IGD301
MR & HCI

parkour challenge

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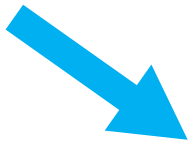
Labs

19.11	~~Website setup (hugo)~~
26.11	~~Introduction to Unity (roll-a-ball)~~
03.12	~~VR in Unity + selection~~
10.12	locomotion + parkour
17.12	pitch your idea
(holidays)	
2021	TBA

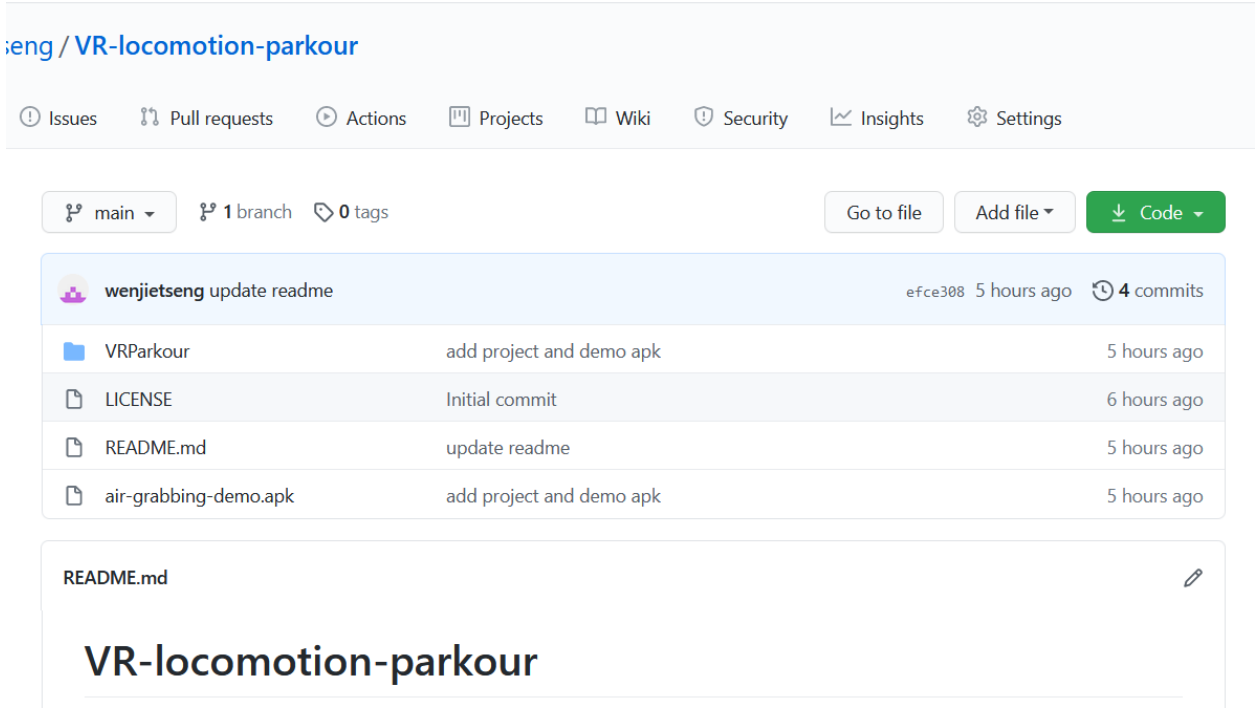


START
time
coins
[Records]

