InternStellar Architecture Overview

EECS 581, Software Engineering II

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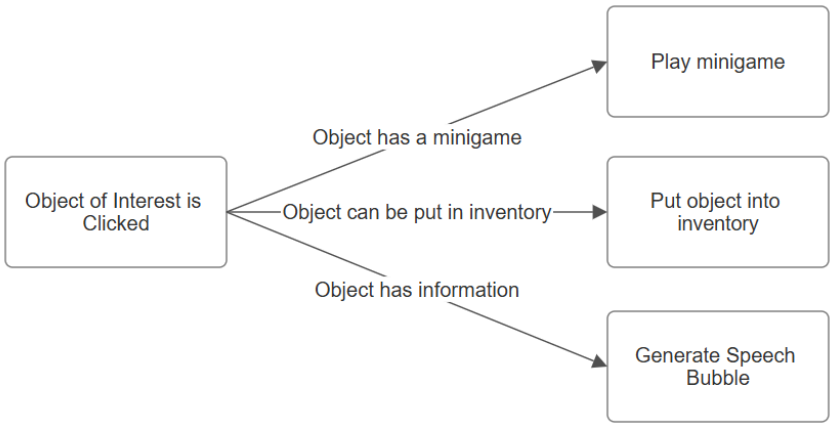
Project Synopsis: When disaster strikes Earth, an unlikely NASA Intern embarks on a journey throughout space to uncover secrets and save humanity.

Architecture Description: (500–1000 words, 3 distinct UML diagrams)

- Overview: InternStellar is a 2D point and click adventure game developed using the Godot Engine. The game uses a modular architecture to separate gameplay logic, story progression, UI systems, and puzzles. The architecture emphasizes reusability, ease of scene transitions, and expandability, allowing new levels, puzzles, or dialogues to be added without rewriting core logic.

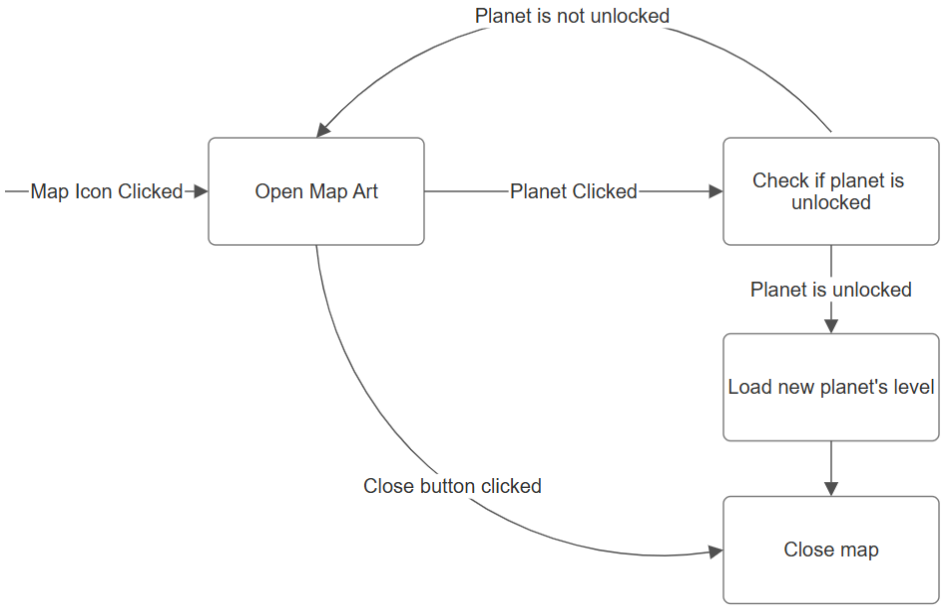
- Point and click functionality: The player will click on an object of interest. This will interact with the object by either placing it in the player's inventory, generating a speech bubble, or starting a mini game.



