CRUNCH TIME (Updated Documentation)

Final Interactive Project by Aldrin & Sophia

NATURE OF EXPERIENCE

The nature of our interactive experience is about the stress students feel as they struggle with time management at school. We want participants to either learn or remember how difficult it can be for students to have a good work-life balance and find the ability to take care of their health. To express this, it would be most effective to do so in a physically demanding way where the participant must use both their mind and body at the same time.

TYPE OF CONSTRUCTION

- Scale:
    - The physical object(s) will be relatively small, but overall the space required is quite large (about the size of a room).
- Materials & affordances:
    - Cardstock
    - 3D Printed Materials
    - Pillow
    - Blanket
    - Electric Tape
    - Game buttons
- Why we made these choices:
    - 3D printing makes it a lot easier construction a lot faster as we can work on other things as those parts are being made
    - The pillow and blanket enhances our theme of never being able to rest, its a physical representation of what we want but can never actually enjoy
    - The overall size of the objects are small due to ensuring that we can construct everything in a reasonable time frame. It was decided that due to our game, there would be no reasonable choice to make it bigger than necessary
- Pros & cons to construction choices:
    - 3D printing is efficient if it prints, but if it fails, we can lose hours of progress
    - The sizes makes it easier to construct but often small parts can break easier
        - It may also be hard to fit more things inside (especially the alarm clock) like the arduino, circuits, buttons, etc.

