

Robot Dog Maze Adventure

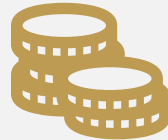
Devyn Miller



Game Concept & Objective



Guide a robot dog through a 3D randomly generated maze.



Collect coins, avoid obstacles, and reach the goal.



Complete the challenge before the 2-minute timer runs out.



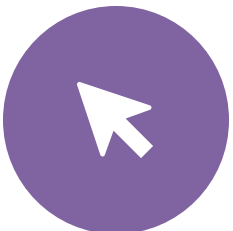
Character Controls & Actions



Move: W/A/S/D or
Arrow Keys



Rotate Head / Tail / Legs
(Animated
automatically)



Jump (J), Toggle AI
Navigation (M)



Switch Cameras (Space),
Pan/Zoom/Rotate using
keyboard or mouse

Technical Features Implemented

Articulated 3D model with >8 movable parts

Hierarchical scene graph: movement of limbs/ears/tail/head

Dynamic camera system: pan, rotate, zoom, orbit

Collision detection with walls and hurdles

Maze generation: randomized DFS

Confetti celebration, ear expressions, flying/jump states

Scene & Controls

Video demo shows maze scene, robot dog animation, and camera transitions.

Camera responds to panning, rotation, and zoom with smooth transitions.

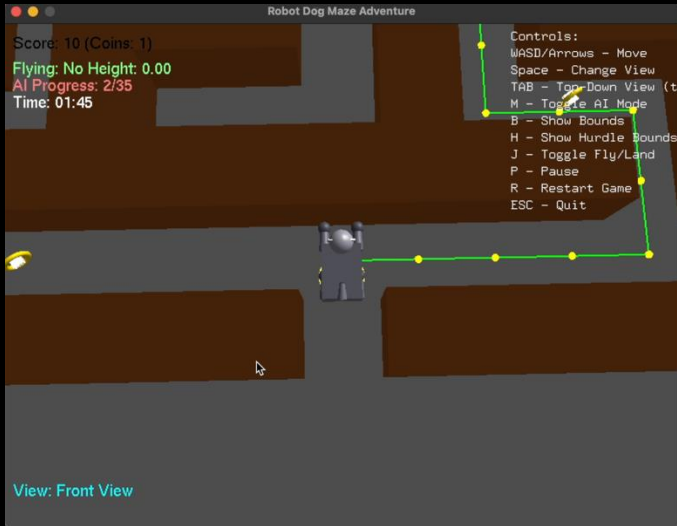
Side/front/back, top-down, third-person OTS, and first-person views available.



Controls:

- WASD/Arrows - Move
- Space - Change View
- TAB - Top-Down View (t
- M - Toggle AI Mode
- B - Show Bounds
- H - Show Hurdle Bounds
- J - Toggle Fly/Land
- P - Pause
- R - Restart Game
- 1/2/3/4 - Pan (L/R/U/D
- Q/E - Roll (L/R)
- Z/X - Yaw (L/R)
- T/G - Pitch (U/D)

Goes Beyond Base Assignment



AI assistant that
navigates maze
autonomously

Flying animation and
confetti win celebration

Detailed HUD feedback
and animated text

Challenges & Takeaways



Grid-perfect movement + smooth animation so that the robot moved cell-by-cell in the maze while still animating legs and body naturally.



Making all limbs, head, and tail fall and recover using parent-child transformations.



I now appreciate the planning needed for game logic, camera flow, and animation to all work together smoothly.



Acknowledgements

- Maze generation algorithm inspired by Wikipedia (randomized DFS)
- AI helped generate ideas and refine OpenGL text animation
- No third-party graphics libraries used