Games I: Design and Architecture

Week 05 (09/25) Physical Prototyping and Playtesting

Why Physical Prototyping?

"Because of the nature of board games, these **mechanics are not hidden from you** in the code, the way they might be in digital games. They are right on the **surface**, easy to **see**, and possible to **deconstruct** and **analyze**."

Why Physical Prototyping?

"As you **manipulate elements** of the game structure, it will invariably **spark more ideas**, and it is not uncommon for entirely **new systems to materialize** during this process. You can then spin some of these systems off into their own games."

Why Physical Prototyping?

"Each time you add a rule or feature, it might spark new ideas and **lead you down a path you did not expect to go**. This is the heart of the creative process, and you should encourage yourself to **try things that might seem ridiculous or absurd and just see what happens** when you play the game."

Why Physical Prototyping?

"Probably the **most effective way to create gameplay** because it takes you right down into the mechanics and **permits you to experiment** in a way no other process can."

Perspective on Physical Prototyping

The objection:
Physical prototype **won't work** "because gameplay is integrally **tied to the 3D environment** and the ability of the players to **act in real time**."

Perspective on Physical Prototyping

The response:
 "The sensory experience created by a digital game is **only one component** of an engaging game experience." Physical prototyping is **not intended to replace** those things. But "the overall gaming **system can benefit tremendously** in its early stages."

Perspective on Physical Prototyping

- Build a **structure** for the game
- Think through and **define design elements**
- Think through **how the various elements interact**
- Formulate a systemic approach to **how the game will function**
- **Convey gameplay to people who know nothing** about the project

Perspective on Physical Prototyping

- Imagine getting in a room with **programmers who know nothing about the project** and having to **describe** to them the game you have **in your head.**
- If you want to create g**ameplay that people have never seen before**, it might be **impossible.**
- A physical prototype that they can **sit down and play** ensures that they will be able to **grasp your vision** of the game.

FPS Physical Prototype

Core game mechanic = player units running around shooting other units

Helps you understand the larger tactical and strategic issues of weapon balance, territorial control, etc.

FPS Physical Prototype

Hexagonal graph paper grid

Mark red spots as spawn points

Lines or objects as walls

FPS Physical Prototype Rules

Each player gets 9 cards
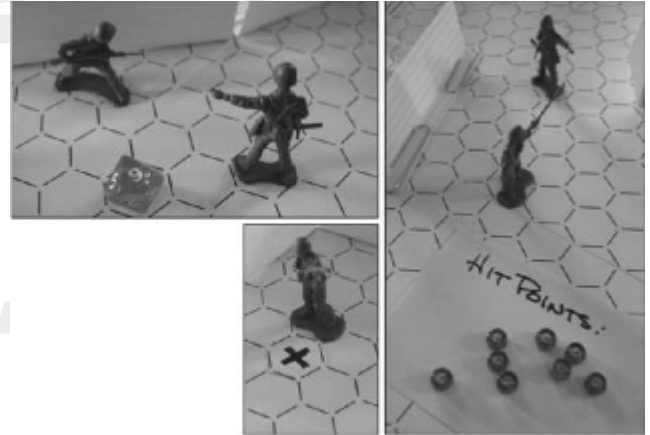
Move 1 space (x1)

Move 2 spaces (x1)

Move 3 spaces (x1)

Move 4 spaces (x1)

Turn in any direction (x2)

Shoot (x3)

Materials and Procedures

Each player gets 9 cards:

- Move 1 space (x1)
- Move 2 spaces (x1)
- Move 3 spaces (x1)
- Move 4 spaces (x1)
- Change direction (x2)
- Shoot (x3)

Each player:

- Chooses 3 cards
  - place face down
- Turn over top card
  - Resolve shoot cards
  - Resolve turn cards
  - Resolve move cards
- Resolve cards 2 and 3

FPS Prototype - Shooting Rules

- Shoot in direction player is facing
- Follows a straight line across grid
- If hits wall, shot is a miss
- If hits a space with another player, shot is a hit
- Shots can hit simultaneously
- If a unit is shot, it is removed from the grid, and the player chooses a spawning point to reappear at for the next round.

Turn Cards and Move Cards

Players with turn cards turn their unit in any direction. If 2+ players have turn cards, roll a die to determine who turns first.

Players with move cards move their units the number of spaces on the card. If 2+ players have move cards, roll a die to determine who moves first. Players cannot occupy the same cell.

Additional Features

Scoring System = first to 10 kills wins

Hit percentage = related to distance on grid

Hit points

Health packs = stand on space to heal

Ammo = 1 per shot, stand on space to replenish

Weapon upgrades = stand on space to acquire

Building Your Physical Prototype

1. **Foundation**
2. **Structure**
3. Formal Details
4. Refinement

Foundation

- Representation of Core Gameplay
  - Diagrams
- Objects and Procedures
- Minimal Rules
- Questions will come up - file them away

Structure

Prioritize what is essential

Rules vs. Features

Rules

- Modifications to game mechanics
- Change how game functions
  - Think constraints, winning conditions, conflict resolution, turn order, etc.
- The game **doesn't work** without them.

Features

- Attributes that make a game **richer**
  - (Not absolutely essential)
- The game **still works** without them.

- You can add a rule without adding a feature
- But you can't add a feature without adding a rule to explain it.

Rules

Can you think of a game that has no rules?

What about only one rule?

Why is this so difficult?

Rule Sheets

Objective

Procedures = "Setup", "How to Play"

Special Concepts (The Bank)

Clarify all possible scenarios (rulebook as reference)

Gameplay variations

Rules vs. Features

Connect Four

Monopoly

Risk

Scrabble

Rule Sheets

Notice the varying structures depending on complexity

- <u>Connect Four</u> explains the objective and procedures in a few paragraphs
- <u>Risk</u> is 16 pages long and has a table of contents

Testing Your Prototype

- Always ask a question - gives purpose
- Have a hypothesis to test - stay falsifiable
- Examine user feedback to determine if hypothesis was supported
- You can tell if peers/users are excited by your idea
- Work fast (2 days - 2 weeks) - "Prototypes don't need engines"
- Consider the purpose of the prototype to determine what to prioritize
- Look? Kinesthetics? Load time? Run time? Usability? Persuasion?
- Compartmentalize, focus on one thing at a time

Formal Details

Objective - interesting and achievable?

Player interaction structure - best choice?

Rules or procedures that didn't fit?

Try to keep it to fewer rules (think small, important set)

Isolate each new rule and test individually

Does the game function without it?

If not, it is essential; if so, it is a feature

Refinement

Is the game compelling? Why/why not?

Prioritize features, test one at a time

Take notes, rely on user feedback

For Week 06 (10/02)

[Group] Playable Prototype

- **Prepare** and **bring with you** to class:
  - A **simple rulesheet** (remember, rules over features)
  - The **materials** needed to play
- During next week's class:
  - We will playtest each other's games!
  - Treat this as a mock midterm/**draft** of physical prototype

[Reading] Chapter 9: Playtesting (pgs. 248-275)