Report -

Overview:

The goal of the game is to destroy the city and its inhabitants. This can be done in a number of ways. The people can be eaten with the hook by being hooked by it (which restores the spaceships health), they can be captured in the forcefield and flung away, they can be whacked by a building, and they can be killed through a collision with another flying human or car. The cars can also be eaten by the hook, restoring fuel instead of health, and they can be caught and flung from the forcefield, and are also very susceptible to rogue buildings. The buildings can be knocked down if enough cars and people are flung at it, or one can be picked up and used to thrash the city with.

Killing people and destroying cars and buildings give the user points. As the points increase, the user will receive bonus updgrades to their spaceship upon clearing certain goals. The bonuses can increase the ship's forcefield range, as well as the ship's chain length, increasing the reach of the ship with both its active and passive powers.
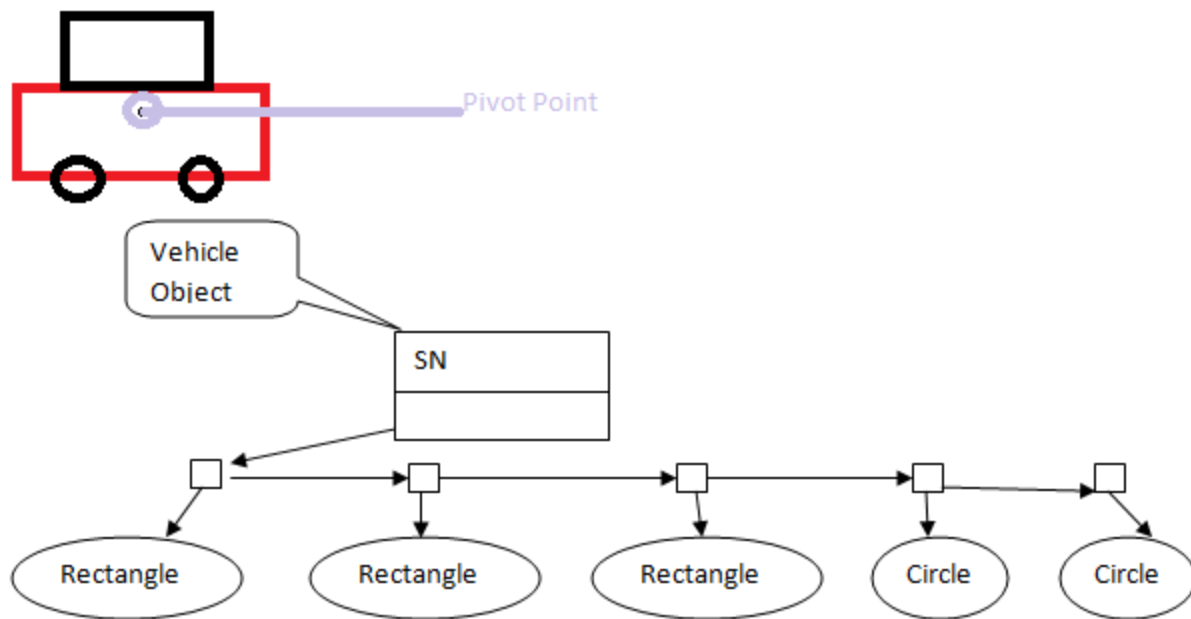
Controls:

1. Main View
    a. Directional Keys - The ship glides across the screen in the selected direction.
    b. Left Mouse Button - The spaceship shoots out a hook in the direction of the mouse click. The hook can catch buildings, cars, and people.
    c. Right Mouse Button - If there are people or cars caught in the spaceships forcefield, right clicking will shoot them out towards the location of the mouse click.
    d. "P" key – Pauses/Unpauses game.
    e. "R key – Resets Game.
    f. "Esc" key – Exits Game.

