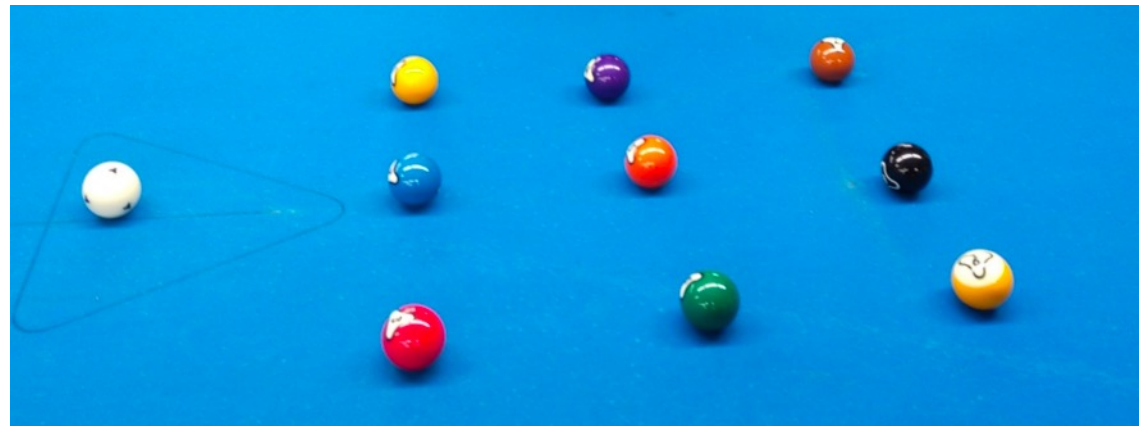
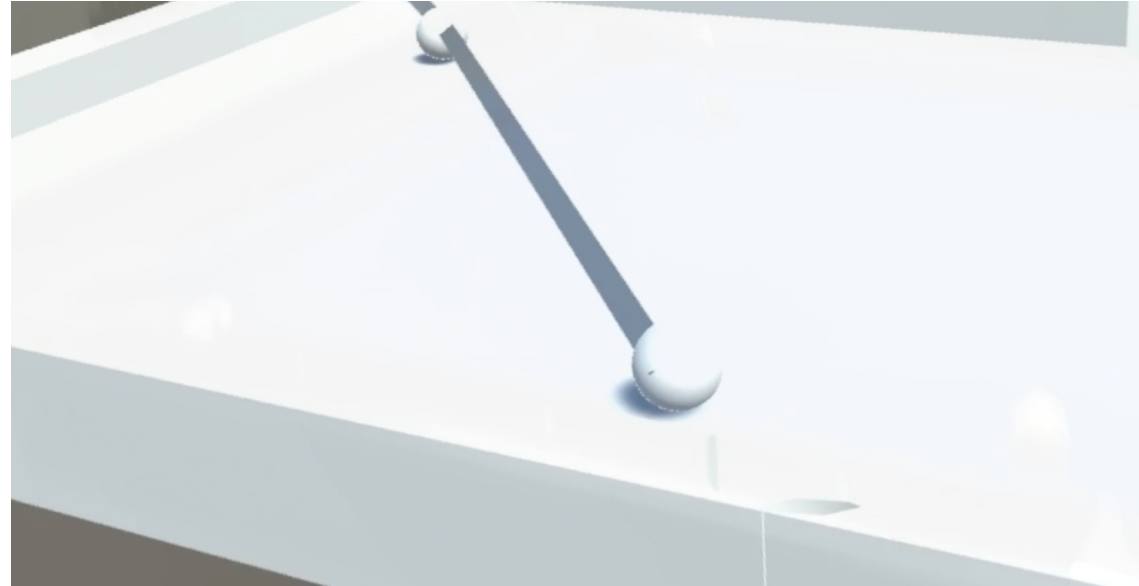
DEPARTMENT OF INFORMATION MANAGEMENT
AT NATIONAL TAIWAN UNIVERSITY OF SCIENCE AND TECHNOLOGY

