



INSTITUT
POLYTECHNIQUE
DE PARIS



MRTK PROJECT TROLLEY RACE ADVENTURE

Jiwon KANG - Sara NARANJO

TABLE OF CONTENTS

- The Idea After Brainstorming **01**
- The Game Assets **02**
- UI Design & Game Setup **03**
- How to Play the Game **04**
- Scoring System **05**
- Summary & MRTK Components **06**
- Final Thoughts **07**

THE IDEA AFTER BRAINSTORMING

A fast-paced, immersive Hololens 2 game where players race trolleys on dynamic circuits. The goal is to finish the track as quickly as possible while:

- Collecting Good Items (Cherries) for points.
- Avoiding Bad Items (Bananas) that slow you down.

Controls:

- Turn right and left using buttons.
- Adjust speed using the keyboard (up/down keys)

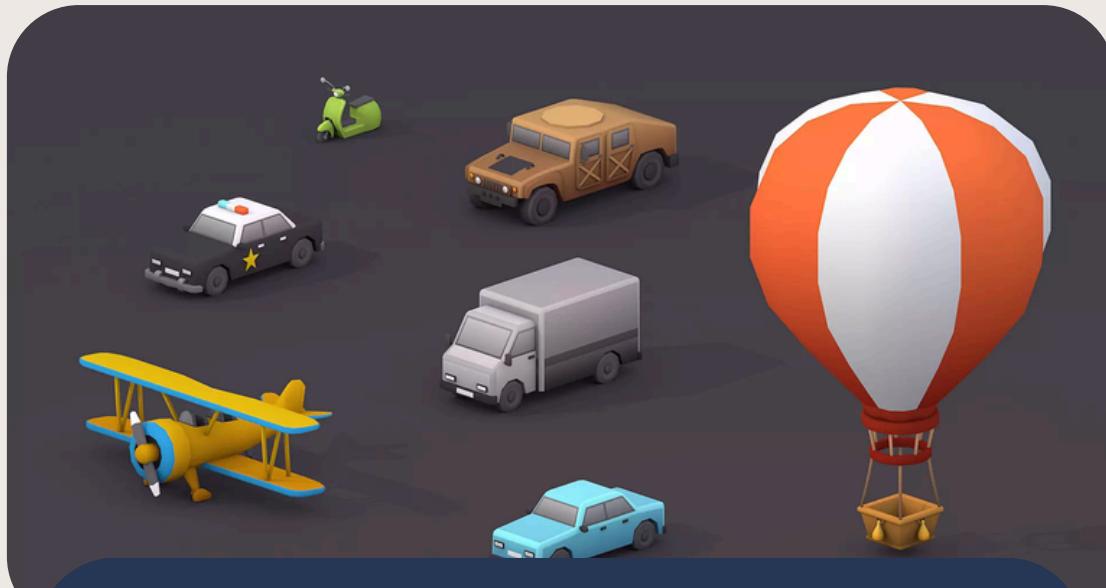


GAME ASSETS FROM THE UNITY ASSET STORE



**Fruits
(Game Items)**

- Good Items: Cherries (increase score)
- Bad Items: Bananas (penalty)



**Trolleys
(Playable Characters)**

- Choose your trolley in the start menu



**Circuit
(Gameplay Levels)**

- Level 1: Circuit with less fruits to collect and to avoid
- Level 2: Circuit with more fruits to collect and to avoid

UI DESIGN AND GAME SETUP

01

Vehicle Selection

- Players choose a car before starting the game
- Component used: Slider
- Implementation:
 - Three car prefabs are available.
 - The car selection updates dynamically when the slider moves.
 - The chosen car spawns when the game starts.

02

Level Selection

- Two levels available: Easy & Hard.
- Component Used: Dropdown
- Implementation:
 - Level selection determines how many objects (Apples & Bananas) are placed in the circuit.
 - Easy Level → Fewer objects.
 - Hard Level → More objects.

03

Start Button & Instructions

- Players begin the game by clicking the Start Button.
- Instructions appear in a pop-up dialog.
- Component Used: Button, Dialog.

