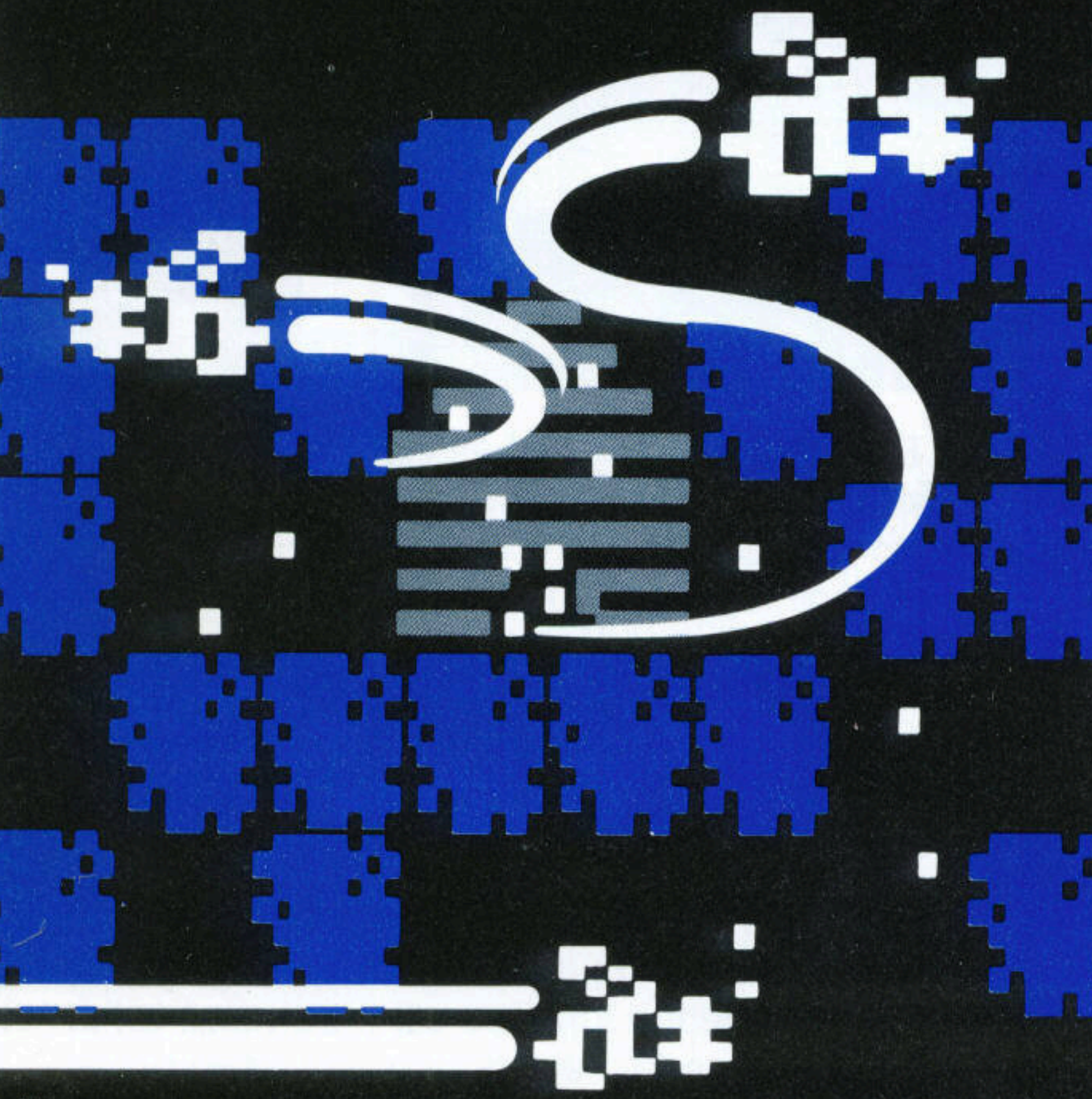


**IntelliVision<sup>®</sup>** MATTEL ELECTRONICS<sup>®</sup>

**Buzz Bombers<sup>™</sup>**

**CS1002: Programming Fundamentals (Fall 2024)  
PROJECT**

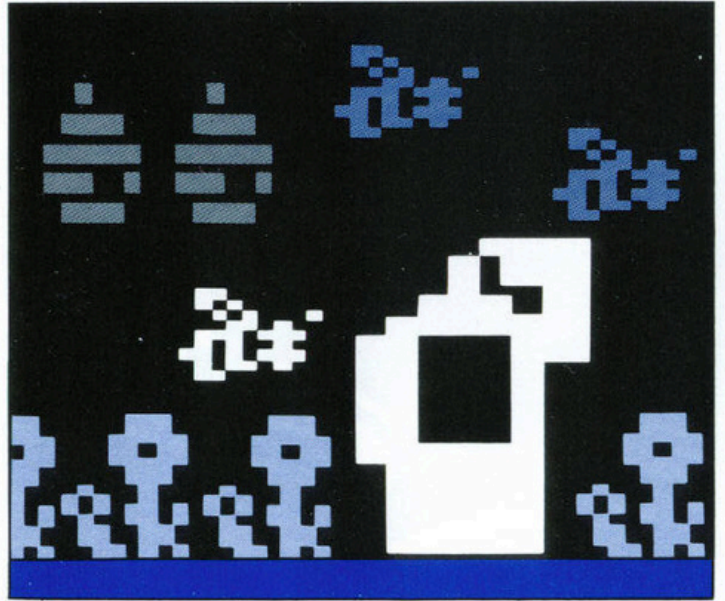




# Phase 1: (overview)

In this phase, you will recreate the classic Buzz Bombers game from Intellivision, focusing on replicating its original mechanics and gameplay.

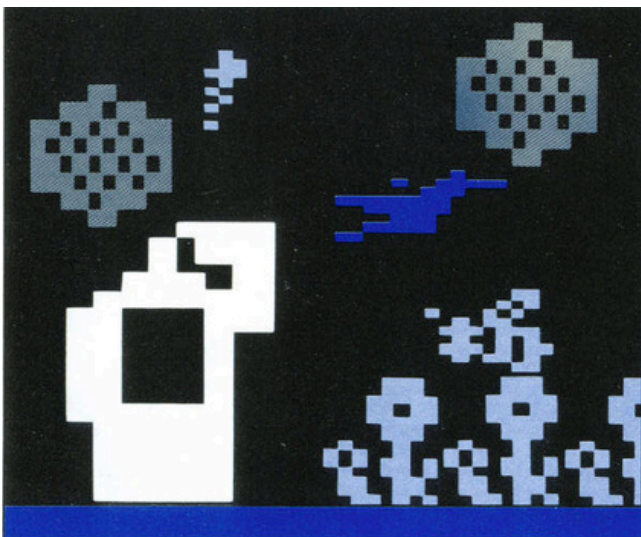
You are also required to implement three levels of increasing difficulty, where each level escalates the challenge by increasing the number of bees and other gameplay factors. Additionally, you must create a game menu that allows players to start the game, choose levels, and exit the game. The menu should be easy to navigate and accessible at the start of the game.



**Buzz Bombers:** Released in 1983 by Mattel Electronics, this arcade-style game features a spray can defending against swarms of bees, turning them into honeycombs for a hummingbird to collect. Click [here](#) to view the demo of the game.

You will implement a simplified version of the game. Details of the required features are provided below. Skeleton code is included to set up a partial game environment, and understanding it is part of the project as preparation for professional challenges.

**ABOUT:** Little Buzz Bombers keep barreling down towards your spray can. Blast one with a spray that sends him into a tailspin. Now you've got a honeycomb and 100 points, but KEEP MOVING. Moment by moment your spray can is being hemmed in by flowers. Make every shot count. You hit two bees with one shot.....but the Buzz Bombers have other tricks up their little beesleeves. Here come the worst bees of them all — the Buzz Bomber KILLER BEES. Spray them all and watch the points pile up



## OBJECTIVE OF THE GAME

Spray bees as quickly as you can with your spray can before they fly down and pollinate the flowers. Flowers can surround and trap your can. A sprayed bee creates a honeycomb that your friendly hummingbird will eat. Points are scored for spraying bees and allowing the Hummingbird to eat the honeycombs. Additional points may be scored at the end of a level for any beehive on the screen. A beehive is created by a trapped worker bee. Score enough points and you win an extra spray can. Be thankful because you're going to need that can at the higher levels. The game gets tougher as you play.

## THE SPRAY CAN

You control the spray can. Move the spray can either right or left using the arrow keys of the keyboard. You start with three spray cans. One is used immediately. The other two are displayed in the lower-left corner of the screen.

