

Explorers' Travel (Group Projects)

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The whole scene is divided into four sections: city (bottom right), mountains (bottom left), sea (top left) and rainforest (top right)

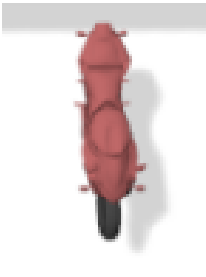
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Introduction to the in-scene interaction model:



Cars



Motorbikes



Aircraft



Pickaxe



Drones

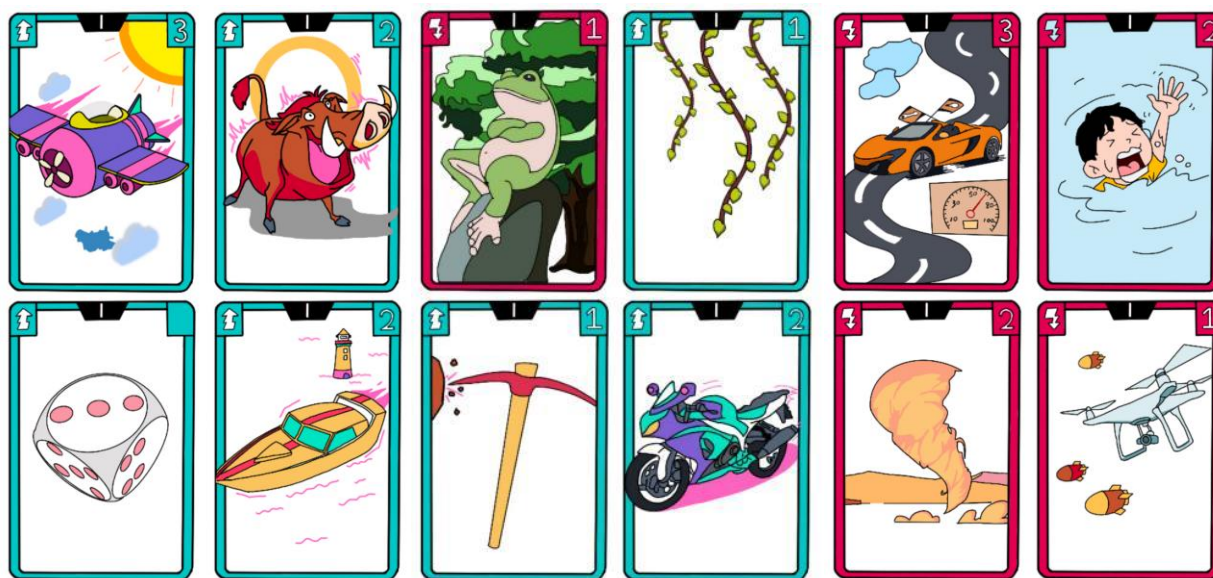


Boat

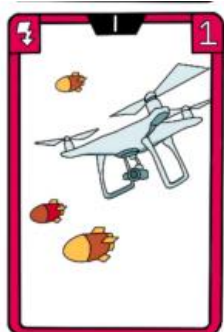


Dice

Corresponding in-game card shapes and effects are described:



Urban decks:

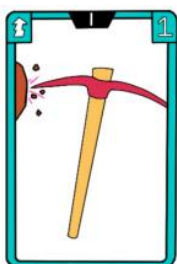


Using a drone card can cause the opposite piece to take a step back, but it needs to be used in the city; if the card is used while not in the city, it will trigger the effect on the next turn.



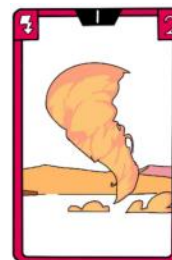
Using a Sports Car card when a piece is in an urban environment will set your opponent's piece back three moves for that turn, or delay the effect for one turn if your piece is not in a city.

Canyon Deck:



If your character uses this card in a non-Canyon scene, you will have to delay your departure for one turn, and you will advance 1 square after using this card.

