Assignment 1

Creativity Unleashed

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Process

Multiple techniques were used in the systematic creativity method when generating ideas - brainstorming was used when exchanging ideas with classmates, while Scamper was used in others. Oftentimes one led to another, or both were used together.

For most ideas, my objective started from the need to create an AR asset, which then was made more concrete during brainstorming as the elements were discussed or more were introduced. Scamper was then used to combine, skew, substitute and adapt the elements when the objective was clearer.

I aimed to have many of the ideas to be bizarre or humorous, leading to brainstorming possible elements which could achieve bizarre or humorous results. The objective would then change to a more concrete one at this point, such as turning jenga into a weapon, or creating a combat scenario.

I also tried to consider the asset as an element in some ideas, leading to innovative gameplay ideas such as using soundwaves as an asset. Although the limitations of hardware were not heavily considered, the simplicity of player input and interactions were central in each of the ideas. As such, many of the ideas were simplified and some aspects removed.

Ideas

Multiple real-life objects were chosen to ideate over, with many having interesting or distinct physical properties. The real world objects that were considered were: Jenga tower, Sniper Rifle, Pogo Stick, Player's hand, Holographic Assistant, Lasers, Camouflage Suit, Chibi toys, Wheel of Fortune, Remote Controlled Cars, Optimus Prime, Music, Whack a Mole.

The following ideas thus resulted from the process:

1. Collapsing jenga bridges need to be crossed by controlling a running pogo stick/sniper guy.
2. Firing block projectiles at enemy fortresses situated between jenga tower jungles.
3. AI holographic waifu[1] encourages you if your poo poo is healthy, and scolds you if not.
4. Fire lasers at opponents location, which can be countered by using a hand to block it in front of the camera when laser comes down.
5. Evade invisible enemies by listening to their footsteps and destroy them by finger-shotgunning them in clear line of sight.
6. Banish enemy creatures into the shadow realm by banshee screaming or sneezing at their direction.
7. Sniping chibi characters on opponents' shoulders of other team with camera with power ups.

[1] Gatebox, Living with Characters. https://www.gatebox.ai/en/

8. Rotate yourself on a wheel of fortune and fire your gun at the same time as your opponent in a duel, but can reverse time to dodge after firing.
9. Race RC cars and horse girls in user created tracks, with variable external and internal properties(humans have better turning, cars have higher speed).
10. Play rock paper scissors with the character of your choice. Losing will result in an angry scolding from Optimus Prime.
11. Finger/foot tap and slide to the beat to incoming notes in a sitting position.
12. Pound the ground with your giant hammer in a giant whack a mole board.

Interesting Ideas

Gameplay design patterns[2] will be *italicized*.

The three most interesting ideas I feel are the following:

1. **Jenga Fortress -** Firing or throwing block projectiles at the enemy fortress in a jenga tower jungle. The asset here originated from a Jenga tower and their wooden blocks.
2. **Soundwave Evasion** - Evading invisible enemies only detectable by their footsteps. The asset originated from the lack of a visible asset
3. **Chibi Snapshot Deathmatch -** Camera deathmatch of miniature characters on shoulders with powerups.

Jenga Fortress

The **Jenga Fortress** is interesting to me due to the simplicity of their base objects - wooden blocks in this case, as well as the complexity when these pieces are put together, forming destructible larger objects. This can give rise to unexpected and emergent gameplay resulting from in-game physics. Specifically, the AR aspect of physically throwing the projectile and framing the target creates interesting opportunities for fun gameplay.

I envisioned this game to have two phases: A build phase where both players build their fortresses with jenga blocks in real time, and a combat phase where players fire projectiles at their fortresses. The blocks will be a limited *resource* during build phases, and *ammunition* will be limited during combat phases. If *ammunition* runs out, players will need to pick them up from fallen blocks or, at worst, begin removing blocks from their fortress. Fig. 1 illustrates a simple layout of the game.

[2] Björk, S., Lundgren, S. & Holopainen, j. Game Design Patterns. DiGRA '03 - Proceedings of the 2003 DiGRA International Conference: Level Up, 2003, Volume: 2. ISBN / ISNN: ISSN 2342-9666.

