Shahd Tarek

202202018

CSAI 312: Human Computer Interaction

Assignment 3 – Interfaces (Candy Crush Mobile Game)

1. **Tangible Interface**

-Target user group: Children

-Research & Design Considerations:

- A tangible interface provides a more engaging environment for children as it encourages hands-on learning in a fun way.
- The components of the game need to be appropriately sized and lightweight for children to easily use, they also need to be safe and durable for a child's use.
- Adding bright, fun colors and sounds creates multisensory stimulation.

-Hypothetical Scenario: The game would be developed in the form of a physical board game where children swap candy-shaped tiles to match them together. The game would use sensors to detect whether the same candy types are matched together and if so, the board could light up and give animated feedback to the player.

-Design Issues:

- Candy-shaped tiles should be lightweight and appropriately sized for children.
- Tiles should have built-in sensors or tags that the board they are placed on can properly read using its own sensor too.
- Game complexity should be adjusted to match children's cognitive abilities.

-Pros:

- Engaging and educational experience for children.
- Helps in stimulating their sensory development.

-Cons:

- Less flexible than playing on a smartphone.
- Requires physical setup.
- Less convenient as it takes up more space.

2. **Wearable Interface**

-Target user group: Young Adults

-Research & Design Considerations:

- Much more portable and convenient, especially for young adults that often use wearables such as apple smartwatches on the move.
- The game must allow pausing without losing progress since wearables are very likely to be used in settings with multiple distractions.
- Wearables have very limited screen size, thus the game design should be very minimalistic and not eye straining to the user.
- Use haptics to provide feedback to enrich user experience.
- Could also apply air gestures instead of having to tap on tiny screens.

-Hypothetical Scenario: The game would be developed as a smartwatch-based mini-game where players complete short challenges. Instead of swiping candies on a full grid, the game would present simplified tasks such as recalling a pattern from a briefly displayed 3x3 candy grid or selecting the correct candy to complete a combo. Players would interact using swipe gestures or taps on the watch screen. The game would use haptic feedback (vibrations) and short sound cues to reward the user.

-Design Issues:

- Game should use less features to reduce cognitive load due to the small screen display available.
- Use air gesture controls to reduce frustration of touch input on small screens.
- Use less text on screen to make it less cluttered.

-Pros:

- Quick and easy to play
- Convenient and portable
- Redesigns game in a fun way that challenges user's mental capability to memorize patterns

-Cons:

- Limited screen size.
- Playing for long hours is eye straining.
- Too much haptic feedback could be annoying.
- Playing with gesture-based controls might not be ideal for public settings.

3. **Shareable Interface**

-Target user group: Older People

-Research & Design Considerations:

- Older people care more about team-based activities where the focus is more on collaboration and group play rather than competition.
- The design should be adjusted to take into consideration accessibility issues such as mobility and vision that older people are likely to have.
- The game should also provide users with clear and easy to follow instructions that could be in the form of audio instead of text as it is easier to interpret.

-Hypothetical Scenario: The game would be developed for a large digital tabletop where multiple players can gather around and play together. The interface would display a simplified and enlarged version of the classic game board, using large icons and clear visuals to ensure readability and accessibility. Players can be divided into teams and take turns, they would interact directly with the screen using their fingertips. The table could provide visual and audio feedback to celebrate successful matches, encouraging social interaction and teamwork among the players.

-Design Issues:

- Use large icons and high contrast colors to make it easily distinguishable.
- Use a tabletop interface as users can remain seated while playing which is more comfortable for elderly people.
- The game can implement a turn-based rule that is guided by audio. For example, players are divided into teams and these team names are entered into the game before starting. At each turn, the team's name is announced.
- Input is done through fingertips as it is easy and intuitive.
- Add undo/return buttons to prevent frustration.

-Pros:

- Fun and engaging using team play
- Encourages social interactions and fun gatherings
- Prioritizes accessibility and ease of use
- More error tolerant

-Cons:

- Expensive
- Not portable, less flexible to use
- Digital tabletops may be unfamiliar for older people, could find it difficult to use.