DDR Whack-a-mole!

Ara Adhikari, Victoria Ouyang, Davis Tran


WHAC-A-MOLE
BONUS
025
TIMER
YOUR
000
SCORE
HIGH
000
SCORE


PERFECT!!
116
combo
PERFECT!!
116
combo

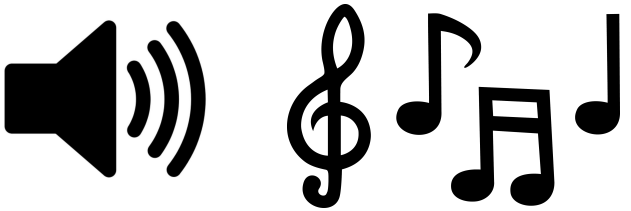

SELECT
START
Stay Cool!

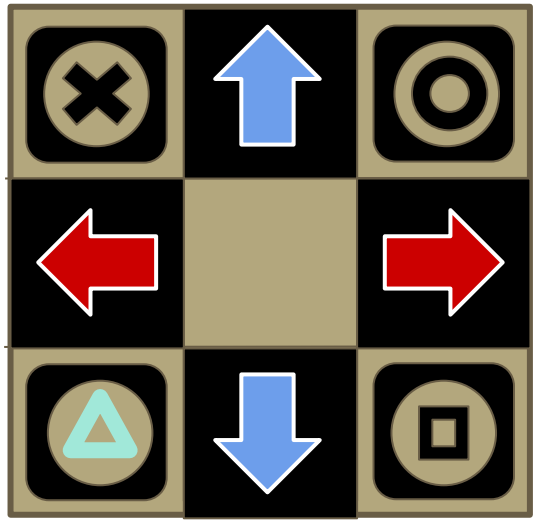

SELECT
START

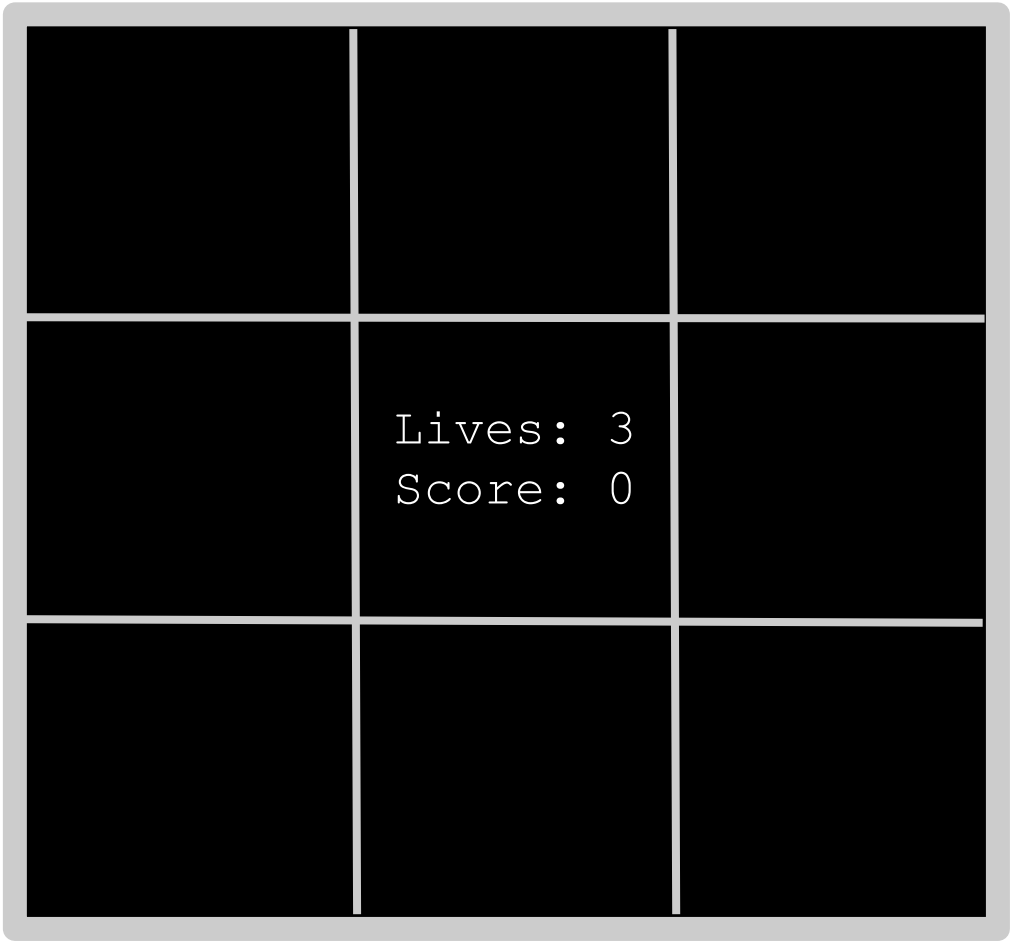
Game Demo

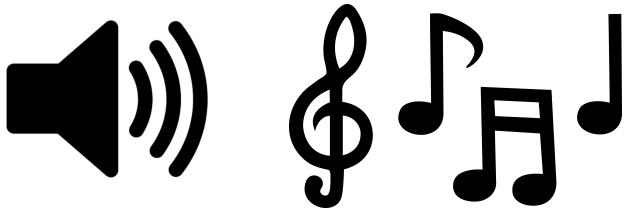
DDR
Whack-a-Mole!