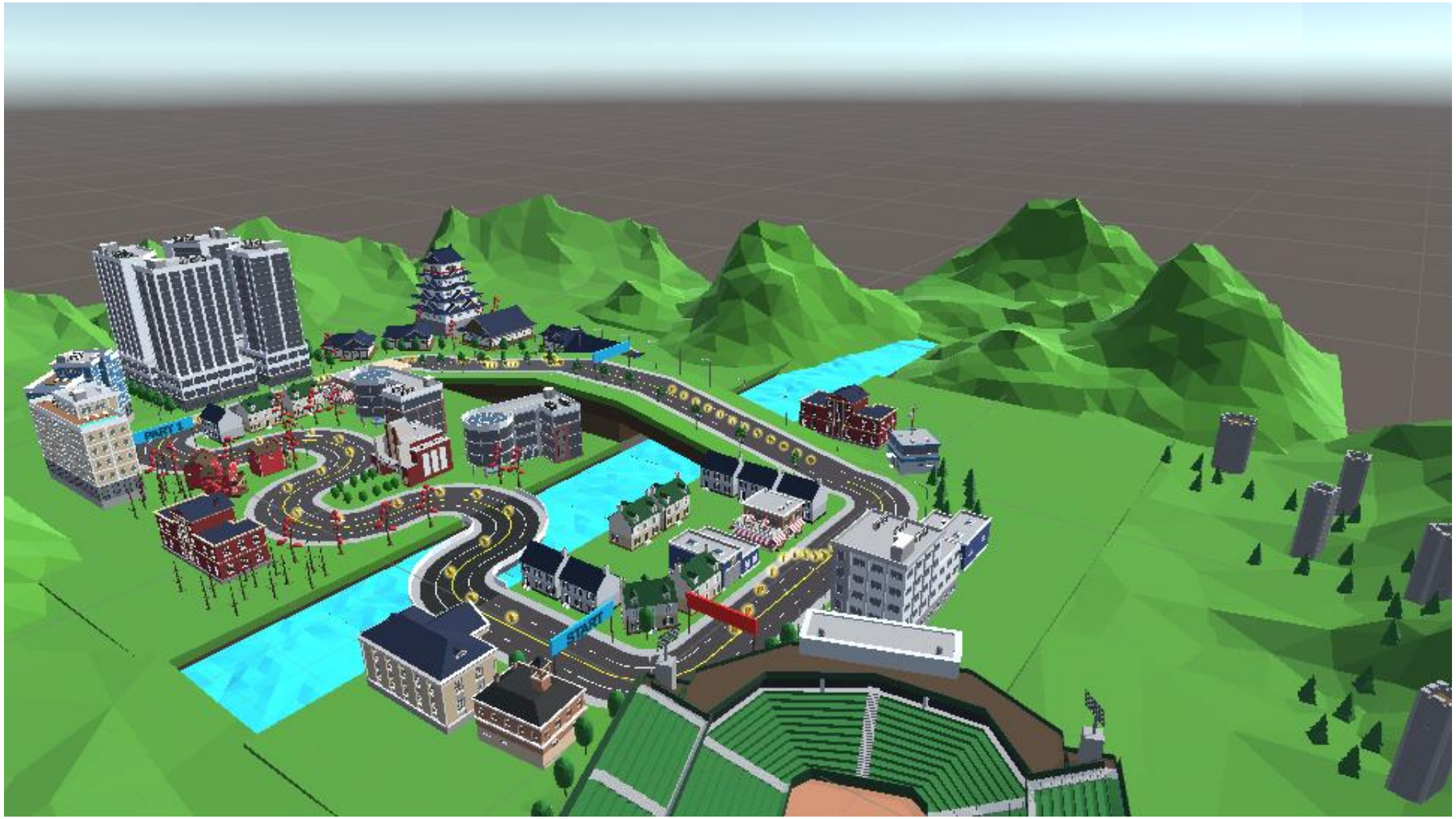
parkour challenge

setup (GitHub repo link)