Encountered Problems

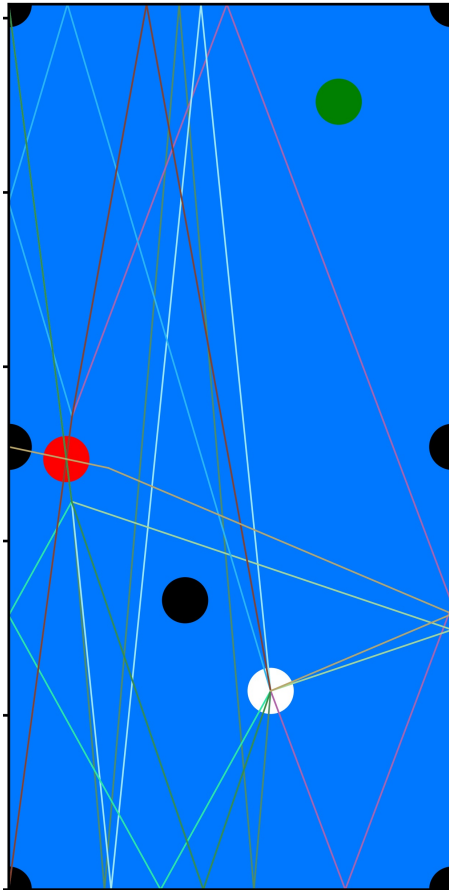


Manually Adjust Virtual Table

Color Thresholding



Encountered Problems



- Calculate only attack paths (Arithmetic Algorithms)
 - Difficult to converge (Genetic Algorithms)

