

HOUSE OF TARG PRESENTS...

@TOM_DESIGNIC

Good Ol'
TETRIS



\$12.50 + TAX

NOV. 2ND
6:00 - 8:00 PM

House of
TARG

1077 BANK STREET OTTAWA, ON

PINBALL & PEROGIES

YEAR 2025
WWW.HOUSEOFTARG.COM

When powered on, the Pico displays a title screen, and the music starts playing. The program awaits the rotate button input. Once pressed, the game board appears, and the game starts. The Tetris board is drawn on the screen, and a random tetromino appears at the top. The program keeps track of the current piece's position and shape. In each cycle of the main loop, the game checks the timer to see if it's time for the piece to fall one step lower. Simultaneously, it checks button inputs for movement, rotation, hold, fast drop, and pause. Throughout the gameplay, the Tetris theme plays on loop with a 30-second pause between each loop.

As pieces land, the program merges them into the board's grid and checks for full horizontal lines. Completed lines are cleared; each line cleared increases the score by 100 points, and all blocks above shift downward. Every 200 points, the shapes fall faster to raise the difficulty. A short jingle plays every time a line is cleared; multi-line clears have a different jingle.

If a new piece cannot be placed because the board is filled, the game detects a Game Over condition. The GAME OVER screen displays with the record high score. The music stops, and the system waits for the rotate button press. Once pressed, the title screen returns, resetting all variables for a fresh round. The game saves and remembers the highest record score. This is achieved by creating a text file within the pico's memory. For every new record, the text file is rewritten, and the program calls for the text file when displaying the new record.

Chat-GPT was used as a tool to write the majority of the code. I started with the test script and a Tetris game logic code that I found on GitHub. Features were added one by one, where I had to learn the vocabulary, such as debounce and refresh. For debugging, describing the bug to Chat-GPT achieved satisfactory results.

Tom Sun

Social Media post

<https://www.instagram.com/reel/DR0SAc3kdyU/?igsh=MTI5aGpwZ3p2M3d1eA==>

I have shared my game on LinkedIn and Instagram. For LinkedIn, I shared a video showing the enclosure and gameplay loop. Paired with it was a show description of the project and design intent. The post was well-received with over 35 likes and one comment. Most likes were from Carleton Industrial Design students, with a few from Humber College. I shared a reel on my design account's Instagram. I showed the enclosure, core gameplay, soundtrack, and internals. It does not have any narration or text, just acoustic audio. A short description accommodates the reel: Industrial Design 4th year minor project 1. Electronics and enclosure designed by me, using a Raspberry Pi Pico 2 and some help from ChatGPT. I have shared similar projects in the past, so this post had a similar interaction. As of writing, the reel reached 680 views, with 78% from non-followers. I received compliments from friends and classmates. One person asked for the STL file, which made me realize that my work could be monetized. To do so, the design must be further refined since a lot of internal details have been ignored.

TARG Showcase

My game was presented at the TARG Arcade in a showcase event organized by my instructor. It was open to the public, and everyone at the arcade was welcome to play our games. It was dark in the arcade, and there was a lot of visual and auditory noise; thus, it was a difficult setting for my game to catch attention. Compared to the buzzing and flashing arcade machines, my game looked minuscule. It was difficult to attract attention from the audience by itself. However, when people got on my game, they enjoyed it. And their enjoyment attracted more players. People liked the enclosure for my game and thought it fitted the Tetris theme perfectly. Small details like the tilting screen and the on/off switch fascinated the players. Since the context of the arcade had not been considered when making my game, it lacked key indicators that would have made the game more enjoyable. Due to the loud environment, the line-clear sound indication was not audible. Thus, having an LED flash green or red could be a good indication of game actions. And due to the dim environment, the location of my buttons was not discernible from the enclosure around them. Some players had trouble linking the button function to the button location. I made the area black to match the button to better mimic the look of older computers. But based on my observations, having labelled button caps would have helped.

Engineers Showcase

My game was shown to a small group of engineering students in BioCARE (Biomechanical Carleton A Research). I had brought it to a weekly meeting, and the showcase was informal. I introduced the project and result - my Tetris game, then gave the game to the students to play. They were impressed by the enclosure design and took time to inspect each little detail. They were also amused by the looping music. However, once again, people had difficulties with the buttons. For players with bigger hands, it was easy to mispress, and without labels, it was difficult to discern the control function. For improvements, they suggested spacing the buttons out and adding labels. We also agreed on adding a tutorial for the controls or an onscreen layout of the controls. One team member, Jacob, is in electrical engineering. He has extensive knowledge in electronics and coding. He asked about my approach to designing the circuit layout and coding. I said I was given a PCB, and did most of the coding with ChatGPT. He does not use Chat-GPT, and did not recommend it. He emphasized that using AI would hinder true understanding of problems in the code. Sharing my project with engineers made me feel more positive about my effort. Since I got a lot of Aspects correct on my first try and made something engaging and fun.



Overall Reflection

I like that showcases are required for this course, and I think it is a valuable mindset for designers to be willing to share their work. Over the past couple of years, I have built up my design account on Instagram by regularly sharing projects and sketches. So this project fits perfectly with my regular content. However, I am also seeking opportunities to show my creations in person. Thus, I appreciate that this course also introduced opportunities to do that. I usually have low confidence when sharing my work because I know all the things I did wrong or could have made better; however, the more I show my work, the better I become at handling the situation without selling myself short. I find there are different approaches to sharing my work online, with a small group or with a larger audience. On Instagram, I can be more creative and perfect the way I want my project to be perceived. I put effort into creating content that is engaging and fits my style. I don't get a lot of insightful engagement from online; something I value at in-person events. The TARG showcase was the most challenging of all because trying to grab attendees' attention from the actual arcade machines was difficult. So for those kinds of environments, I would have designed my game differently, as discussed above. And lastly, I can be a little more detailed when showing my work to the engineers. They understand the basics of my design, so it was a chance to get into some parts where I wasn't so sure about, and get reassurance.