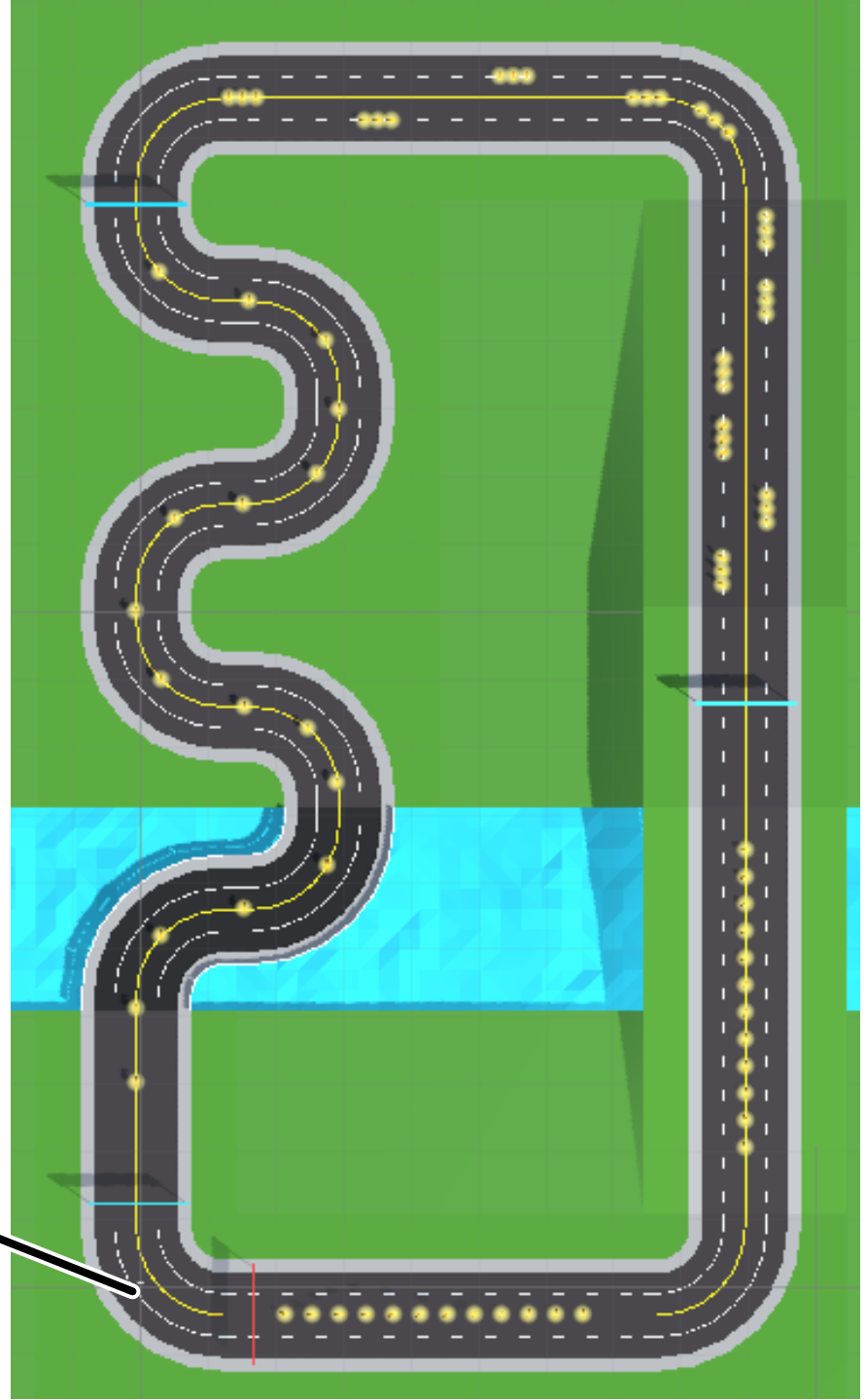
- Please download the unity project from
- https://github.com/wenjietseng/VR-locomotion-parkour
- open **VRParkour** folder as a unity project