Summary



Integration of **Hololens 2**, **Computer Vision** and **Algorithms**

Show the core value of Information Management



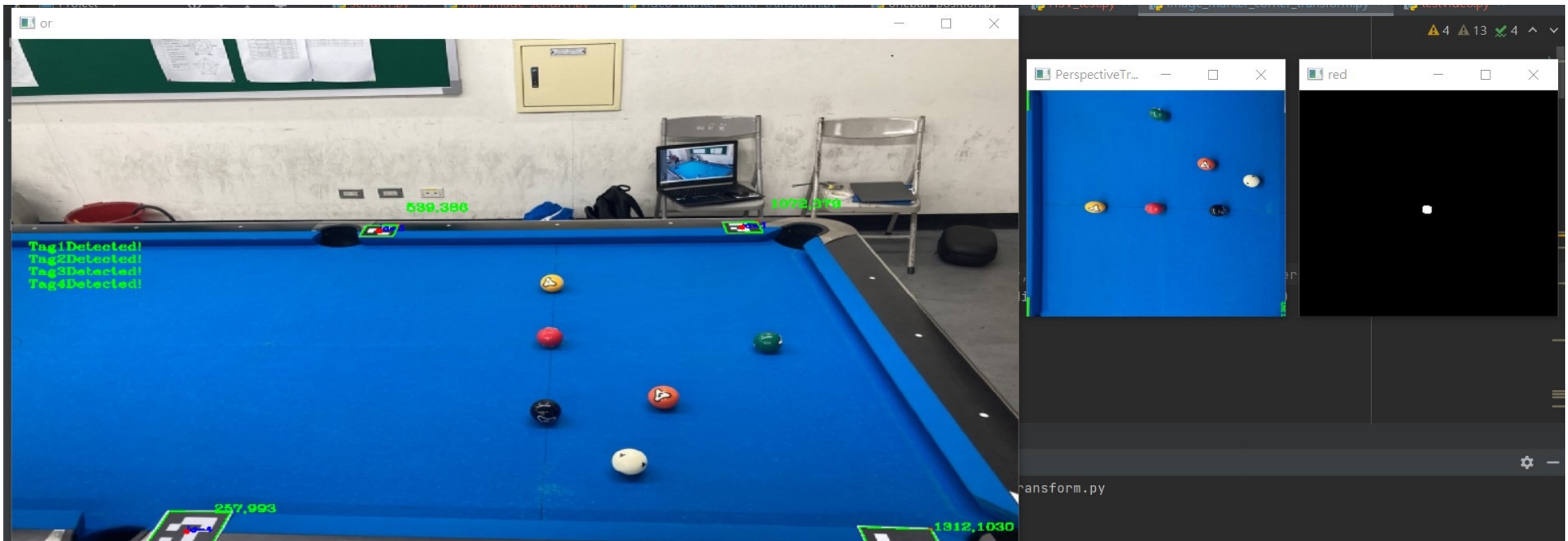
Thanks

Q&A Time

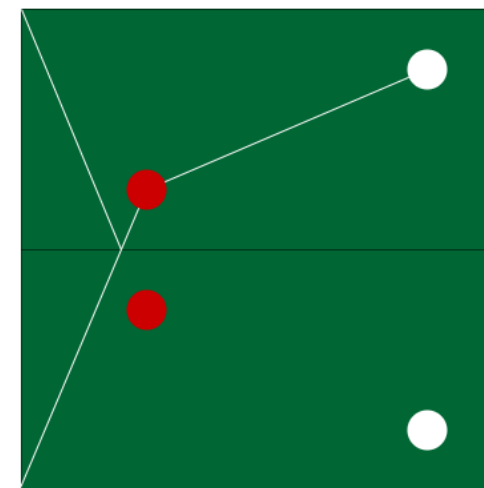
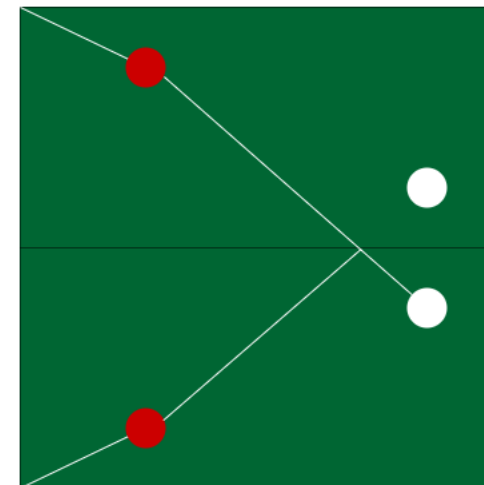
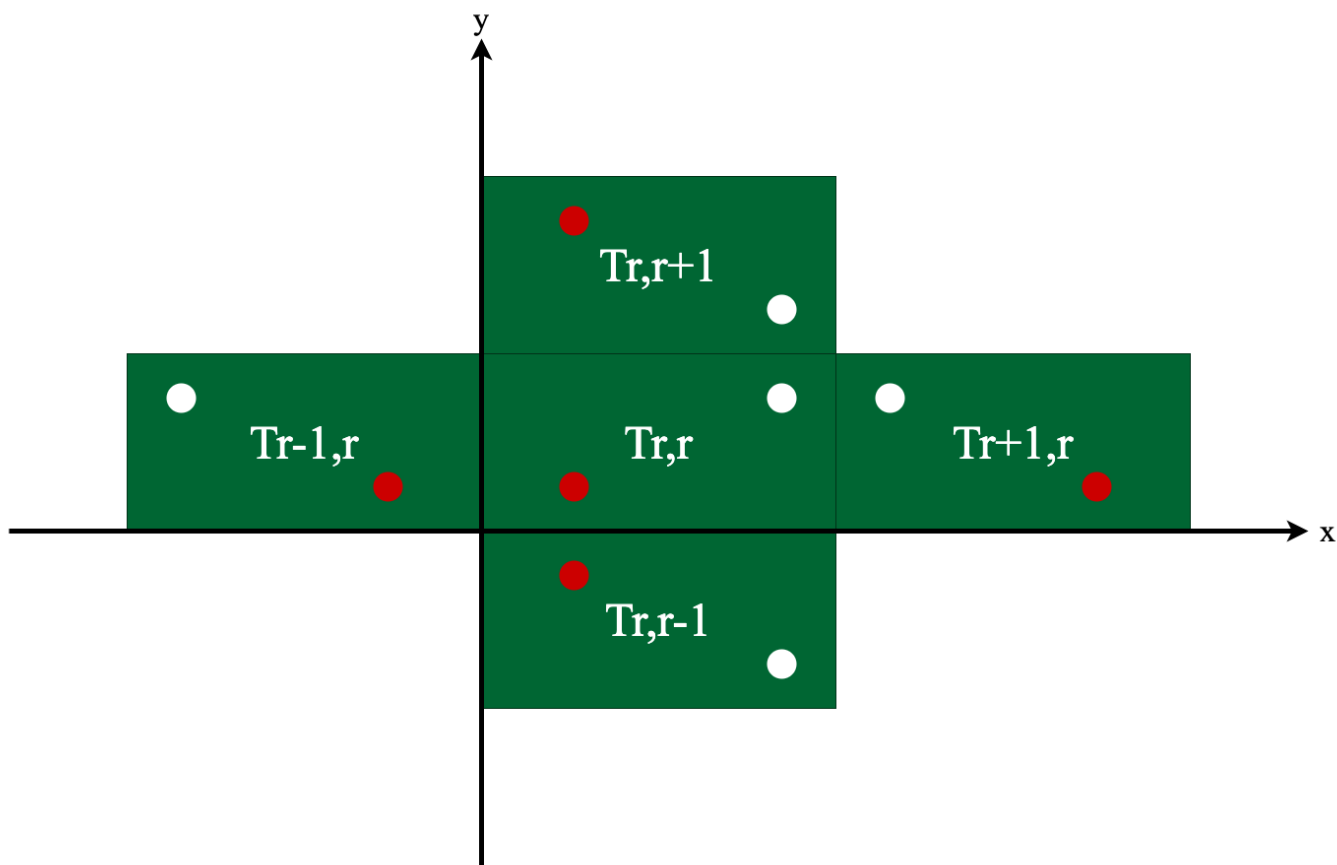
Hololens 2 as CV Input