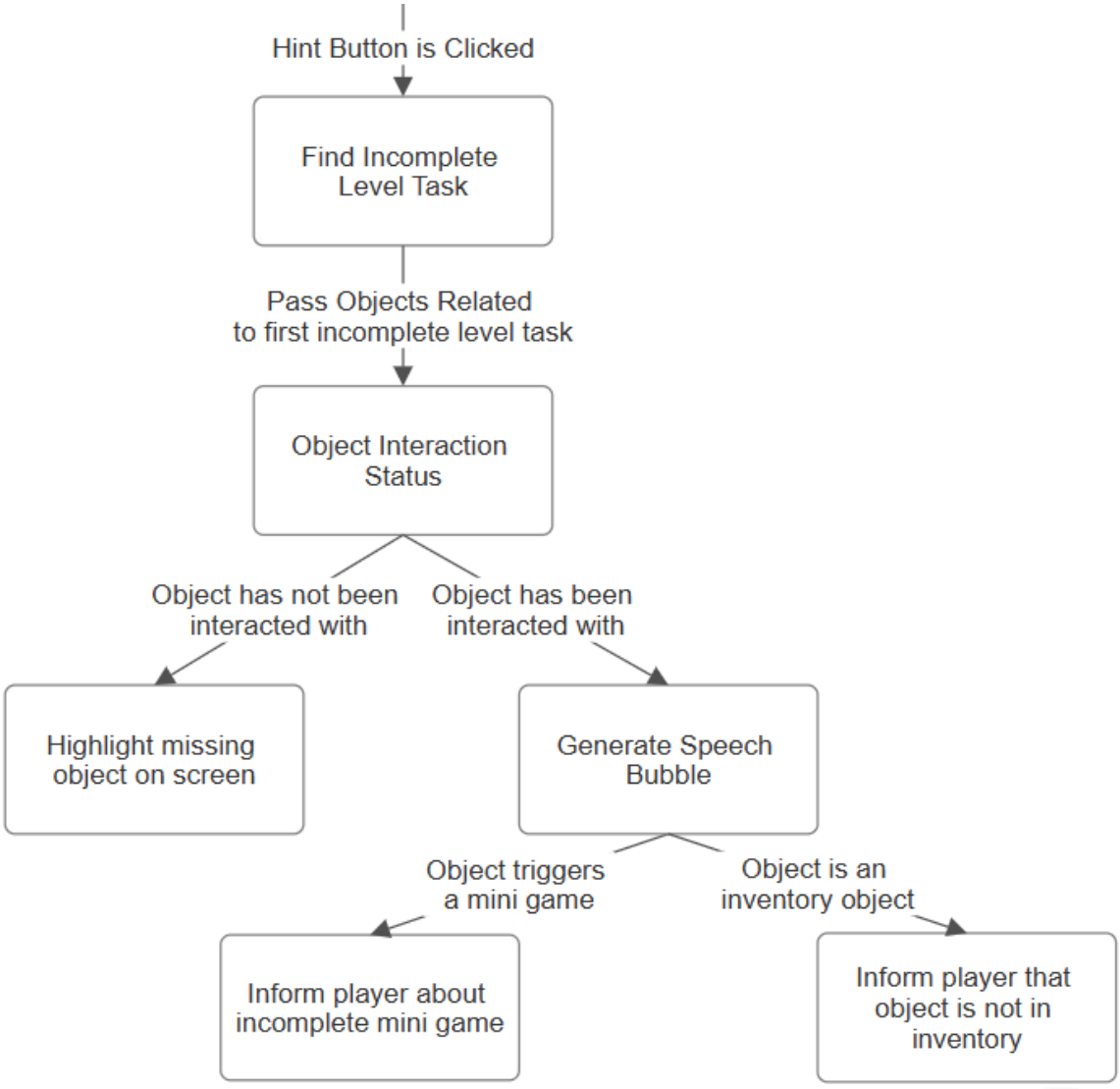
When the player clicks on an object, the system first detects which object was selected. Each object in the game is assigned properties that determine how it should respond to interaction.

- If the object has a minigame, the game transitions into that activity, allowing the player to complete a small challenge or puzzle.
- If the object can be put in the inventory, it is collected and stored for later use in the game.
- If the object has information, the game displays a speech bubble containing relevant dialogue, hints, or story text

- Map for navigation: The player can use their map to navigate to new planets. Planets will be unlocked as the game progresses. If a planet is clicked and unlocked, the new planet's level will be loaded and the map will be closed.