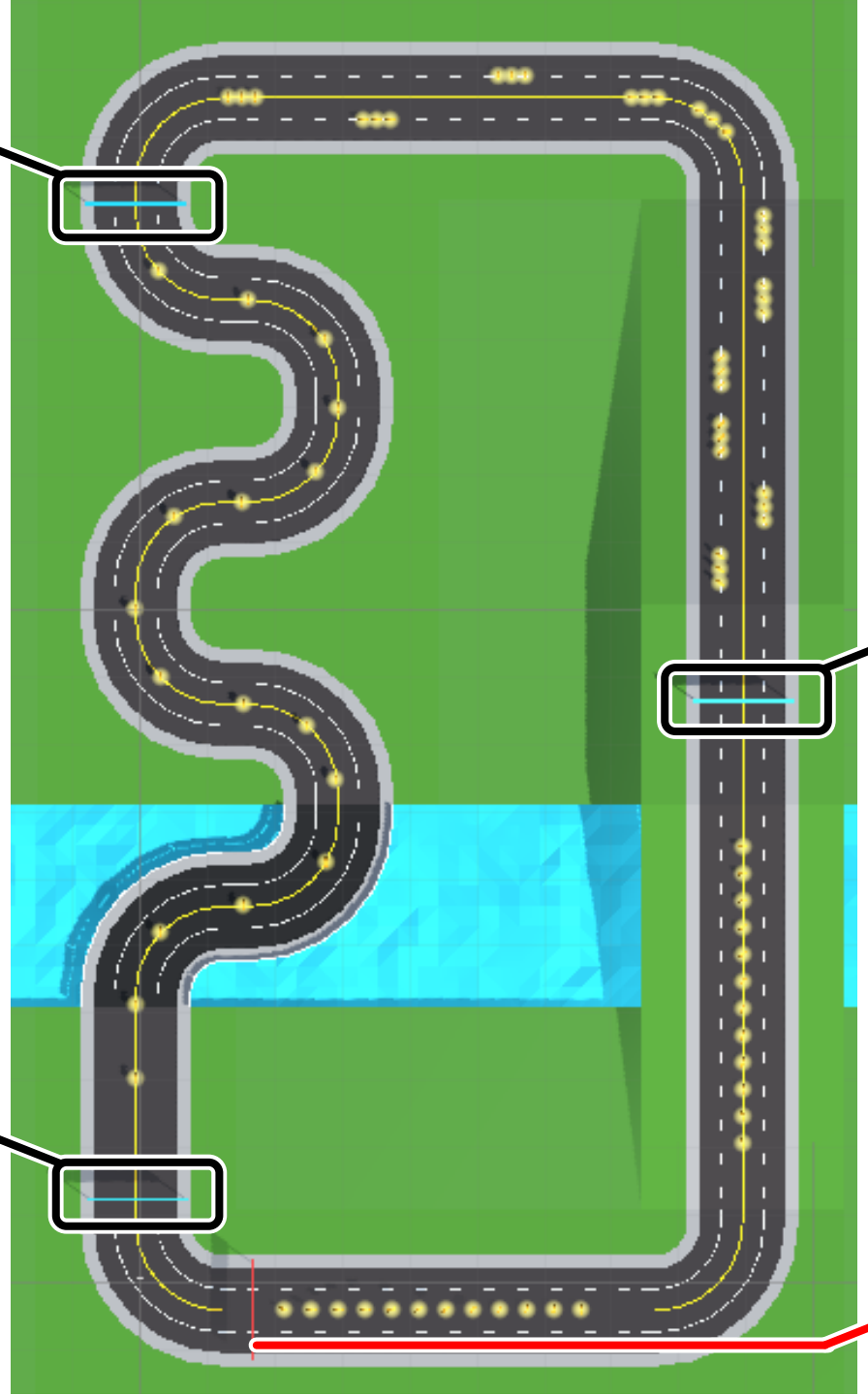


parkour scene



the route





four banners

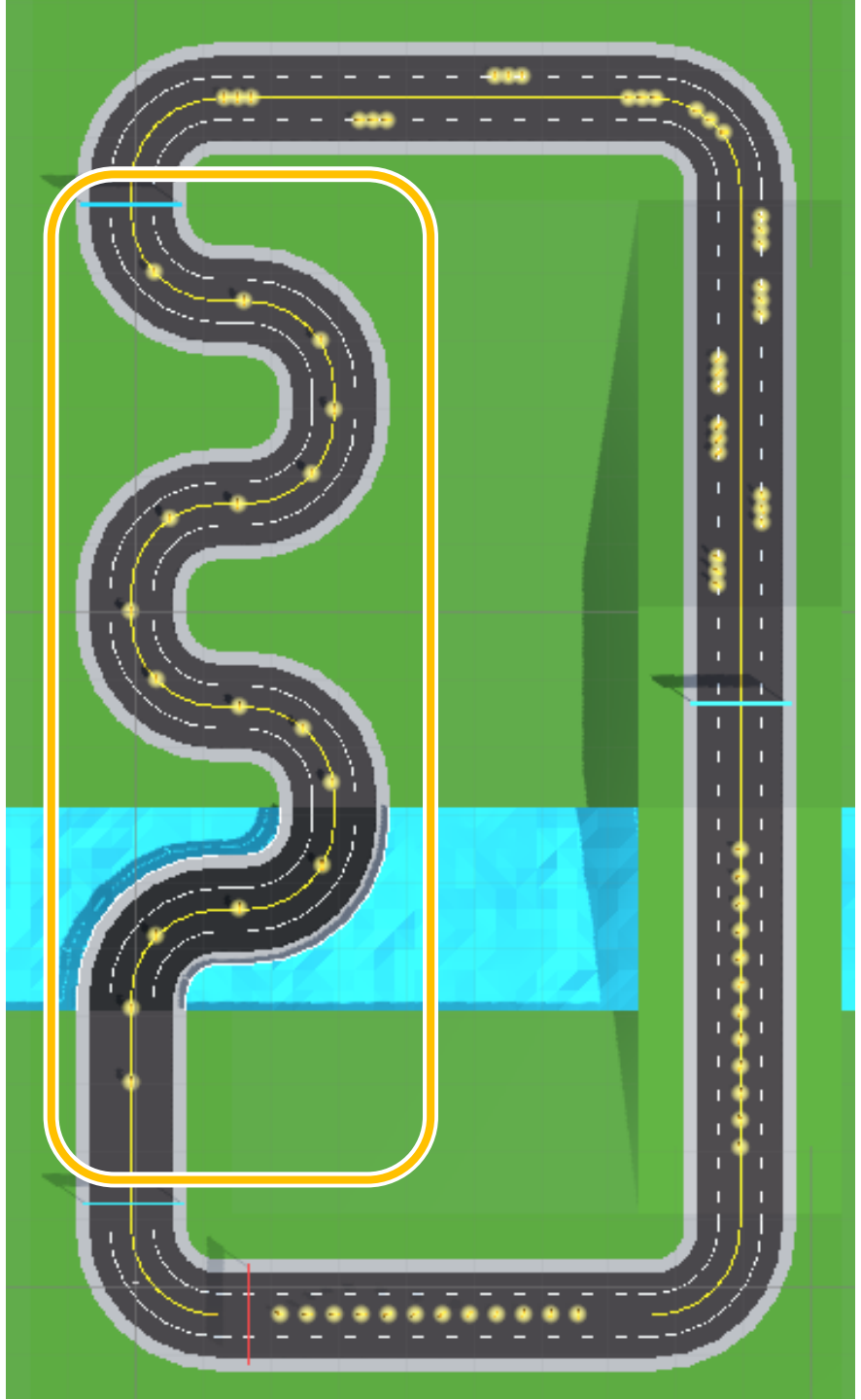
banners