Each spray can provide 56 sprays. Every 8 sprays, the spray level in the can will lower so you can see how much spray you have left. When you use up all the spray in a can, the replacement can (if there is one) will automatically take its place.

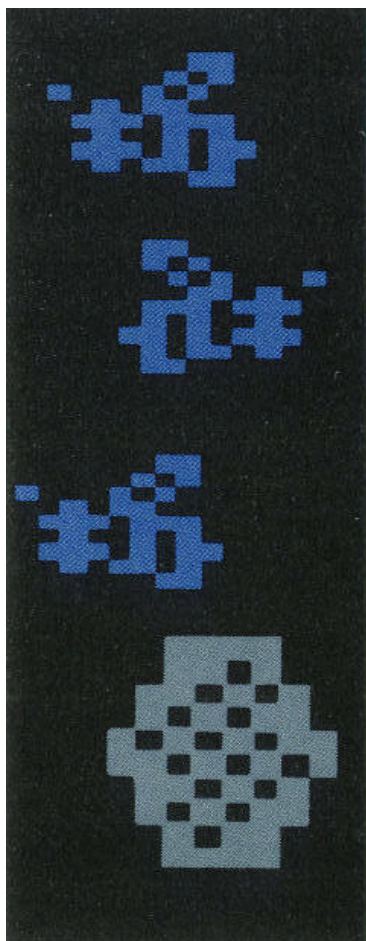
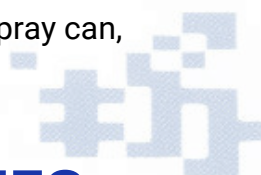
Regardless of how much spray is left in your can, it will fill up again when you complete a level.

## THE FLIGHT OF THE BUZZ BOMBERS

The Buzz Bombers are the bees that fly down on your spray can (to the tune of The Flight of the Bumblebee). They fly down on invisible flight paths called "tiers." Each time they bump into the side of the screen they reverse direction and drop to the next lower tier. (See sample screen.)

When they reach the bottom, they pollinate the flowers.

Pollination causes flowers to multiply and restrict the movement of your can. When the flowers completely hem in your spray can, you lose it.



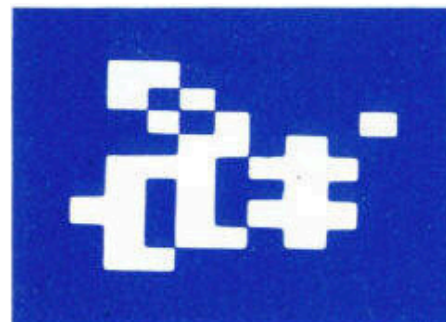
## WORKER BEES

Worker bees are YELLOW. At the lower levels, most of the attacking Buzz Bombers will be worker bees. A worker bee becomes a YELLOW HONEYCOMB when hit by spray. Worker bees drop one tier each time they reach the side of the screen OR bounce off a honeycomb.

## KILLER BEES

Killer bees are WHITE and fly much faster than worker bees. The higher the playing level, the more likely it is that a killer bee will appear. Don't be surprised if 5 or 6 dive on you at once.

Killer bees turn into RED HONEYCOMBS if you are skilled enough to hit them with spray. They DO NOT bounce off a honeycomb and drop one tier. They ONLY reverse direction and drop a tier when they reach the side of the screen.





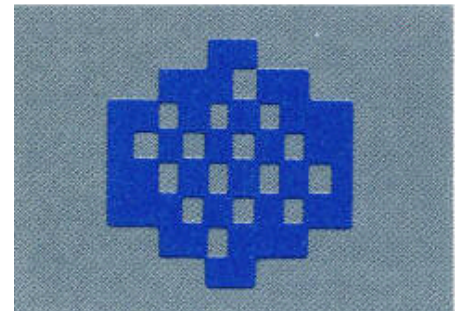


# THE HUMMINGBIRD

The Hummingbird is your friend in this battle of the bees. She darts around the screen looking for honeycombs. Every time she finds and eats one, you get points. Spray won't kill your Hummingbird, but it will make her sick. If you spray her too much, she turns green and leaves the screen for a breath or two of fresh air. She'll return later.