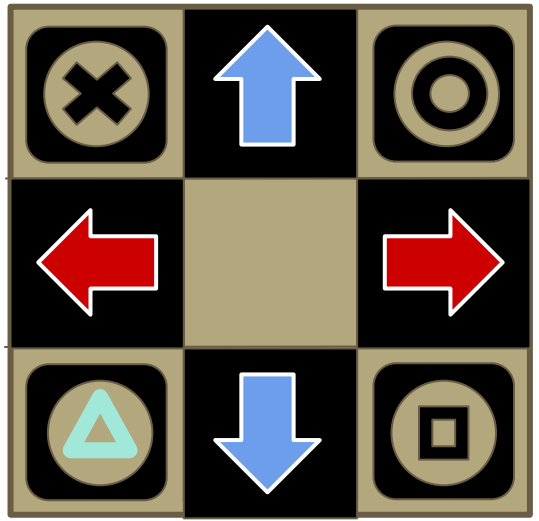
Press  to play

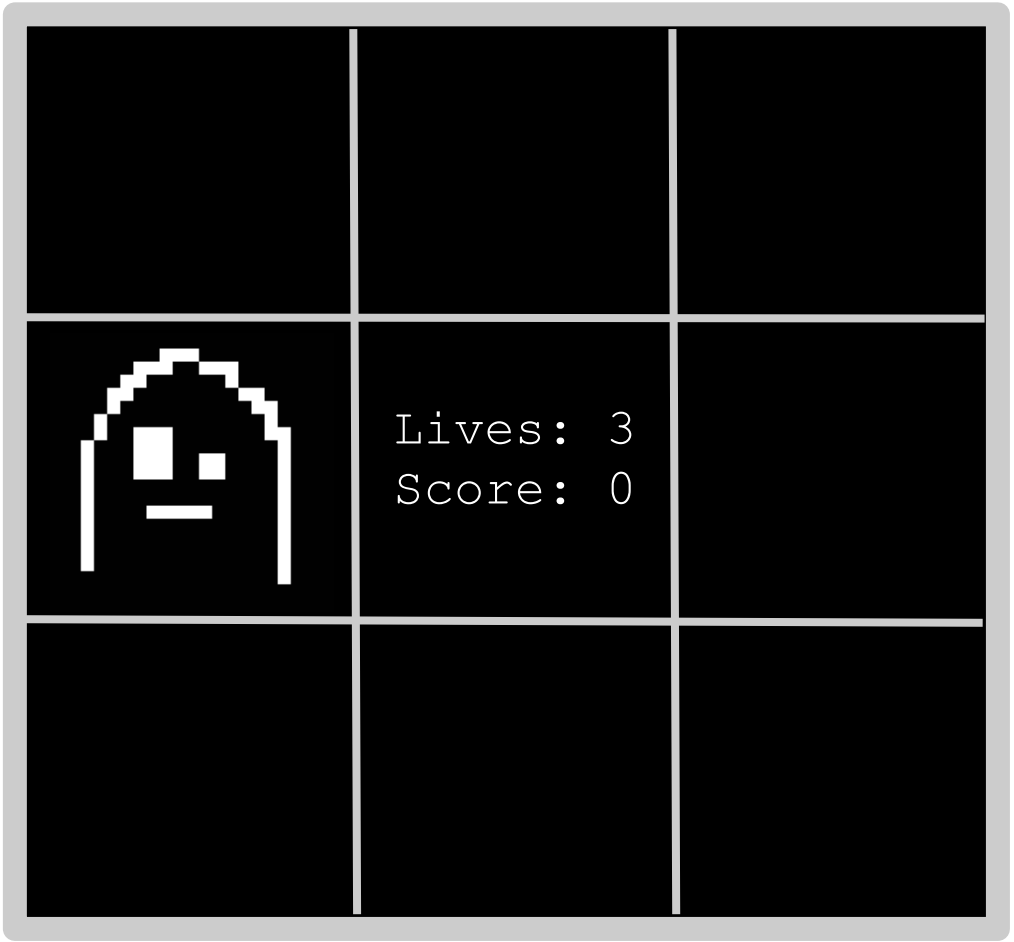




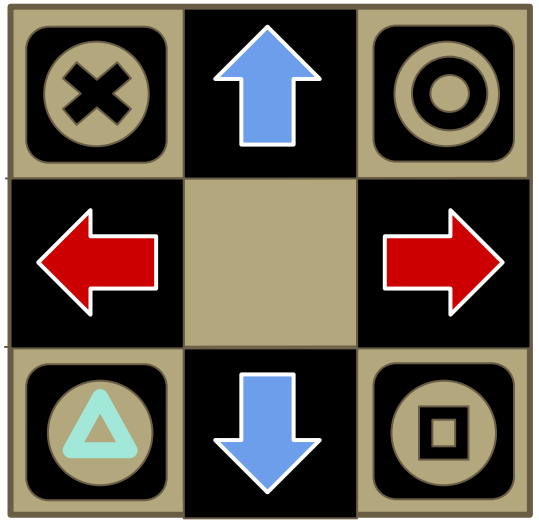

Lives: 3
Score: 0

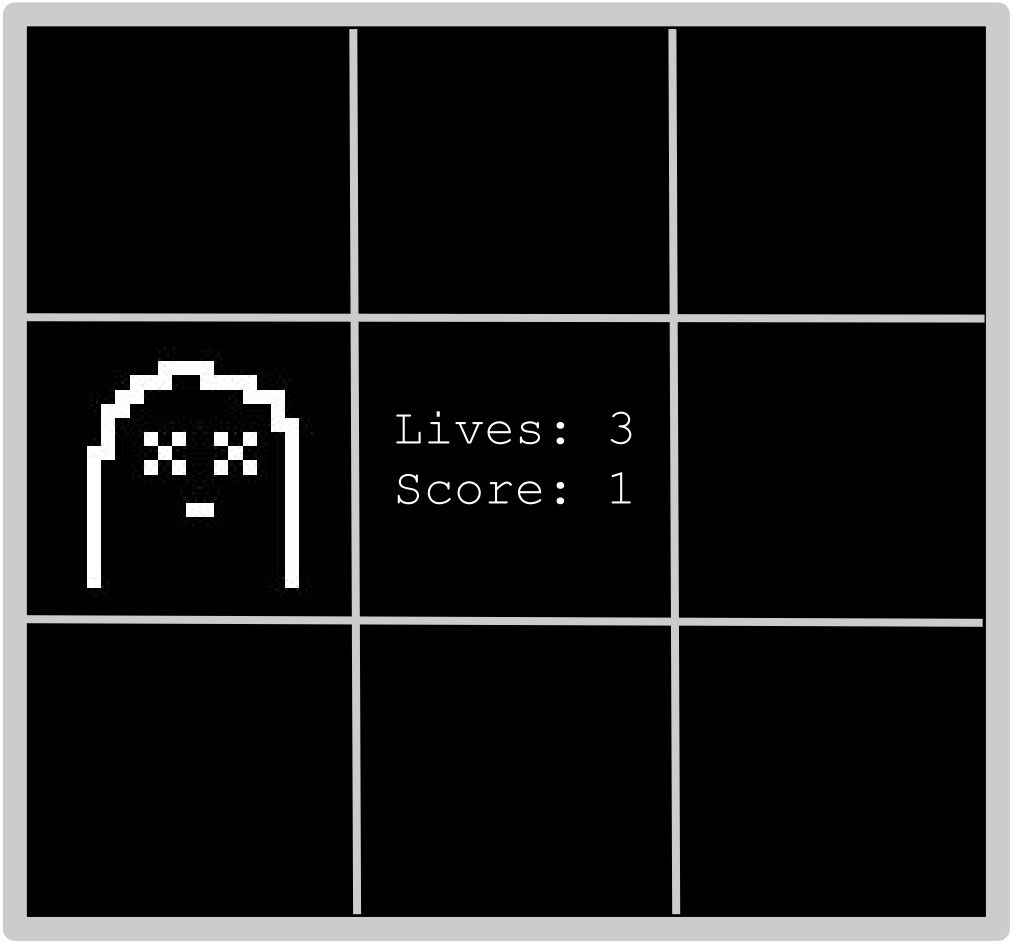