please pass through the banner to trigger each path

[1]

continuous curves

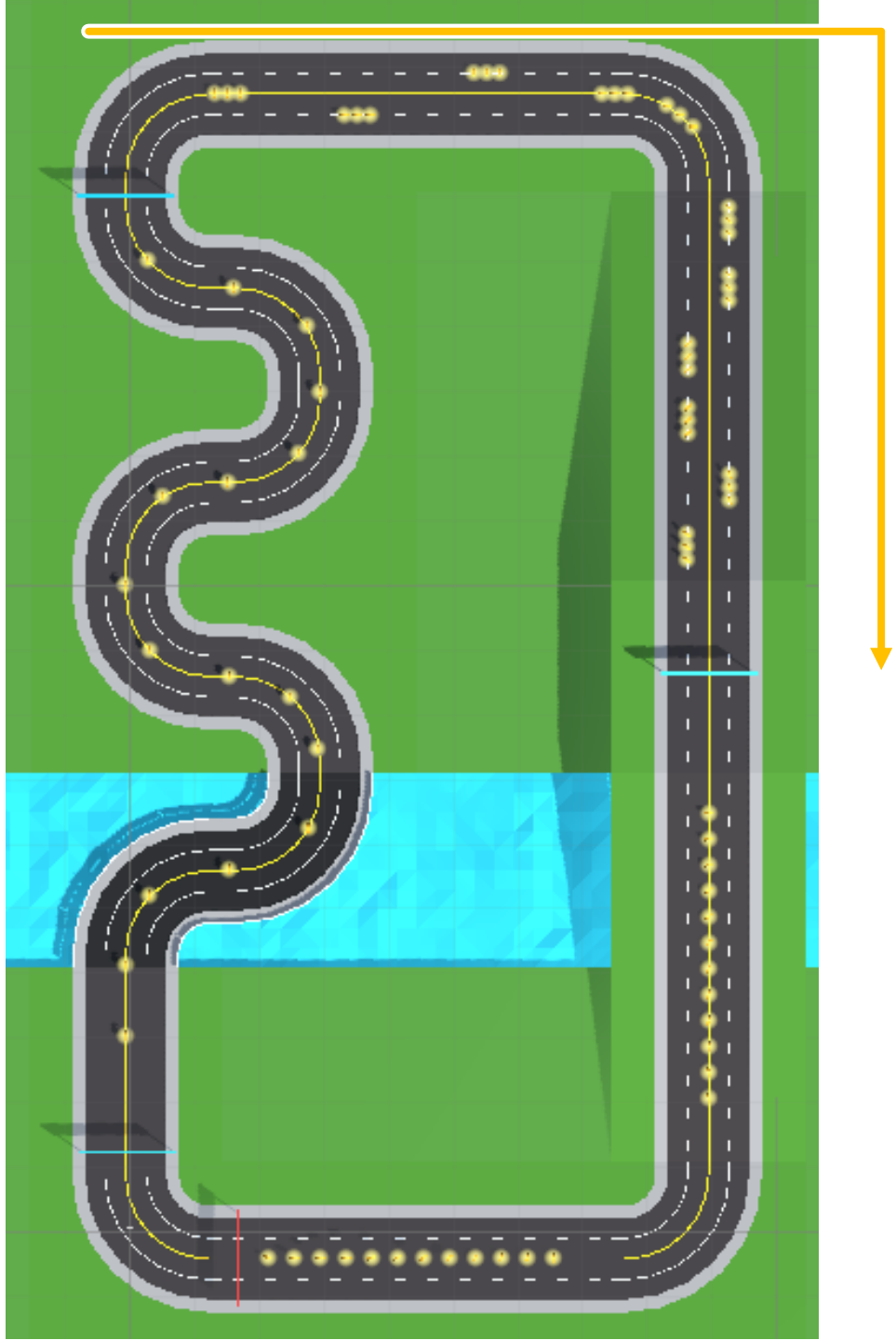
coins: 17



[2]