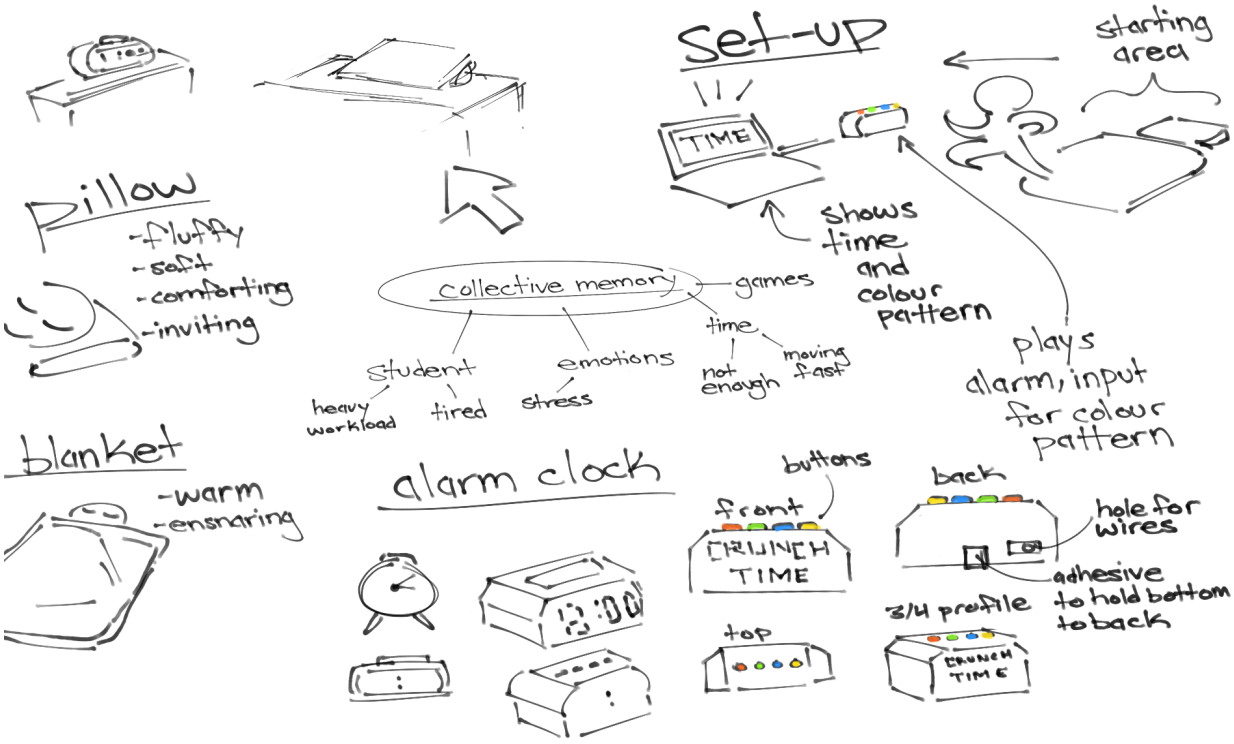
INTERACTIVE COMMUNICATION

For our game, the collective memory we chose to display is the physical and mental stress based on time management. For our twist, we decided that sometimes these stresses feel like they never end. We will communicate this through the symbolic use of the objects, sounds, and imagery associated with time, rest, and stress.

THE UNUSUAL OBJECTS (UPDATED)

Each of our objects will have a different input and output.

- Alarm clock: symbolizes the urgency, and fleeing time; has a LED (output) and four various coloured buttons (input)
- Screen: symbolizes how we look at screens for a good portion of the day as students (especially in New Media) and how much we rely on them; will show the status of the game, and what the player should do next (input/output)
- Pillow and Blanket: symbolizes our needs to rest (even though we don't have time for it) what the player will use to "relax", serves as a starting point (input)



ORDER OF OPERATIONS (UPDATED)

- Pseudocode:
  - GOAL: complete as many patterns before time runs out (game over)
  - A four color pattern is given on the screen
  - Player walks to the bed (pillow and blanket)
  - If alarm turns on, the player must run to the alarm clock and input the given color pattern
  - If the pattern is inputted on time, a new pattern will be given
  - Repeat steps for all 10 rounds (each round increases difficulty)
  - IF LOST, put name on scoreboard and reset the game
- Breakdown:
  - Timer
    - The amount of time the player lays on the pillow to start the game
    - The amount of time the player lays on their "bed"
    - The amount of time the player has to solve the code to stop the alarm
  - Sound:
    - Lullaby sound cue for sleeping

        - Alert sound cue for timer

CONTRIBUTIONS (UPDATED)

- Sophia
    - Illustrated design iterations
    - 3D printing
    - Material gathering
    - Painting
    - Construction
    - Document and Powerpoint
    - Photography
- Aldrin
    - Coding
    - Circuitry
    - 3D printing
    - Material gathering
    - Construction
    - Sound design
    - Photography
    - Video production

PHYSICAL MATERIALS, SENSORS (& COMPONENTS), SOFTWARE, & CODE (UPDATED)

- **PHYSICAL MATERIALS**
    - Pillow
    - Blanket
    - 3D Printed
        - Alarm Clock
            - Side & Back Part
    - Cardboard
    - Electric Tape (directional button design)
- **SENSORS (& COMPONENTS)**
    - Tactile Buttons
    - Wires
    - Arduino
    - Resistors
    - LED (multicolour)
- **SOFTWARE**
    - User Interface
        - Electron
            - Javascript
            - HTML5/CSS
            - Sass/Scss
            - Dependencies

        - SerialPort
        - Electron Forge
    - Arduino
        - PlatformIO
- **CODE**
    - In ZIP folder

OUR SKILLS

- Constructing with craft tools
- Creating appealing designs
- 3D printing
- Programming
- Circuitry
- Painting

TIMELINE

- Create the sketches/design brief of our project
- Decide on building materials
- Construct the device
    - Make the code and the circuits
- Assembly of physical prototype
- Presentation of prototype #1
- Necessary improvements (see below)
- Second presentation for prototype #2

IMPROVEMENTS MADE

- Issue: Not suitable for colour blindness
    - Solution: Added directional arrows on screen and corresponding buttons
    - Solution: Colour transitions change to instant than fade (original)
- Quality: Scoreboard for up to 5 best plays
- Issue: Sounds not easily indicating waking up
    - Solution: Better audio cues added