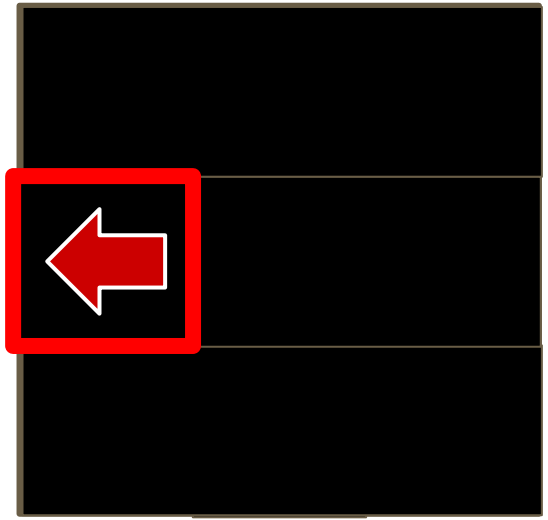


Mole Sound

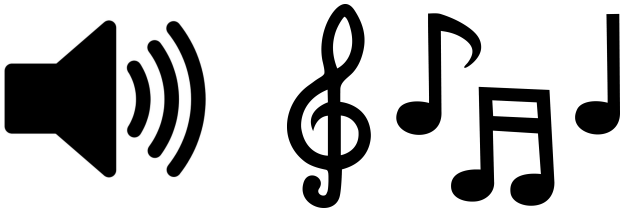


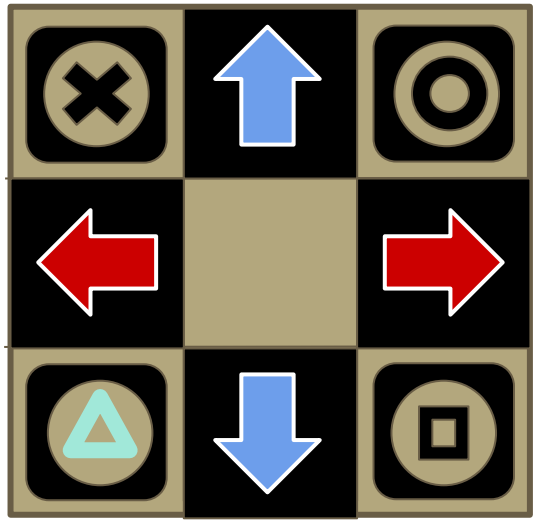


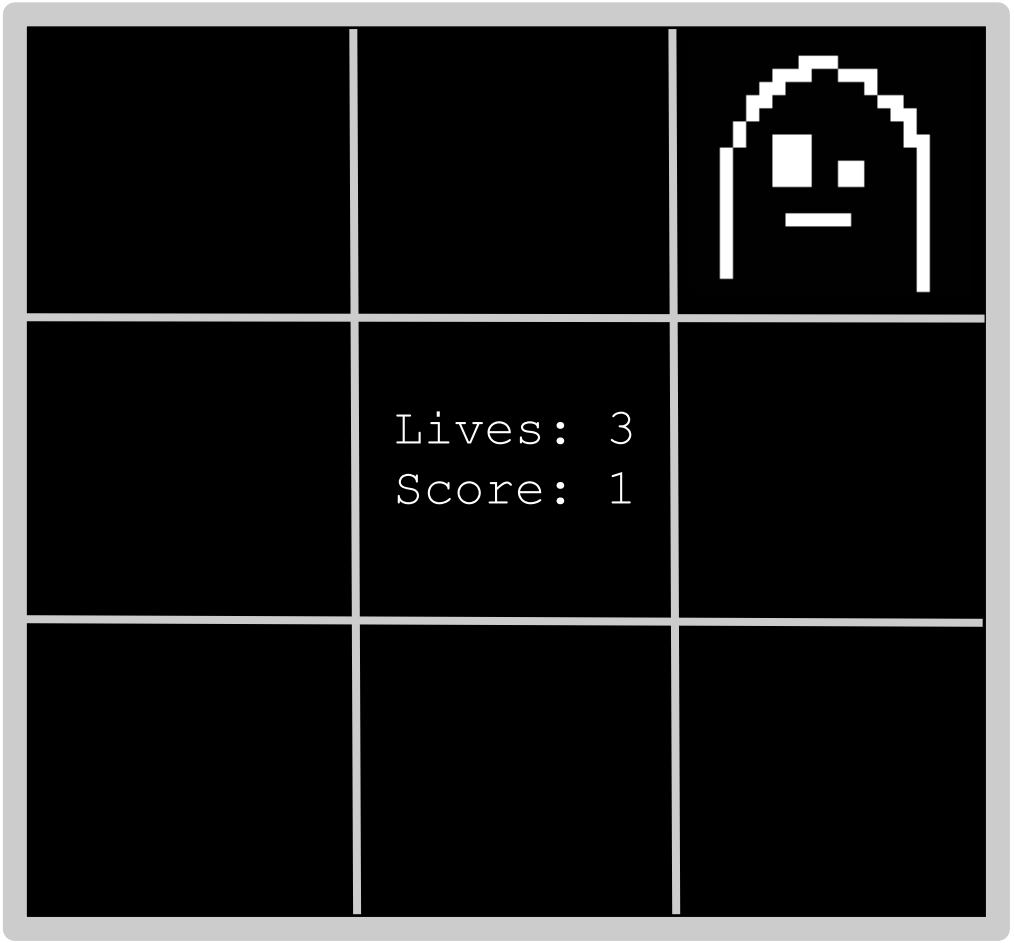
