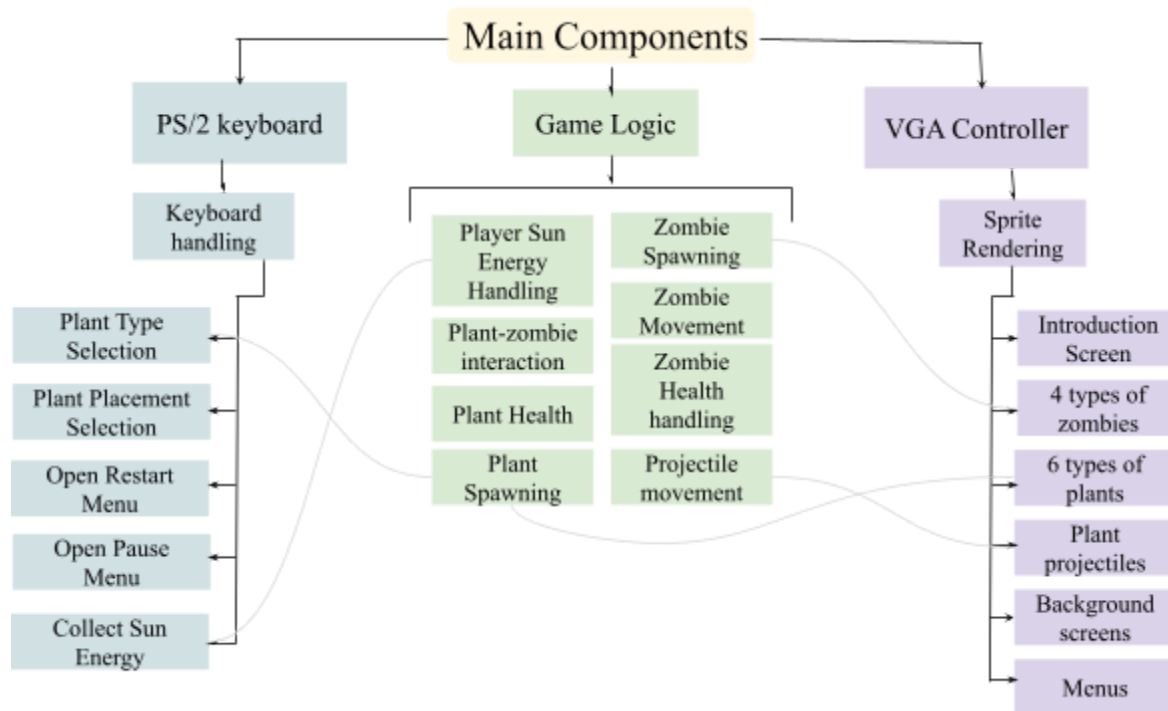


Project Description

We recreated the video game Plants vs Zombies that integrates real-time graphics and keyboard-controlled plant placement. The VGA controller is used for rendering the game grid, plants, and zombies. A PS/2 keyboard controls the placement of plants as well as the collection of “sun” energy. The game logic controls zombie spawning and movement in addition to managing plant attacks, collision detection, and health tracking.

Block Diagram



How to Operate

- Upon starting the game, you will be greeted by the introduction screen
- To begin the game, press “enter”
- At any point, you may press “esc” to pause the game
- When paused, pressing “esc” again continues the game, while pressing “enter” brings you to the introduction screen and resets the game
- While the game is running, pressing a number 1-6 selects one of the 6 plants available
- If you do not have enough sun to place a plant, the plant will flash red, and the game will continue without changing
- Once a plant has been selected, you will be asked to select a row and then a column using the letters “A” - “E” and “A” - “H”
- Sun will spawn in periodically, which you should collect by pressing “C”. Each sun provides you with 25 sun currency

- Zombies spawn in waves of 4, and their speed and health depend on their type. Do not let the zombies reach the left side of the lawn (aka, your house!)
- If a zombie reaches your house, you will be met with the “game over” screen, where pressing “esc” brings you to the introduction screen, and “enter” starts a new game

Attribution Table

| WEEK | SARA | MADELINE |
|------|--|--|
| 1 | <ul style="list-style-type: none"> • Created the Introduction screen which transitioned to the “playing” screen when a switch was flipped • Finished zombie movement for 3 types of zombies • Created sprites for 3 plants • Set up game logic for zombie/plants | <ul style="list-style-type: none"> • Able to accept input from user via PS2 • Created finite state machine for game states |
| 2 | <ul style="list-style-type: none"> • Started creating projectiles for Peashooter. • Added zombie wave game logic • Created sun sprites, and the logic for animating them • Plants hitting zombies logic | <ul style="list-style-type: none"> • Completed plant placement logic and graphics • Added menu screens • Implemented zombies damaging plants • Interaction for collecting and spending sun |
| 3 | <ul style="list-style-type: none"> • Working version of Cabbage projectile • Worked on creating/fixing projectiles of plants • Added visual details for better UI | <ul style="list-style-type: none"> • Cleaned up Peashooter projectile visuals • Added Cherry Bomb and Repeater functionality • Completed sun functionality • Optimized code to reduce lag |