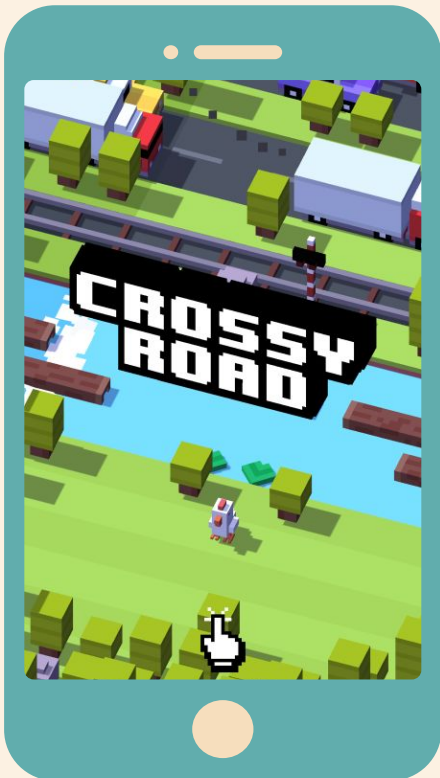


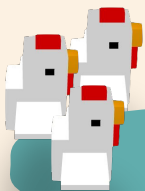
To Get to the Other Side

Andrew Wang • Jason Zhang



Description

- Modeled our project off the popular mobile game *Crossy Road*
- Player controls a chicken avatar that tries to cross roads, railroads, and rivers
- Goal of the game is to survive as long as possible by dodging all the moving obstacles!
- Decided to name our game after the tail end of the famous joke — *Why did the chicken cross the road?*



Features

01

Modeling & Transformations

Created models of player, obstacles, and camera, using matrix transformations for movement

02

Level System

Players can toggle between endless mode and level mode

03

Procedural Lane Generation

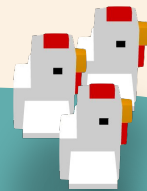
Randomly generates rest lanes and roads, and each lane has a random number of obstacles

04

Miscellaneous

Intuitive UI that allows players to easily pause, restart, and toggle mode + charming chicken animations

Interactive Features



WASD to Move

WASD is used to control the chicken in the four directions



Gameplay Shortcuts

(R) to restart

(P) to pause

(T) to toggle mode

All with corresponding UI buttons!

Speed Boosts

Pressing **space** lays an egg that gives the chicken a temporary speed boost



Sandbox Features

(E) to revive

(I) to toggle invincibility

(H) to see BTS collision detection logic



Advanced Features



Collision Detection

AABB collision detection algorithm between the chicken and obstacles and between moving obstacles on the same lane
Some extra logic needed to find the direction of collision, used for non-lethal obstacles.

Physics-Based Simulation

Perfectly elastic collisions between moving cars, where momentum and kinetic energy are both conserved.





Challenges



Modeling

Creating complex, reusable, and modular shapes from simple cubes



Performance

Optimized number of lanes drawn and minimized checks needed for collisions
Room for improvement!

Collision Handling

Initial implementations had obstacles getting stuck within each other
Stationary obstacles required forcing the chicken to the colliding edge



UI Canvas

Drawing and aligning multiple 2D canvases, along with stacking and styling HTML elements on top



Future Plans



Obstacle Variety

different types of cars,
trains, and river crossings
with moving logs



Power Ups

randomly spawn
powerups like
invincibility, super speed,
and extra lives



Custom Avatars

multiple avatars beyond
the chicken that players
can choose



Thanks for listening!

DEMO

tgttos.onrender.com

The background is a solid light beige color. In each of the four corners, there are stylized, overlapping shapes representing eggs. Some are white with a light beige shadow, and others are a solid mustard yellow color. They are arranged in small clusters, giving a sense of depth and softness.

**Thanks for
listening!**