Dead Mole Sound



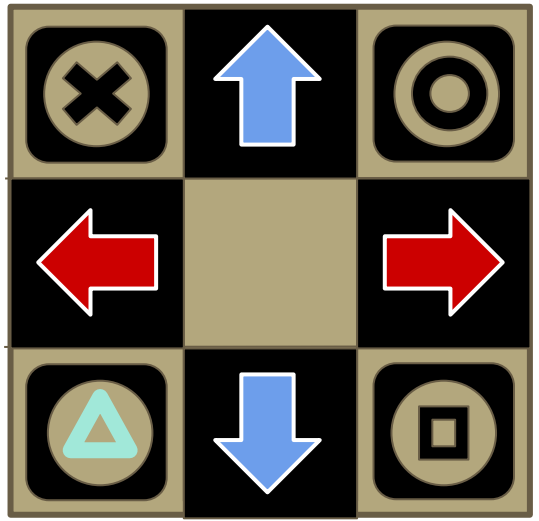
Lives: 3
Score: 1

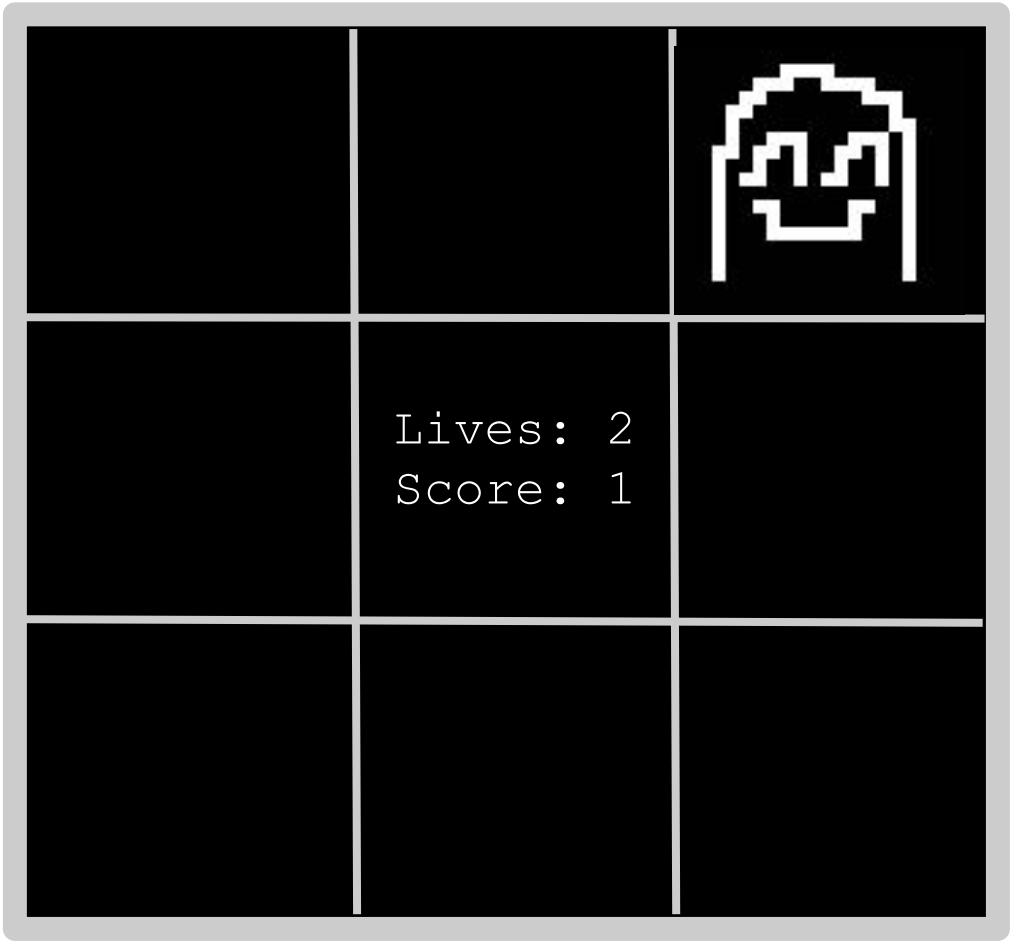




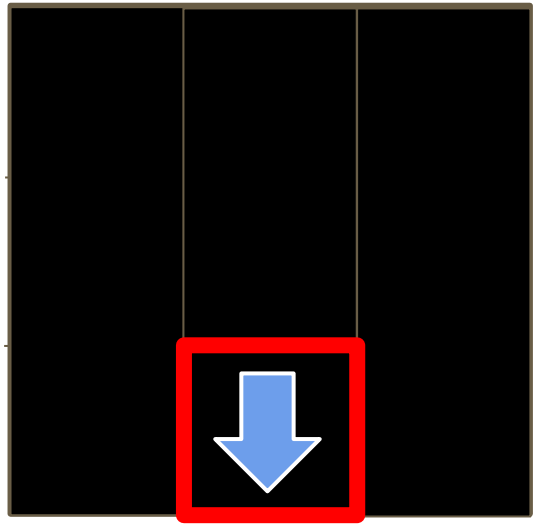


Mole Sound

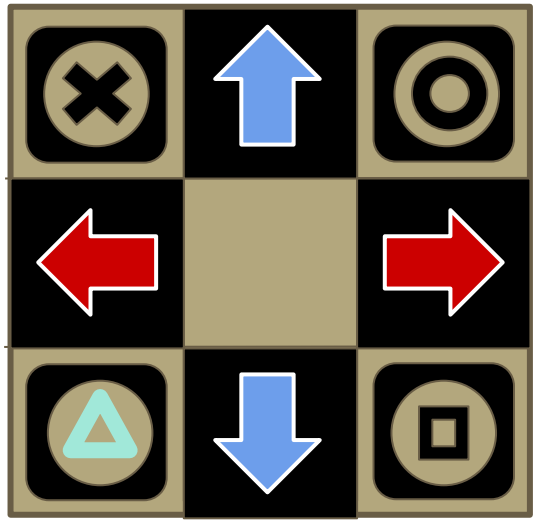




Mole Cackle



Mole Cackle

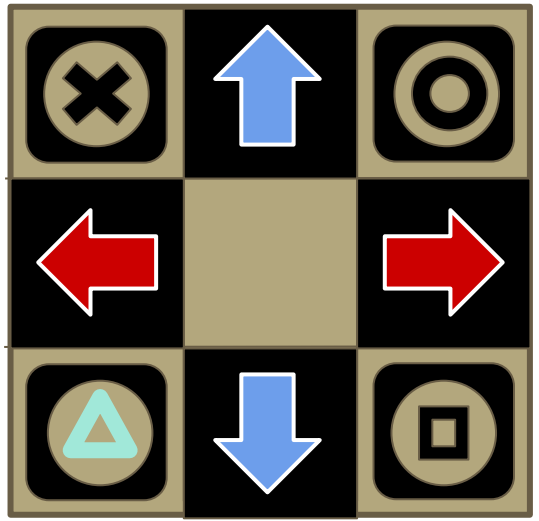


Game Over

Score:42

Press  to play

Game Over Noise



Why Do We Want To Do This?

Fun (game, dance-related)