When using the Sandstorm card you need to be in a canyon scene, if your character uses this card in a non-canyon scene you need to delay your departure by one turn, the opponent is 2 squares back after this card is used.





If your character uses this card in a non-canyon scene, you will have to delay your departure for one turn, and your party will advance 2 squares after using this card.

Marine Deck:

When using the Falling Water card you need to be in a marine scene, if your character uses this card in a non-marine scene you need to delay your departure by one turn, the opponent is 2 squares back after this card is used.



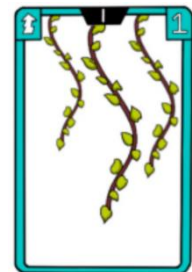
If your character uses this card in a non-marine scenario, you will have to delay your departure for one turn and your party will advance 2 squares after using this card.

Rainforest Deck:



If your character uses this card in a non-rainforest scenario, you must delay your departure for one turn, and your opponent will fall back 1 square after the card is used.

If your character uses this card in a non-rainforest scenario, you will have to delay your departure for one turn. Your character advances 1 square after the card is used.



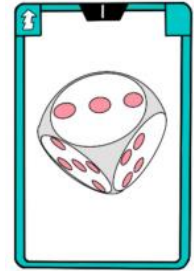
If your character uses this card in a non-rainforest scenario, you will be delayed by one turn from using it. Your character advances 2 squares after this card is used.

The following cards can be used free of the scenario rules:



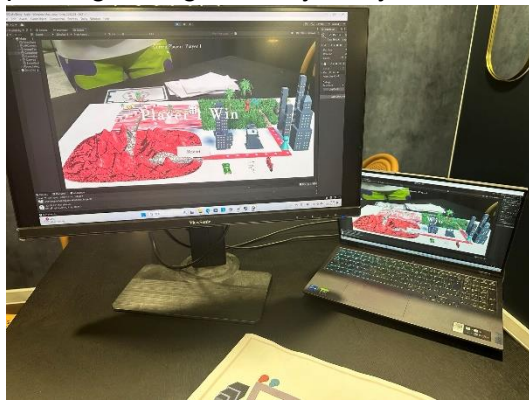
There is no limit to the number of times you can use an aeroplane card, and it can be used in any scene to trigger immediately, advancing your character by three squares.

There is no restriction on the use of dice decks, they can be triggered immediately when used in any scenario, and at the end of the use of a dice deck, the currently available turn ends and the enemy's turn enters.



Board game rules

The game starts in the city and the player will be the first to complete the explorer game after passing through the city, canyon, ocean and forest as a condition to win. During this process, the cards drawn each turn can be used to cause disruption to the opponent or to help you win the game faster.



Teamwork

Our team consisted of Yujie Gao and Yuxuan Ji. Board games have always been popular with young people, and through research and analysis we found that the interaction behaviour in board games only exists in 2D cards, whereas our project wanted to explore it from a 3D perspective, so we created Explorer's Journey. First we defined the presentation of the game, which is different from a normal board game: We used Unity's image recognition and combined it with AR to interact with the game, then we drew the cards and the elements needed for the scene and built the whole scene and the interaction models needed to use them by modelling them. Finally the final result was obtained by linking and debugging.

Difficulties encountered

As our models were done in Rhino software from modelling to rendering including mapping, after importing into Unity, we made changes to the models in Unity as the axes of each model in

Unity are centred on the world and not the object itself. Then in the making of the game we found the hand drawn cards were too simple to recognise and we then modified them all. In the process of writing the code, after watching the Unity+Vuforia tutorial we decided to start with the card recognition, but during the process some of the cards did not give us the appropriate feedback and we found a solution by searching Google for keywords. After completing the code we tested the game, but during the testing process we found a problem with the game logic: all cards and dice could only be used once, so we rechecked the code and found a loophole in the game logic, which eventually solved this important problem.