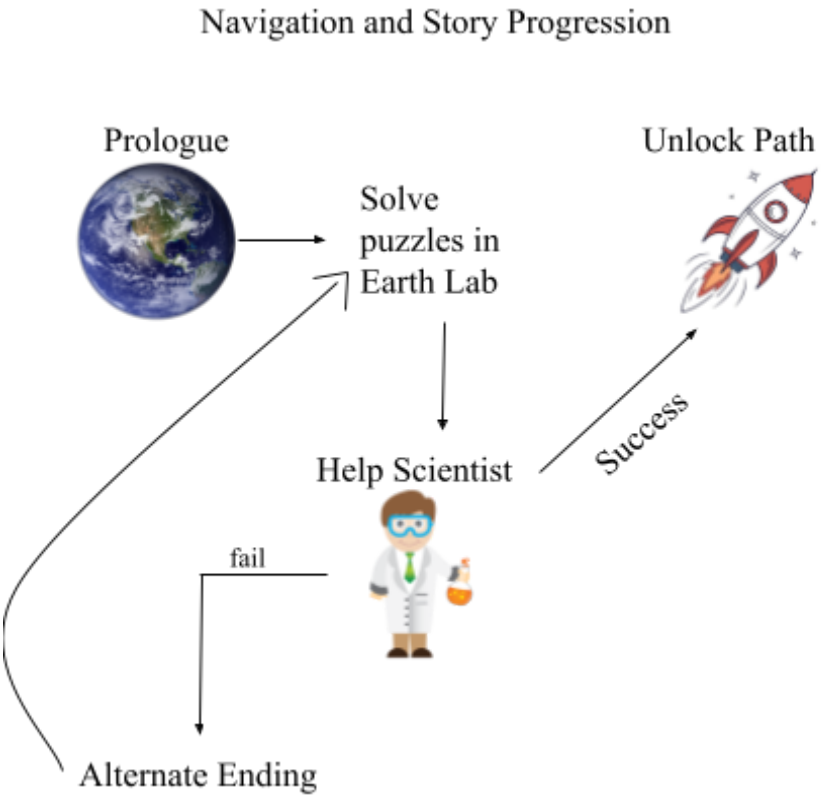
- Hint system: The player can get a hint when they are stuck by clicking on the hint button. When this happens, the game will determine what tasks are still incomplete. All objects related to the first incomplete task will be examined to see if the user has clicked on them yet. If an object exists that has never been clicked on, the game will highlight it. If every object has been clicked on, then the game will generate a speech bubble explaining what action still needs to be taken (either a mini game needs to be won or an object needs to be added to the player's inventory).



System Components:

- Point and click
    - Allows the player to click on the objects
    - Clicking triggers
        - Speech bubble providing clues or story exposition
        - Launches mini games or puzzles
        - Puts the object into their inventory

- Game engine/core systems: Godot
    - Manages rendering, input, scene transitions and game state
    - Maintains Player inventory, puzzle states and unlocked locations
- UI
    - The UI system uses a CanvasLayer with reusable components:
        - Inventory Panel: Displays collected items and allows item usage.
        - Dialogue Box: Shows speech bubbles with text and choices.
        - Map Screen: Displays unlocked planets for navigation.
    - The UI connects with other systems through Godot signals. For example, when a puzzle is completed, the UI updates to show newly unlocked areas or collected resources.
- Map navigation system
    - Updates accessible areas based on the story progression



- Story module
    - Provides context, introduces challenges and guides the player
    - Supports branching dialogue and minor player choices that influence gameplay
- Mini-game/Puzzle
    - Pipe puzzles (Like connect the pipes to allow the water to go through)
    - Determine what materials work together to create something
    - Untangle wires

- Determine the pattern
- Nonogram (to form a picture of something we need)
- Cleaning a sample (like a special mineral or something surrounded by rock)
- Translate the ancient language
- Computer terminal, enter the launch codes

Project Description:

Within this project, we have planned to create a game that takes place on earth and in outer space. The concept of this game is that there is an alien invasion that is threatening to take over the planet. The twist is that the only person who can prevent this impending doom and save the planet is one of NASA's interns. The players will explore different locations, solve puzzles, and uncover secrets that will reveal how to save humanity.

How to Play:

The game starts with a cutscene that introduces the story and main character. After the cutscene, the player will start on level one where they will solve puzzles to overcome a specific problem. Each level plays like an escape room, requiring players to explore their surroundings, collect useful items, and piece together clues to progress. As players solve challenges, new areas and planets become unlocked, moving the story forward and bringing them closer to saving Earth.