Interactive

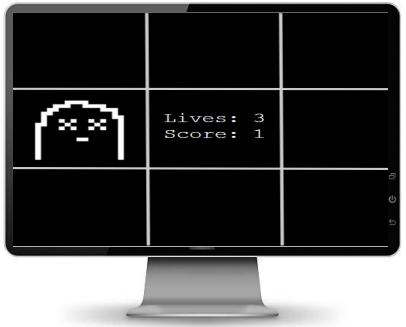
Expandable

Overall Design

Game Logic

BRAM

Graphics

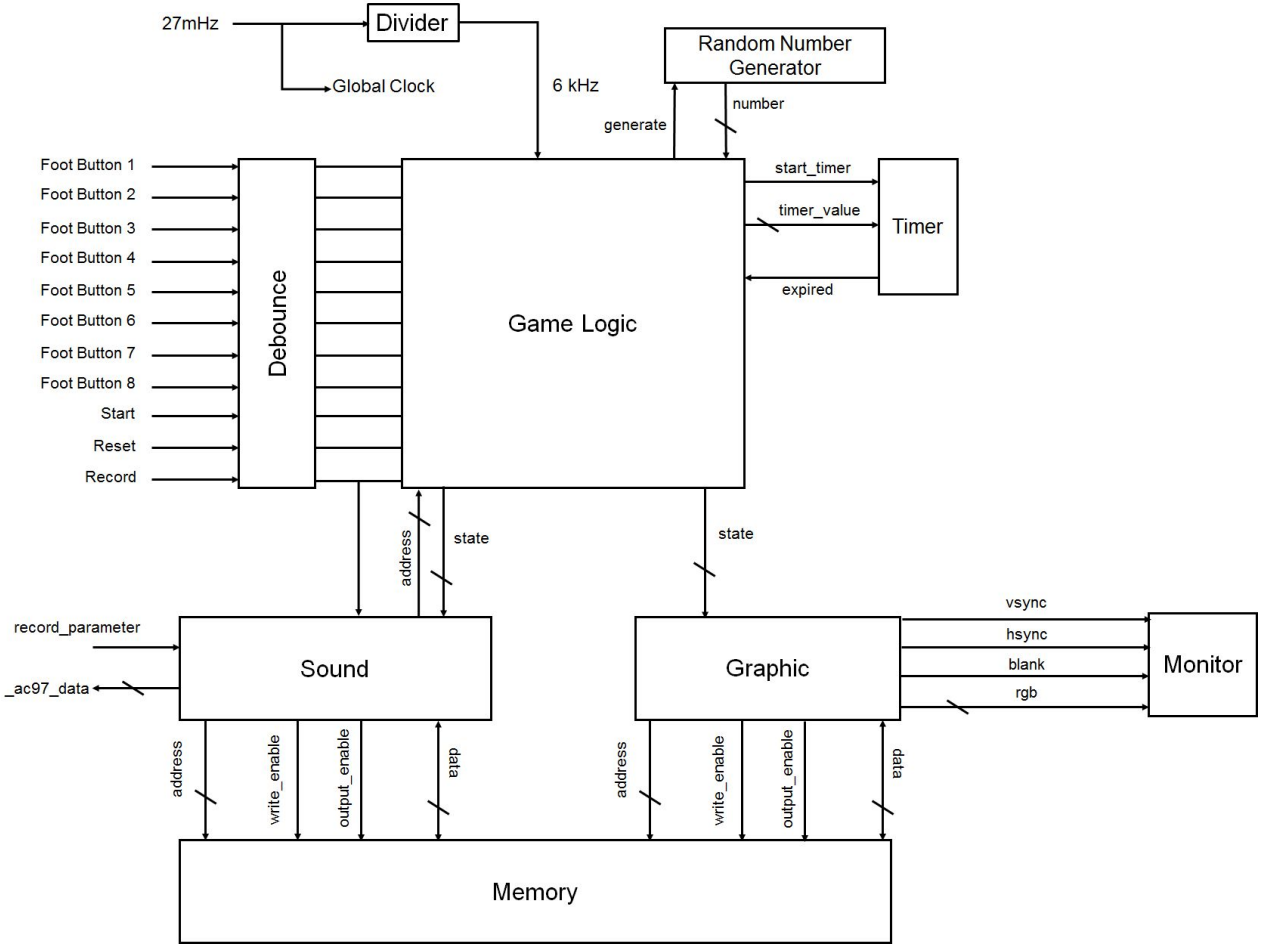


Flash Memory

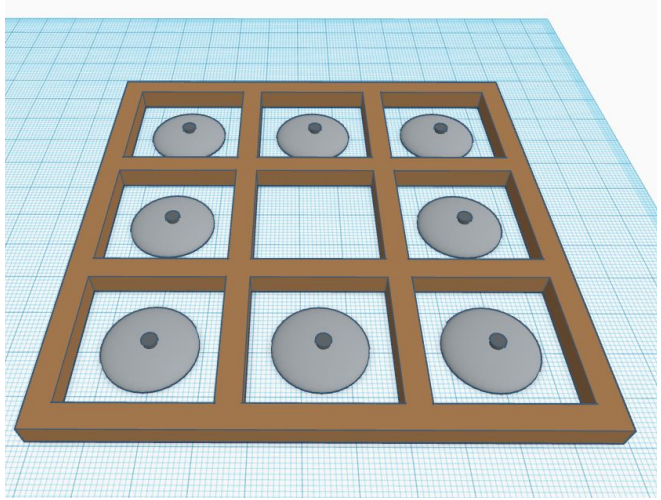
Sound

Block Diagram

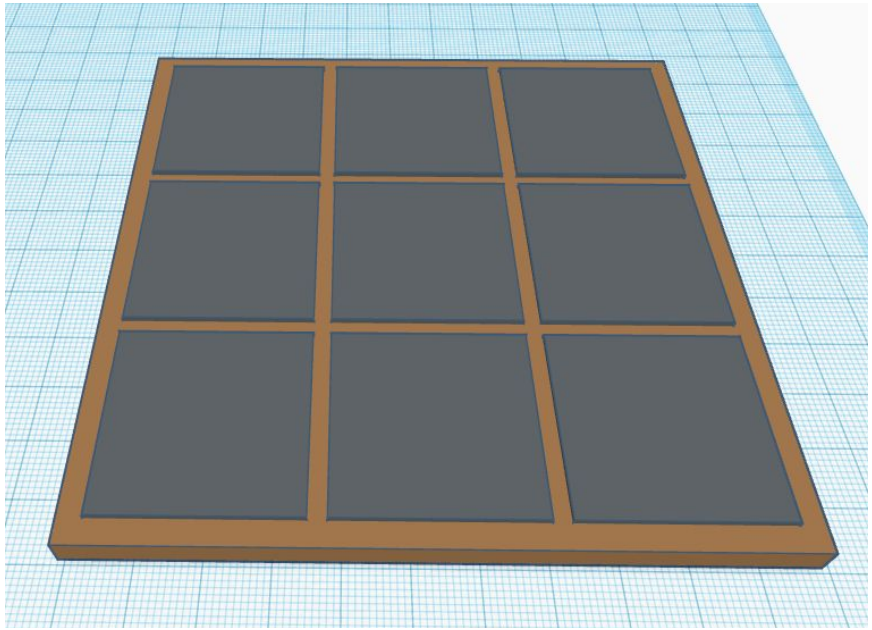
6.111 Labkit

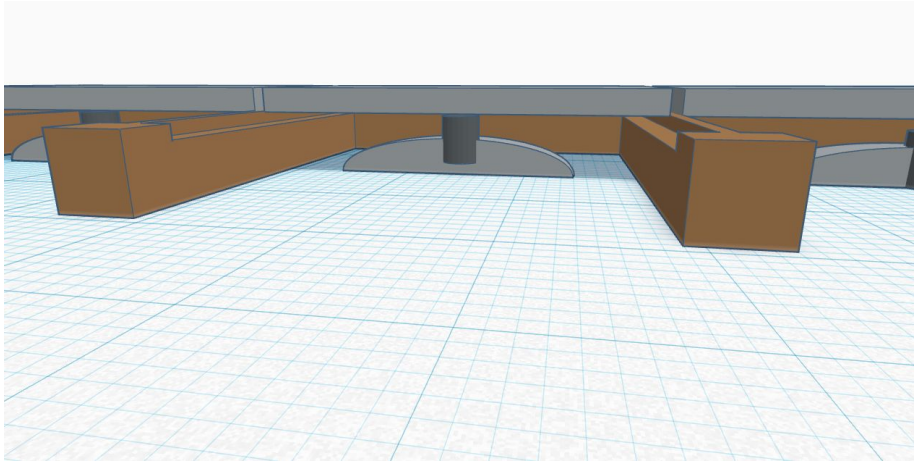


Customized Board



Customized Board





Game Logic Module

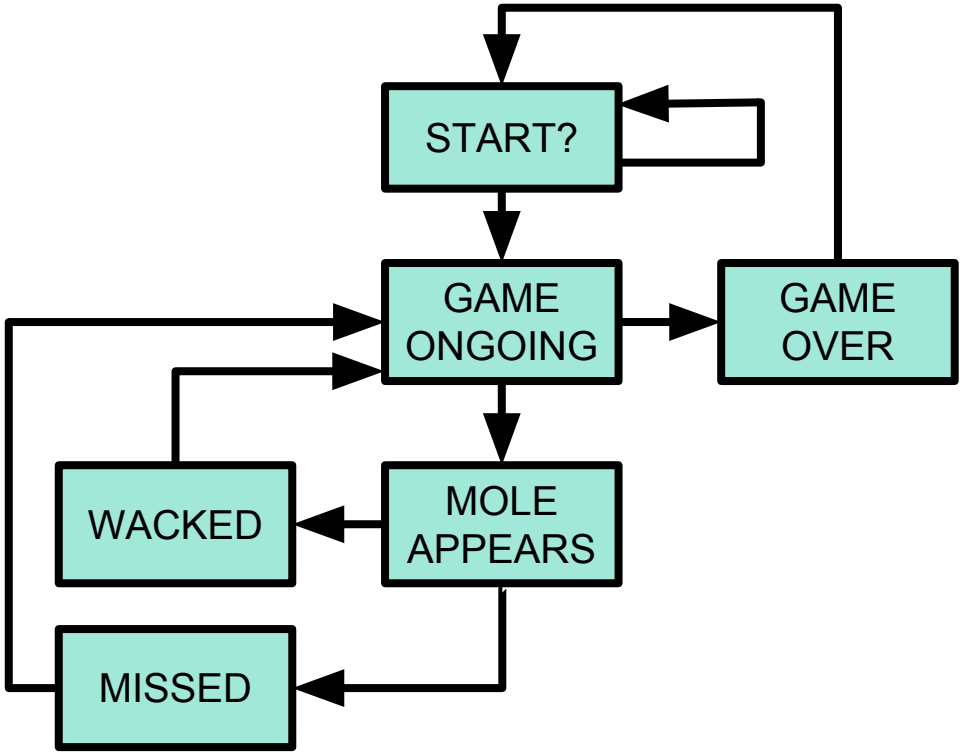
Manages Game State

Tracks Lives & Score

Controls Mole Timings & Locations

Updated by Foot Buttons

Outputs to Sound & Display



Preprocessing Images

- Images are preconditioned using photoshop (24-bit to 8-bit)

- Use MATLAB script to convert image to fpga-friendly format