zig-zagging uphill

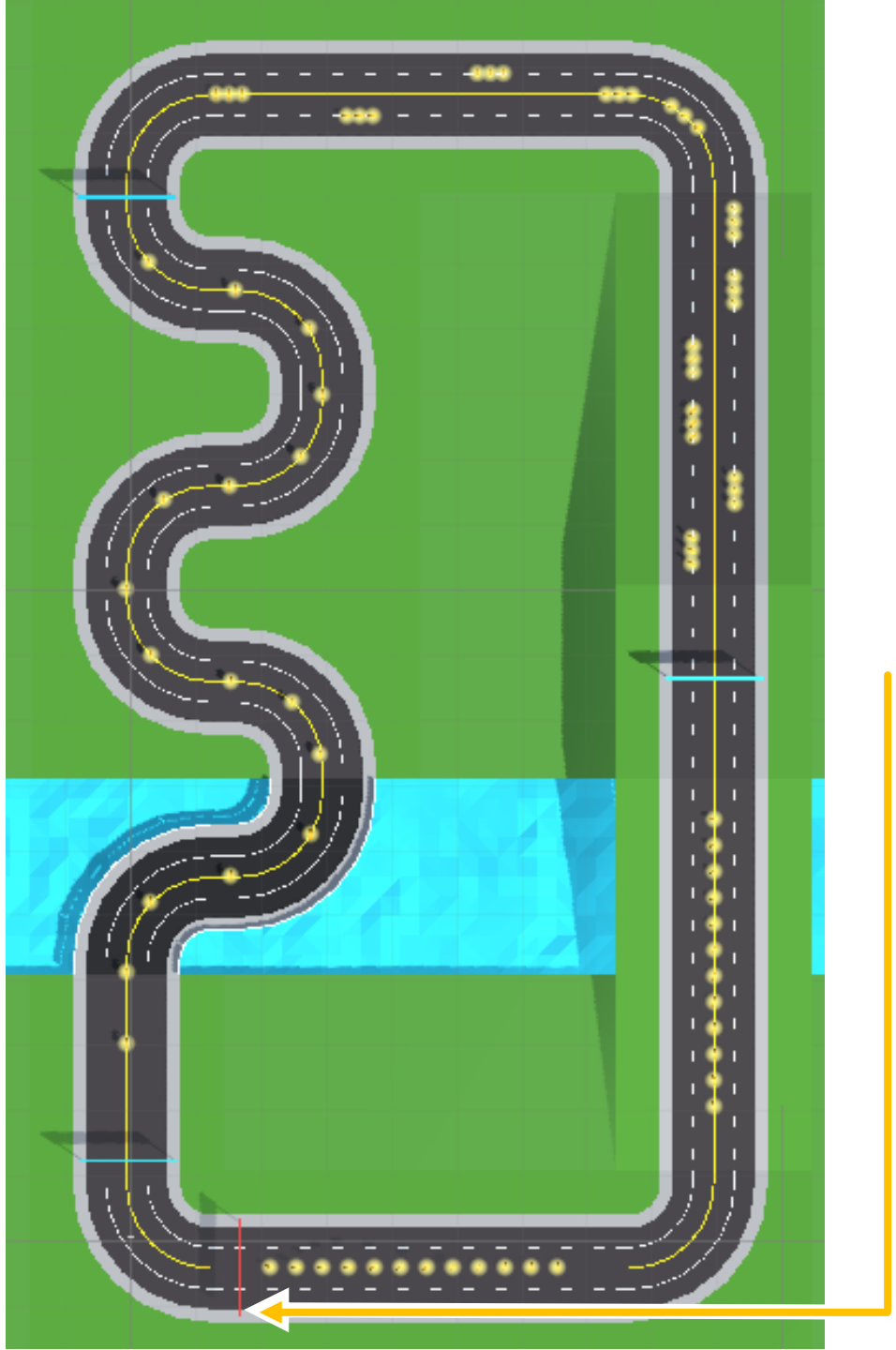
coins: 33



[3]

final sprint

coins: 24



go back to the start of the current part

- If you started a part or the parkour (i.e., passed through 1st , 2nd , 3rd banner) **but somehow got lost** in the scene, press **Y** or **B** to reposition yourself to the banner position of that part.

