

StarBlaze

A Retro Space War Game

"Defend the Galaxy. Relive the Nostalgia."

Minor Project Presentation

Team Members:

Ritwik Upadhyay (327)

Sarvagya Singhal (350)

Sachin Bagri (341)

Riya Palod (329)

Lakshmi Narain College Of Technology

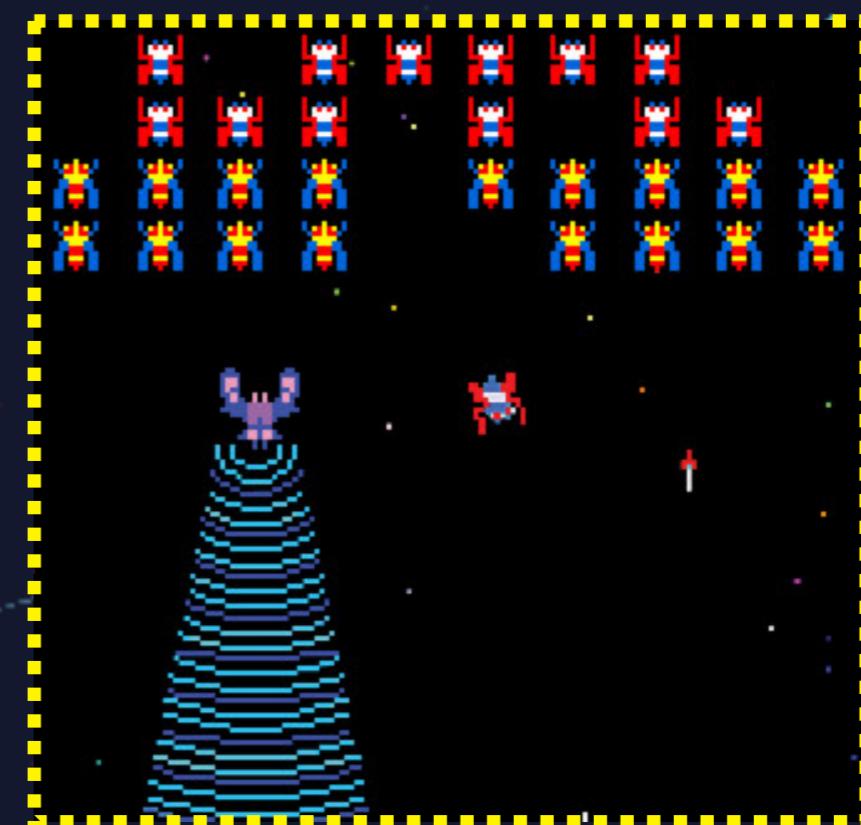
(CSE-SE)

Introduction

- **StarBlaze** is a **retro-style** space shooter game inspired by classics like **Space Invaders** and **Galaga**.
- The **player controls** a spaceship **defending** Earth from waves of alien **enemies**.
- We wanted to **recreate** old-school arcade **nostalgia** using modern **web technologies**.
- Entirely coded with **HTML5 Canvas, CSS, and Vanilla JavaScript**.



Space Invaders



Galaga

How The Game Works?

- Player moves the spaceship **left and right** using **arrow keys**. ← →
- **Spacebar or up key** fires **laser bullets upward**. ↑
- **Enemies** descend from the **top** – **destroying them increases score**.
- **Avoid enemy bullets** or collisions – **losing all lives ends the game**.
- **Objective:** Survive and **score as high as possible**.



Technology Stack

- For **structure**, game **canvas** and **UI layout** using **HTML5**.
- For **styling**, retro **theme**, starry **background**, and **animations** using **CSS3**.
- For **logic**, player **controls**, enemy **movement**, **collision** using **JavaScript**.
- For **audio**, **shooting**, **explosion** and other sound effects using an **Audio API**.
- For **data** of scores, **saving** and **displaying** high scores using **LocalStorage**.



Game Architecture

- The game runs inside an **HTML Canvas element**.
- **JavaScript** controls every frame using **requestAnimationFrame()** for smooth animation.