Pre-Gaming: Image, Audio → Flash

Serial

Flash Memory

Flash Memory

Microphone to 6.111 labkit

Sound Module

- Game state input → address→ retrieve audio data from flash
- Audio output to to_ac97_data
  - Background music
  - Sound effects for mole hit/miss
- Address output to game logic module
  - “timestamp” for mole pop-up

Graphics

- Load images from flash to BRAM right before game starts
- Outputs from game logic module determine
  - Which graphics to be displayed
  - Location of graphics on screen
- Additional graphics features to be added later

Game Features

- Base Goal
  - one mole with hit/normal/miss graphics
  - sound effects for hit/miss
  - background music
- Additional Features
  - Multiple moles
  - Gradual pop-up/disappearance of moles
  - Speed up game to real-time
  - Incorporate difficulty levels to the game

Projected Timeline

Thur 11/9	In-Class Presentation
Mon 11/13	Images converted to fpga-friendly format
	Basic Game Logic Modules Created
Fri 11/17	Flash Memory Storage Modules Created
	Musically Synchronized Moles Module Created
Fri 11/17	Submit Checkoff Checklist for Project
Sun 11/19	Game Logic FSM States Finalized, Integrate with Sound & Graphics Modules
Sun 11/26	Meeting to Determine Which Additional Features to Implement
Mon 11/27	DDR Board Built
Mon 12/11	Final Project Checkoff 4-10pm
Tue 12/12	Project Demos and Videotaping
Wed 12/13	Final Project Report Due @ 5PM

Questions?