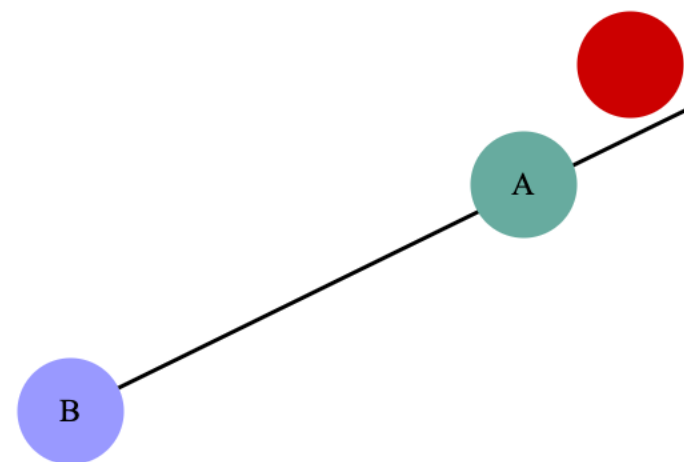
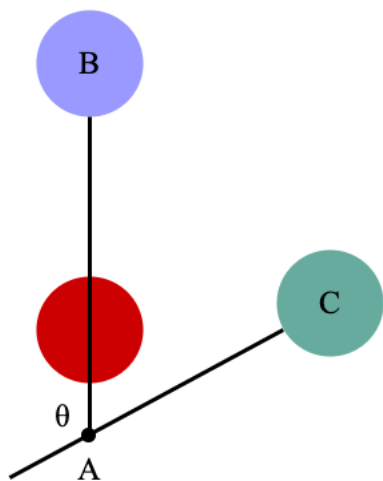
How to Find Table and Coordinates