records

- Report the used time and collected coins in each part and in total.

locomotion technique

guidelines

1) time ↓ & coins ↑

guidelines

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3) Feel free to design your favorite locomotion (Naruto run? There is a superhuman sports in Japan)

https://theunswtimes.wordpress.com/2018/05/14/breaking-japan-to-make-naruto-running-an-official-olympic-sport-at-2020-tokyo-olympic-games/

guidelines

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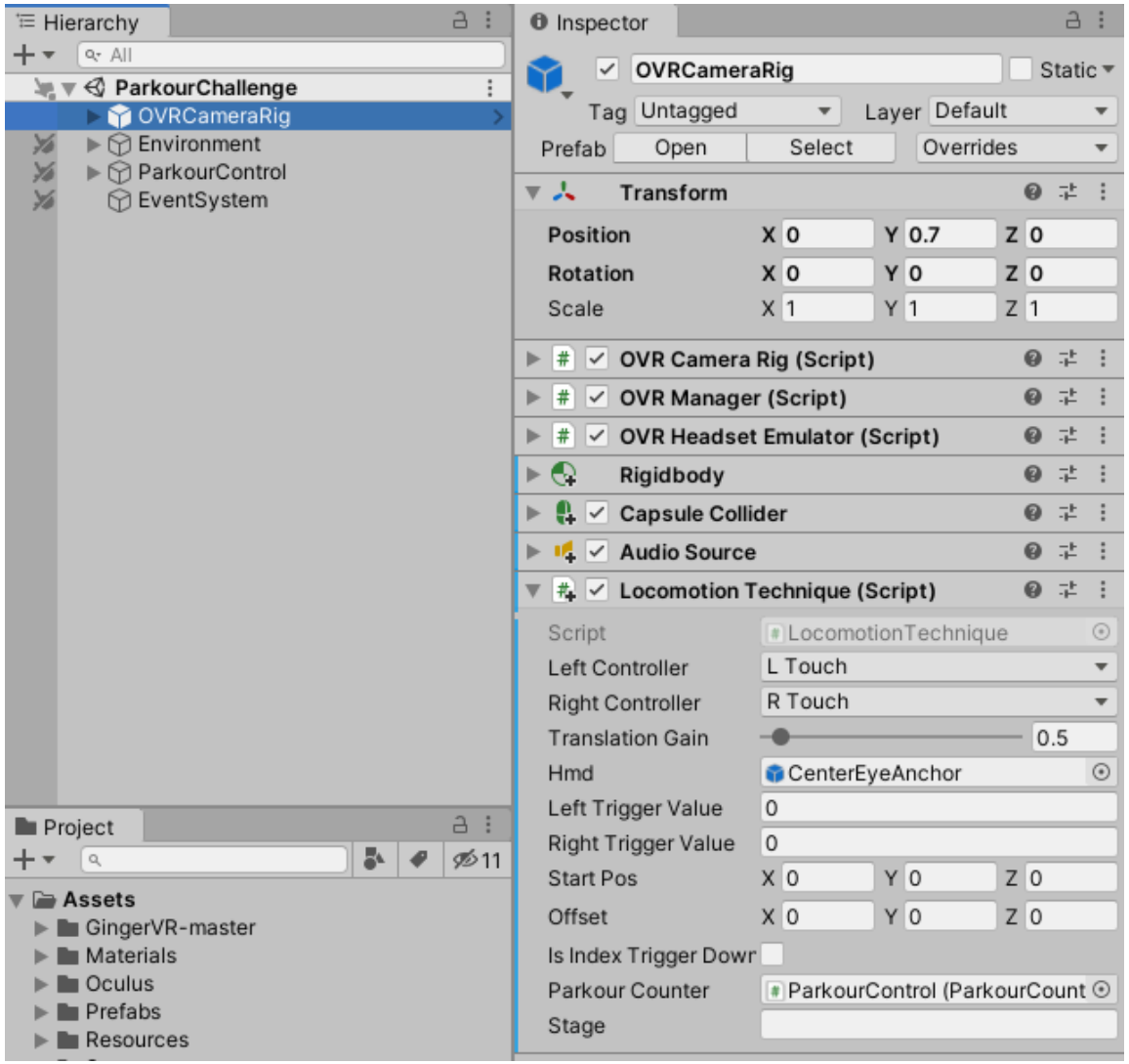
2) By default, we assume the boundary is **stationary**. This means the user is sitting or standing at the same place, and there is not much space.
3) Feel free to design your favorite locomotion (Naruto run?)
4) Please don’t modify the size of the player’s collider or develop an automatic coin collector.