2. Secondary View (MiniMap)

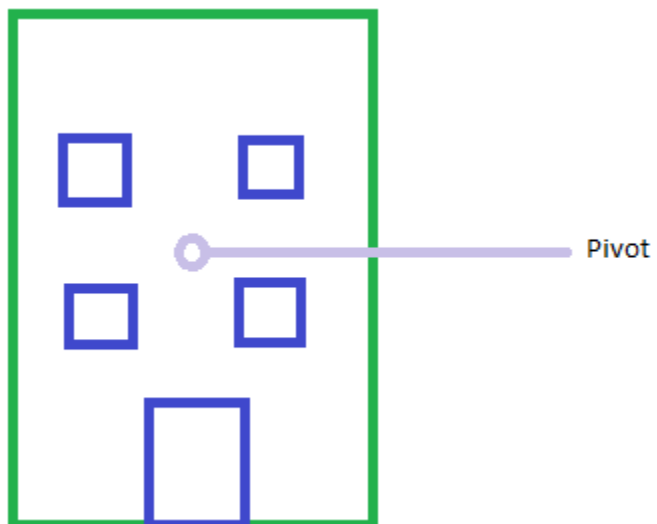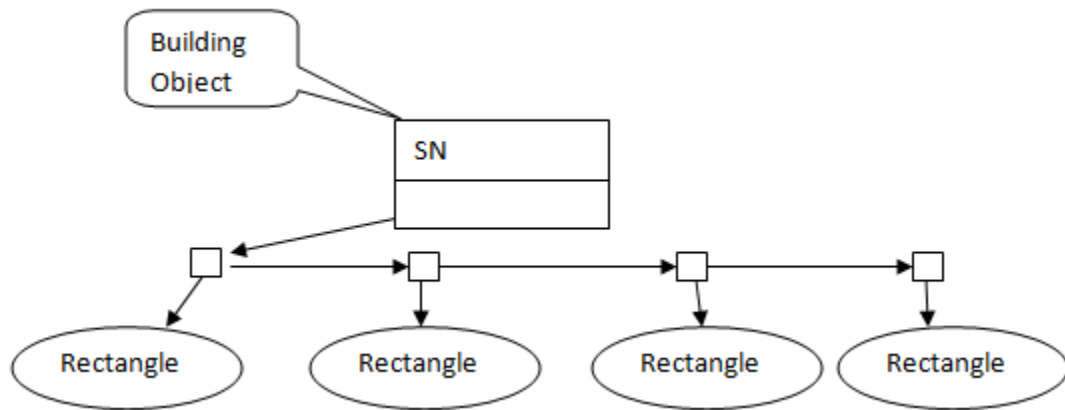a. Left Click - Teleports the spaceship to the point where the user clicked.

Design:

1. Spaceship

Pivot

ChainLink

Hook

Entire Object

SN

Body

SN

ChainLink

SN

Circle

Circle

Circle

Circle

Circle

SN

Circle

Rectangle

SN

Circle

Hook

2.   Vehicle

Pivot Point

Vehicle Object

SN

Rectangle   Rectangle   Rectangle   Circle   Circle

3.   Building

Pivot

Building Object

SN

Rectangle → Rectangle → Rectangle → Rectangle

4. Person

Pivot — Head
Body
Left & Right Leg SceneNode
Pivot

Body

SN

Rectangle

SN — Circle, Head
SN — Rectangle, Left Arm
SN — Rectangle, Right Arm
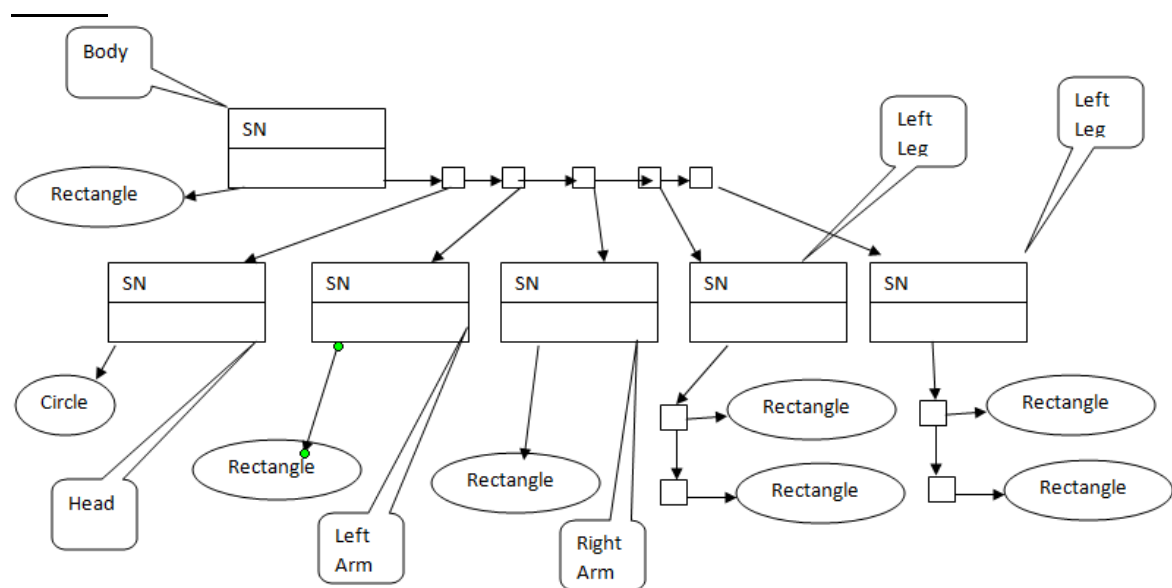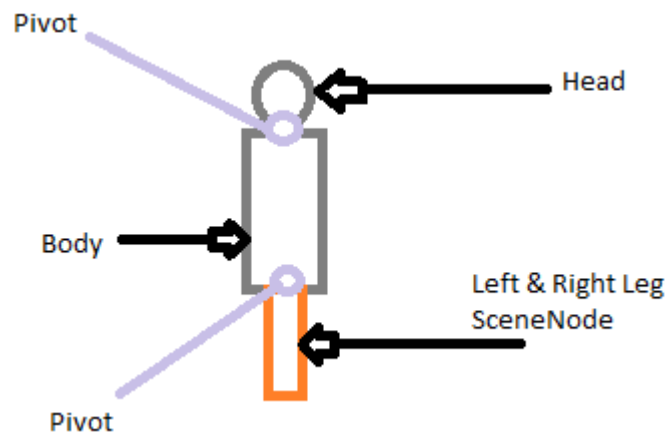SN — Rectangle, Rectangle
SN — Rectangle, Rectangle

Left Leg

Left Leg

System Evaluation:

Bugs:

1. Building Rotation on Hook - Sometimes when teleporting, the building will rotate on the end of the hook. The building's bounding box becomes out of sync with the building itself, so collision is no longer possible. This can be avoided by not teleporting and just using the directional keys.
2. The collisions aren't as precise as they could be. Hooking buildings, people, and cars cause a small shift in the object towards the spaceship, before it is sucked in.

Limitations:

1. The Number of Objects on Screen - The game is not able to handle more than about 100 objects on the screen at once. The game enforces a strict limit on this, and only allows more objects on the screen once the previous ones have disappeared.
2. Buildings can't collide with buildings, or be thrown. This would require different handling from the smaller projectiles in that the building wouldn't die on first contact. Perhaps they need to consider health on collision.

Future Features:

1. Building Throw - The building at the end of the hook will be able to be thrown like a projectile through the map. Unlike a projectile, it will not be destroyed on contact with other objects and will proceed to cause massive damage as it flies through the town.
2. Knocking Down Buildings & Varying Attack Strength Levels - The user will be able to click and hold to charge the hook attack. If the attack is strong enough and hits the building, the building will begin to rock back and forth. Hitting it hard enough a few times will cause it to fall over and do damage to its surroundings.
3. Physics - Lots of things in this game can use physics. The buildings would be able to fall over, the projectiles would arc instead of going in a straight line, and the spaceship would have constant drag going against it.
4. Death Animations - Currently, the people and cars just die. In the future, they will have animations of explosions when they die, as well as animations of damage like spilled blood or car liquids.
5. Two Hooks - As a very high level upgrade, the second hook will function just like the first one, but there will now be two of them, allowing for an increased speed of damage and eating of items.
6. Enemy - Potential enemies are tanks and fighter planes. These will be summoned once enough damage to the town is down, and they would target and harass the spaceship. The spaceship would be able to find back with its hook and projectiles.
7. AI - The cars and people are stupid. They don't run when there is clear danger present.