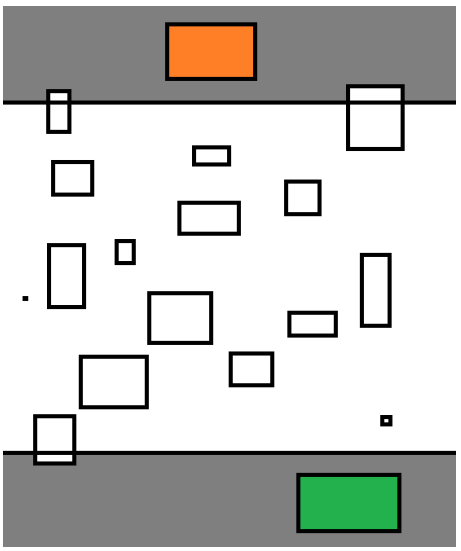

Fig 1. A general illustration of a **Jenga Fortress** scene. Colored blocks are fortresses, and white blocks are jenga towers. Players need to stay behind the gray zones to throw projectiles.

A *turn-based* game about *Tactical Planning*, I believe this game will be most interesting if player actions are given the most freedom. This can give rise to emergent gameplay, such as players toppling jenga towers in a certain direction to crash upon the opponent's fortress. Gravity can also be varied, where some jenga towers can be horizontal, others upside down, with each tower conforming to their own gravity. Projectiles can ricochet off of blocks, leading to more mayhem.

A central issue with this idea is that the AR aspect is rather inconsequential - the entire game can easily be a normal video game. However, I think the AR aspect will be apparent if the player is able to build their fortresses and throw the blocks with their own hand, rather than through a controller. This will give the game a *dexterity-based* aspect, since the player will *physically enact* the throwing and building portions of the game.

Another aspect of creating this game in AR would be the freedom of placing the camera wherever the player wants to, rather than predefined perspectives. The choice of camera/perspective placement also ties into the player *physically enacting* the actions - the player must look at the target while throwing or building. More creative freedom is given as well during the opponent's turn. For example, the player might place the camera device lower onto the fortress to give a more cinematic perspective when the projectile hits the fortress.

Soundwave Evasion

Soundwave Evasion was interesting due to its use of sound - what would a game without a visible object look like? I felt that the focus on sound would encourage the player to not focus on their screen so much, allowing players to be

better aware of their surroundings. Furthermore, it could encourage players to explore unconventional paths, allowing them to explore real life locations.

Essentially a *Stealth* game requiring players to locate enemies mainly through sound, players need to physically *traverse* their environment to evade and destroy the enemies. Soundwave Evasion is meant as an outdoors game, requiring location and camera data in order to function properly. Players need to constantly be aware and on the move, *physically navigating* through their surroundings. When the enemy is within line of sight, players having to *enact* shooting them will also create interesting scenarios.

Although it would create more *challenging gameplay* to completely have the game rely on location data to play the game, I believe the player should be able to see the sound waves of the enemy when they are within a certain proximity, giving audiovisual cues to the player. This will allow players to anticipate the enemies coming around corners, for example, leading to greater *tension* and immersion. Allowing players to see the enemies themselves would also be interesting, as it provides a concrete target for them to shoot at. Fig. 2 illustrates a possible interpretation of this idea.

Fig. 2. Sound waves seen emanating from the creature. The creature is shown as the purple stickman here, with the sound waves going from red to green depending on distance.

Alternate methods of *eliminating* enemies can also be considered, as *physically enacting* shooting may imply too much violence, or those who are physically impaired may require more accessibility options. As such, simply looking or pointing a camera at the enemies for a certain period of time may be enough to *eliminate* enemies.

In general, **Soundwave Evasion** would be an innovative AR game due to its usage of sound and camera to detect enemies, encouraging the player's physical enactment. Although the game could certainly be made as a normal video game as well, there would be a lower degree of immersion due to the lack of physical enactment, as well as being in a *real world gameplay space.*

Chibi Snapshot Deathmatch

Chibi Snapshot Deathmatch is interesting due to its social and pervasive aspects. A *Player Killing* game, Chibi Snapshot Deathmatch requires players to *aim and shoot* the characters on the shoulders of other players with their cameras while maneuvering around their *real world gameplay spaces*, which can be both indoors or outdoors, within agreed boundaries. Fig. 3 shows a simple example of the concept.

Fig.3. A player taking a picture of the enemy's shoulder character, located on the left side of the phone screen.

With a high degree of *freedom of choice*, players can include aspects of *Stealth*, sneaking up or hiding from other players in order to snap a picture of the enemy's character. There is a high degree of *replayability* as well, since different real world locations can be used. Indoor spaces may provide greater cover and hiding spots, while outdoor spaces allow for a larger playing field and different playing modes - a "fast draw", for example.