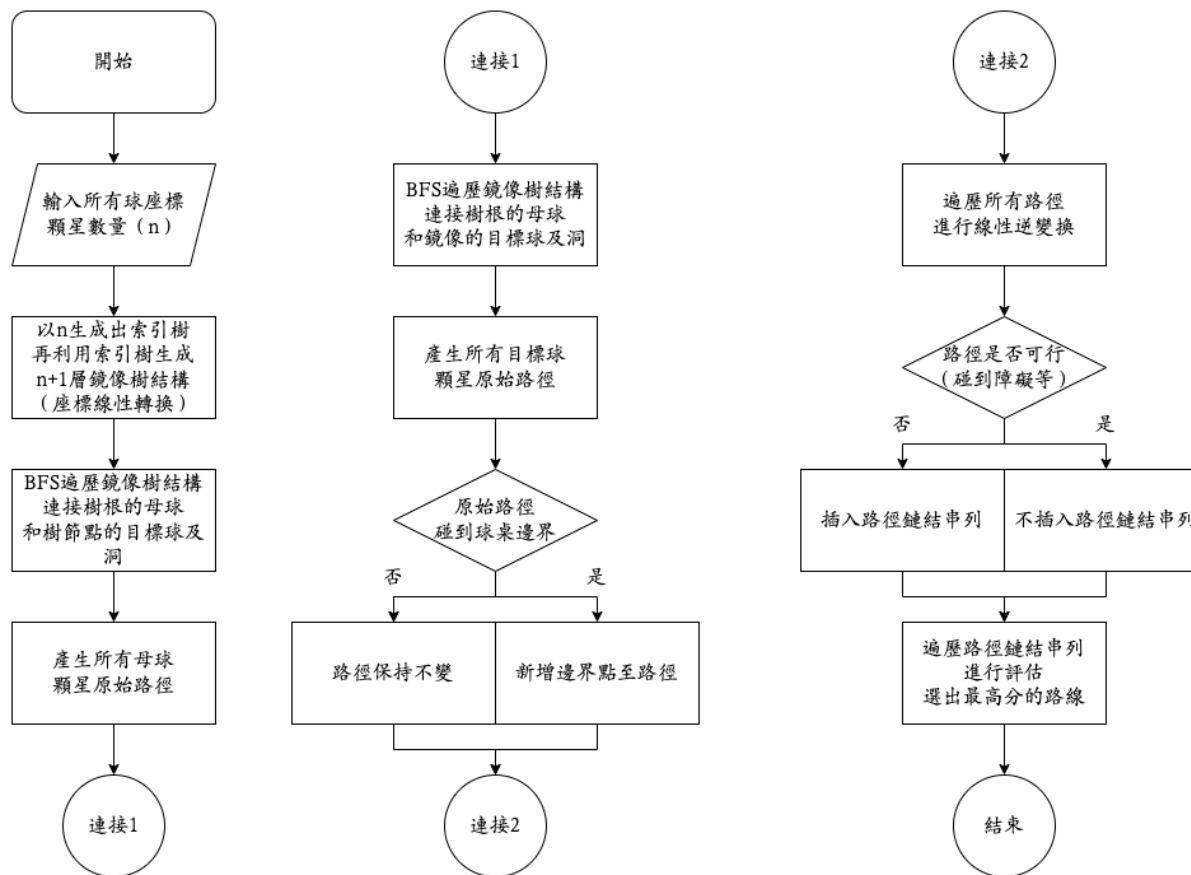
Arithmetic Billiards Algorithms



Arithmetic Billiards Algorithms



Arithmetic Billiards Algorithms



Genetic Algorithms