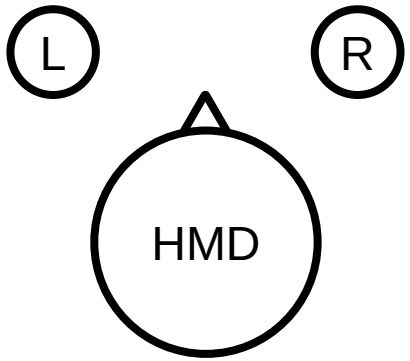
Assets > Scripts > LocomotionTechnique.cs

- Implement your own locomotion in this script
- This script is attached to the OVRCameraRig
- Feel free to add more scripts if your needed to.



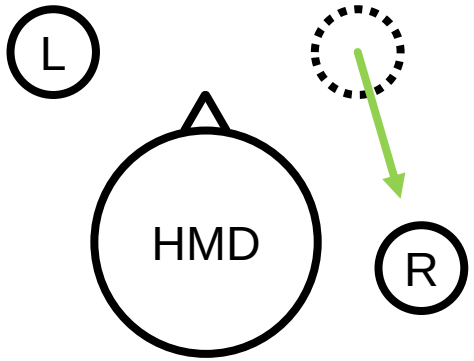
Example: grabbing the air

1)



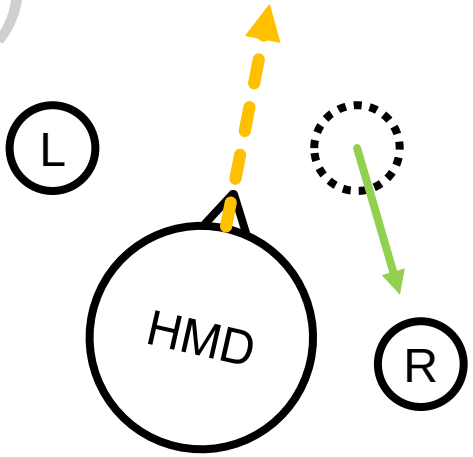
press the
index trigger

2)



compute the
offset vector

3)



add the **offset**
along the **forward**
of the HMD

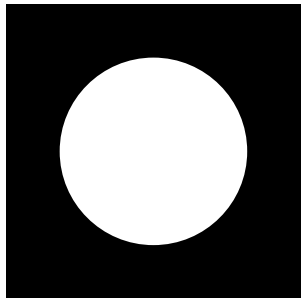
Example: grabbing the air

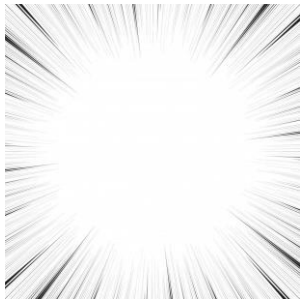
- Since I put the code in Update(), if the user does not release the trigger, the offset will keep adding to OVRCameraRig.
- If both hands trigger → sum up two offset vectors

1) keep cybersickness in mind
2) speed and control
3) ease of use (learnability)

cybersickness

- Problem: locomotion causes the conflict of human sensory system (e.g., moving in VR but standing in the real world)
- Some approaches:
  - **motion**: walking-in-place, arm swinger, and so on.
  - **visual**: reducing field of view (e.g., mask, blur, motion lines)
- References: GingerVR





https://www.freepik.com/premium-vector/comic-book-action-lines-speed-lines-mangframe_7134413.htm

speed and control

- There is a trade-off between **time ↓ & coins ↑**.
  - *Teleport*: reduce the time of traverse, but repeat a lot while collecting coins.
  - *Grabbing the air*: can be quite fast, but cannot control well while very fast. The technique also has bigger cybersickness issue.
  - *Walking in place*: less cybersickness, high control, but perhaps feel fatigue and take a long time.

ease of use (learnability)

- Let’s imagine a spider man locomotion.
  - Could users learn the spider man locomotion quick and smooth?

ease of use (learnability)

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  - Could users learn the spider man locomotion quick and smooth?

- Users are using your technique at their first time, they might not be able to understand the interaction (design) as you did.
- Need some times to fine tune your technique (e.g., the parameters of speed).

bug report

- The game mechanism is in another script -- ParkourCounter.cs
- If you found any bugs or somewhere could be improved in our parkour challenge, please send us an email, we will then decide whether to update the GitHub repo.
- contact: wen-jie.tseng@telecom.fr

Questions?