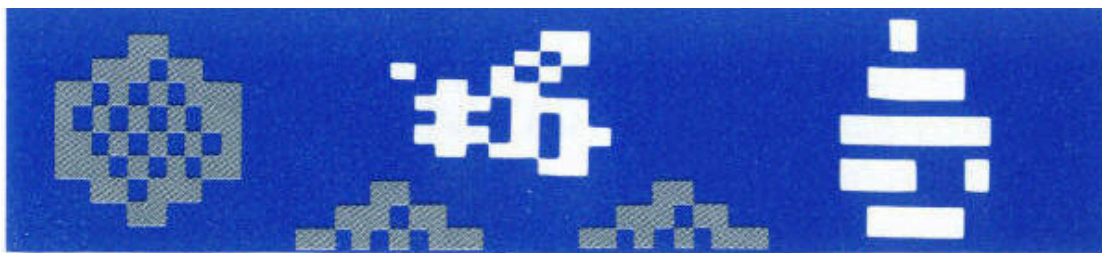
## HONEYCOMBS

A honeycomb is created by any bee after he is hit by spray. You get points for spraying the bee, but you can earn more points by leaving the honeycomb for your Hummingbird. The red honeycomb of the killer bee is worth more than the yellow honeycomb of the worker bee. (Consult chart.) A honeycomb will DISAPPEAR if sprayed. Sometimes a honeycomb gets in the way and should be sprayed. It depends on your situation.



## BEEHIVES

On occasion, a worker bee will get stuck on a flight down, usually between a honeycomb and the side of the screen. If this happens, the worker bee will build a BEEHIVE. The beehive is worth big points when you successfully complete the level. Spray will destroy the beehive, so be care-ful where you spray.



ONE BEEHIVE IS ALREADY FORMED ON THE RIGHT SIDE. IN THE MIDDLE, A TRAPPED WORKER BEE WILL MAKE A BEEHIVE IN A MOMENT OR TWO.

## FLOWERS

Flowers usually grow from both sides toward the middle, but don't count on it. Flowers can also start growing in the center and push your can to one side. When the flowers restrict your can, it will magically leap to the open space (if there is one).

If flowers kick your can out of the garden and you still have a spray can left, then the screen will clear of all flowers and you will get another chance (using the extra can) to successfully complete the level. Unfortunately, you must start the level again from scratch.



# SCORING CHART

ACTION	POINTS
HITTING A WORKER BEE . . . . .	100 POINTS
HUMMINGBIRD EATS YELLOW HONEYCOMB	
Top two screen tiers . . . . .	1000 POINTS
Third, fourth, and fifth tiers . . . . .	800 POINTS
All remaining tiers . . . . .	500 POINTS
HITTING A KILLER BEE . . . . .	1000 POINTS
HUMMINGBIRD EATS RED HONEYCOMB	
Top two screen tiers . . . . .	2000 POINTS
Third, fourth, and fifth tiers . . . . .	1800 POINTS
All remaining tiers . . . . .	1500 POINTS
ACTION	POINTS
BEEHIVES (When you complete a level)	
Hive on the top two tiers . . . . .	2000 POINTS
Third, fourth, and fifth tiers . . . . .	1600 POINTS
All remaining tiers . . . . .	1000 POINTS
BONUS CANS RECEIVED AT:	
20,000 POINTS	
40,000 POINTS	
80,000 POINTS	
Every 80,000 POINTS thereafter.	

# Tasks and Implementation Details

## Levels:

- Each level must have a unique background and music.
- Level Details:
  - Level 1: 20 regular bees and 3 pre-generated, randomly placed honeycombs.
  - Level 2: 15 regular bees, 5 fast bees, and 9 pre-generated honeycombs.
  - Level 3: 20 regular bees, 10 fast bees, and 15 pre-generated honeycombs.

## Sprites:

You are free to use any sprites you can find on the internet, but some sprites are provided in the texture folder for your convenience.

## Player Controls:

- **Movement:** Use the arrow keys to move the player horizontally along the ground.
- **Action Key:** Assign a specific key (e.g., Spacebar) for shooting spray to fend off bees.
- **Responsive Gameplay:** Ensure the player's movement and actions respond instantly to key presses.

## Code Organization:

- **Modular Design:** Break your code into functions that handle specific tasks, such as rendering the player, updating the game state, or handling collisions.
- **Commenting:** Add meaningful comments to explain the purpose of each function and critical sections of your code.
- **Readability:** Use clear variable and function names that describe their purpose. Avoid hard-coding values; use constants where appropriate.
- **Testing:** Regularly test individual modules to ensure they work correctly before integrating them into the main game.

Your game must include all aspects of the gameplay described.