Main Components:

- **Player Object:** movement, shooting
- **Enemy Objects:** spawn, move, detect collisions
- **Bullet Array:** tracks all fired bullets
- **Collision Detection:** checks overlap between bullets and enemies
- **Game Loop:** continuously updates positions and redraws frame

Block Diagram



Retro Visuals & Feels

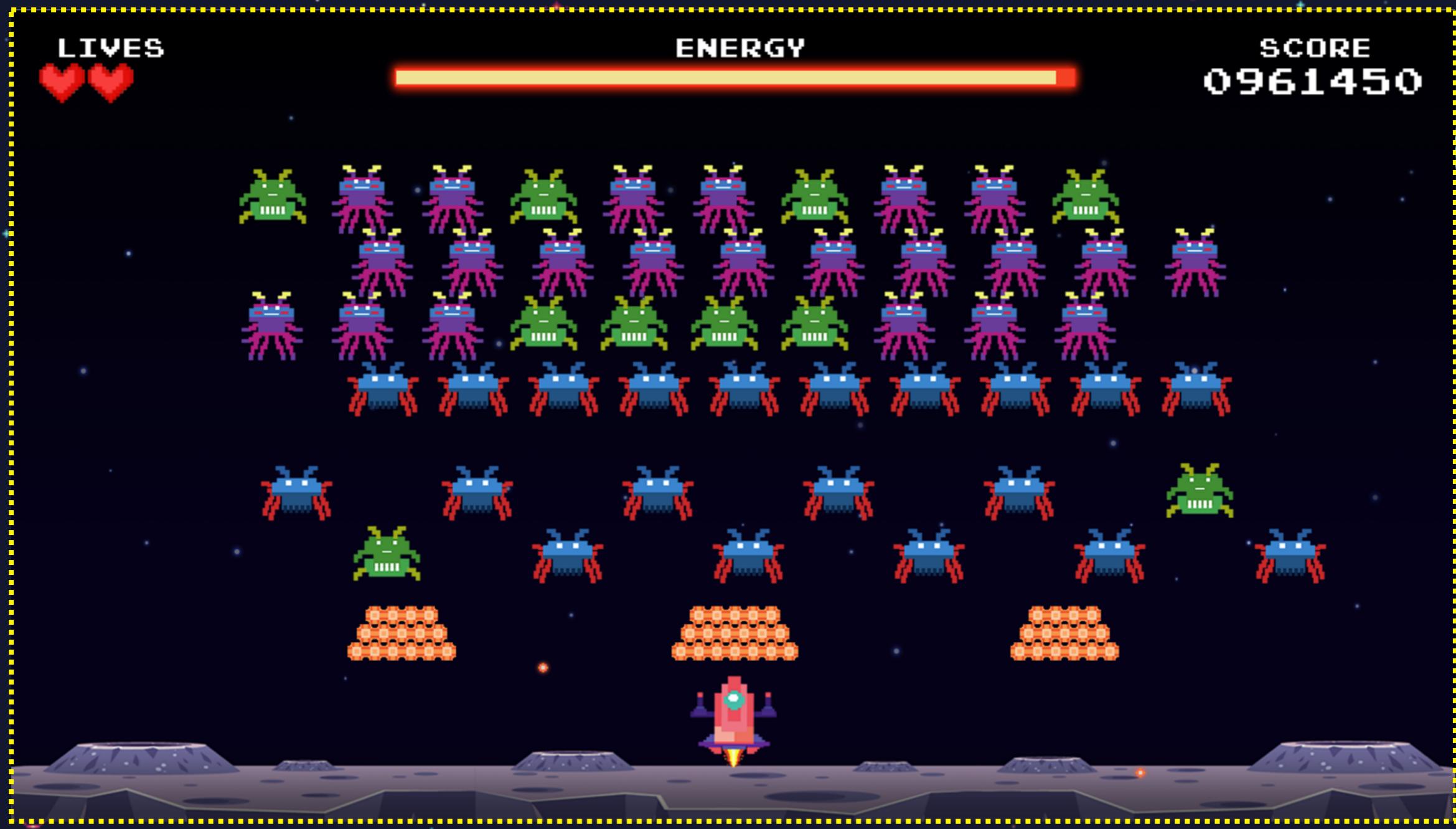
Content:

- Pixel-art inspired design using **8-bit graphics**.
- **Color palette:** Black, Midnight Blue, Red, Green, Yellow, White, Blue.
- **Font:** Press Start 2P (From Google Fonts).
- **Parallax** star background for **motion effect**.
- Smooth **explosion animations** using **CSS transitions**.



Tentative Visuals

*Not the final visuals. Image used for representative purposes only.



Key Features

-  **Smooth spaceship controls**
-  **Shooting and explosion effects**
-  **Multiple enemy waves**
-  **Scoring and High Score display**
-  **Lives and Game Over system**
-  **Background music and sound effects**
-  **Retro visual effects (Starry Field, Pixelated extravaganza)**

Goals of This Project

- Successfully building a nostalgic space shooter using web technologies.
- Gaining hands on experience with:
 - Game loops
 - Canvas rendering
 - Collision detection
 - Audio integration
 - Team collaboration
- Future Enhancements:
 - Boss fights and power-ups
 - Mobile-friendly controls
 - Multiplayer mode via Websockets



A Presentation by Ritwik Upadhyay