HOW TO PLAY THE GAME

1

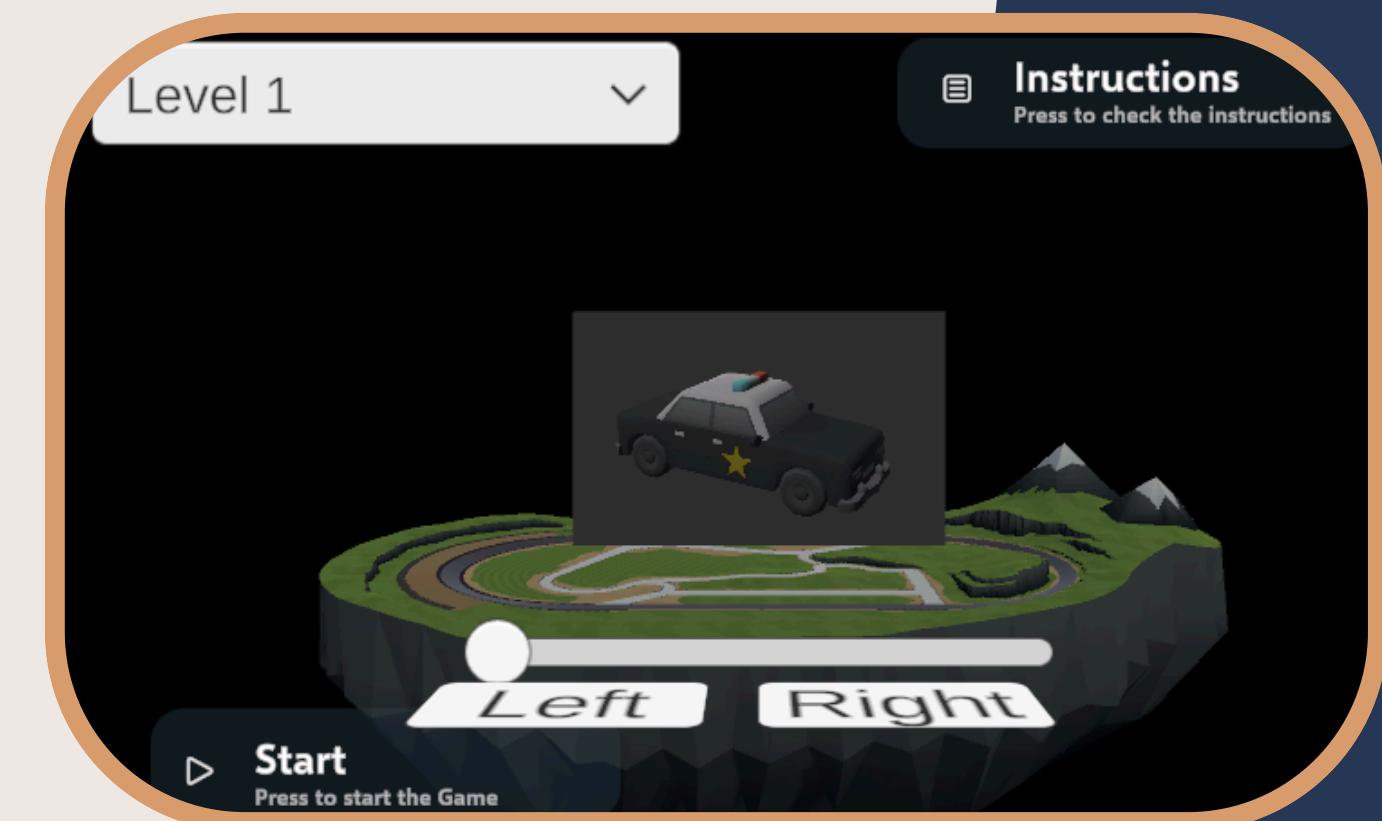
Turning the Car

- Two buttons for turning left and right.
- Component Used: Button
- Implementation:
 - Holding the button rotates the car in the respective direction.
 - When the button is released, turning stops.

2

Speed Control

- Use Up & Down Arrow keys to increase/decrease speed.
- Bonus: Keyboard input for enhanced control.



SCORING SYSTEM

- Good Items (Cherries) → + Points.
- Bad Items (Bananas) → - Points.
- **The Scoreboard** appears after finishing a level.
- Component Used: **TextMeshPro UI** for score display.
- Implementation:
 - Objects spawn randomly in the track.
 - Score updates dynamically when collecting items.
 - After reaching the finish, the final score appears.



SUMMARY & MRTK COMPONENTS

| Feature | MRTK Component |
|------------------------------|----------------|
| Vehicle Selection | Slider |
| Level Selection | Dropdown |
| Turning Control & Start Game | Buttons |
| Instructions | Dialog |
| UI Scaling | Bounds Control |
| Game Settings | Near Menu |

FINAL THOUGHTS

- Successfully integrated AR gameplay with MRTK3.
- Implemented interactive UI to enhance player experience.
- Future improvements:
 - Voice Commands for controls.
 - More complex level designs.
 - Obstacle-based challenges (mud zones, randomly spawn objects)