The characters on the players' shoulders can also help players in different ways. Some may alert the player when they are seen, or if an enemy is close by. The players may thus see the character as a companion, leading to a greater emotional connection to such characters. Power-ups may also affect these companions or the player themselves. Examples of power-ups would include items such as a proximity alert, as mentioned above, blurring enemies' cameras outside a certain range, or a

scanner that reveals the locations of the enemies for a short period of time. These power-ups would give players the *freedom of choice*, such as to risk going for a power-up or stay hidden. These choices encourage *stimulated planning*, since players may want to reach higher ground, for example.

The use of using a camera snapshot as a weapon presents several limitations. Players with cameras of a lower shutter speed will need to keep their target in frame for a longer time compared to players with better cameras. In addition, cameras with better optical zoom may have an advantage. Object detections will need to be reliable, as players being shot behind cover would easily break immersion.

Interesting emergent gameplay may result from Chibi Snapshot Deathmatch too. For example, a player may "snipe" a player by taking a picture through a telescope, or hide themselves in a large box to prevent the shoulders from being exposed. Such behaviour may be problematic in some cases, described below. Players may also *cooperate* to defeat a better skilled enemy, which may lead to *betrayal* later on. Nevertheless, I believe that these interesting behaviours can only be done in AR, since players can be creative in their approaches in taking advantage of their current location.

Ethical and Social Issues

All of the interesting ideas have ethical issues, with **Soundwave Evasion** and **Chibi Snapshot Deathmatch** specifically due to its pervasive nature. **Jenga Fortress** requires a high degree of dexterity for throwing, leading to accessibility issues, while the other two have greater social and health repercussions.

Jenga Fortress requires a high degree of dexterity to throw blocks not only hard enough, but also in the direction of the target. As such, those who are physically impaired or older age groups would be at a disadvantage, if the opponent is more physically fit. Alternative input methods, such as a slingshot or tapping the screen to fire, may be required to encourage these user groups to play the game.

The same issue of *dexterity-based actions* apply for the other two games as well, **Soundwave Evasion** and **Chibi Snapshot Deathmatch.** Those who have lower motor skills may require longer times to shoot at enemies or take pictures of characters. Players who are unable to walk would most likely be put at a great disadvantage in **Chibi Snapshot Deathmatch**, and those who are hearing impaired would be unable to hear footsteps, which are central to the game.

It could be argued that all three games are exergames, thus encouraging players to have a healthier lifestyle. While some players playing virtual reality exergames have reported motion sickness and other adverse health reactions, an AR exergame is less likely to create such issues.

Another issue with Jenga Fortress are the possible locations it is played in. Although the play area does not need to conform to the entire in-game scene, the player still needs space to build the fortress and throw projectiles. If played in public areas, it may disturb others, or worse, put the player in danger.

One of the biggest problems with **Soundwave Evasion** is its heavy reliance on directional sound. As such, headphones are nearly a requirement to play the game properly, which blocks out ambient sounds. Combined with the player's focus on listening to the footsteps, this can quickly become dangerous in public spaces. Road dangers, crossing streets, pickpockets, and general situational awareness are quickly suppressed which can lead to life threatening accidents. This is also a tricky issue, as many headphones do not have Transparency mode, which amplifies ambient sounds. While the soundwaves could be visualised to mitigate this, it would reduce the appeal of using sound in the first place.

The concept also requires public spaces and map layouts to function properly. As such, there is a high risk that players may end up in private or restricted spaces to evade enemies, leading to social disturbances. Moreover, spectators may be surprised or confused due to players' behaviours. This can become intrusive or unwanted in crowded spaces for both **Soundwave Evasion** and **Chibi Snapshot Deathmatch**, especially if players use other people for "cover", or scramble for cover by pushing through crowds.

The placement of enemies of **Soundwave Evasion** would require deeper societal analysis, as the enemies act as attractants and repellents of players. This is especially important when considering poor, rural or disadvantaged areas in cities. On one hand, including disadvantaged or more dangerous areas encourage equality within cities. On the other hand, players being encouraged to enter such areas run the risk of being injured, or their personal belongings stolen. Careful placement of enemies should be considered to promote inter-area inclusion but mitigating such societal issues.

The issue with restricted and private spaces may be more problematic for **Chibi Snapshot Deathmatch**, as it rewards players for their creativity in using their surroundings to their advantage. This could mean that players may climb structures, use disguises, or even distract opponents by throwing objects - which belong to others - near their location. Younger players who are unaware of societal rules may be more prone to perform such actions. Although the game should discourage such actions, it goes against the creativity aspect of the game, making it difficult to mitigate.

In conclusion, while all three games have many ethical and societal issues such as accessibility and vulnerable areas of cities, they are interesting ideas due to the ability to showcase technologies and more importantly, create fun and emergent gameplay, mainly through the *freedom of choice, tactical planning,* and *dexterity based actions*.