Final Project Proposal

Ysanne Baxter, BSc Y1 2020 // working alone // the following document outlines a high-over of concept ideas & sketches as well as discussion of technical implementation

Core Concept

A text-based RPG where the input takes primacy over the output
Equipped with 3 different types of sensor, players must use novel inputs [pressure, rotation, light] to advance the flow of the story
Gameplay is shaped by the real-world environmental data passed into the system; players may choose to physically act out different paths & the system will repond accordingly

Key references: Infocom-era text based adventures, affordances as discussed in *The Design Of Everyday Things*, iPhone game *Device 6*

Example Gameplay - Flow

`A ferocious beast stands in your way`

In each of the below examples, we can see that experimentation with the novel inputs on the part of the user is rewarded with story progression. Any path is valid, and in this input-output cycle, the choice of physical manifestation of input is directly related to the outcome

Light Input: If light *increased*, you shine a laser at the lion to distract it; if *decreased*, you throw a sack over the beast's head and he can no longer see you

Rotation Input: You throw a steamed ham past the beast, and he moves to chase it

Pressure Input: You wrestle with the beast

Implementation Timeline

End of Week 1
> Tinkercad prototyping
> Order parts
> Research sensor implementation

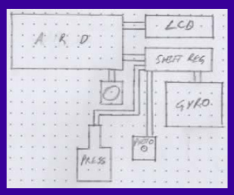
End of Week 2
> Map all possible story routes
> Write decision tree as pseudocode

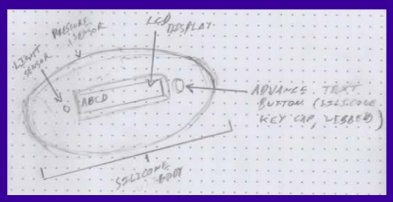
End of Week 3
> Begin build
> Link sensors to shift register
> Test sensor input accurate
> 50% coded

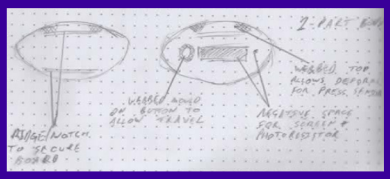
End of Week 4
> Finalise build
> Solder permanent connections[?]
> 100% coded
> Upload design documents
> Upload demo to YouTube

Component List & Concept Sketches >>

Concept Sketches





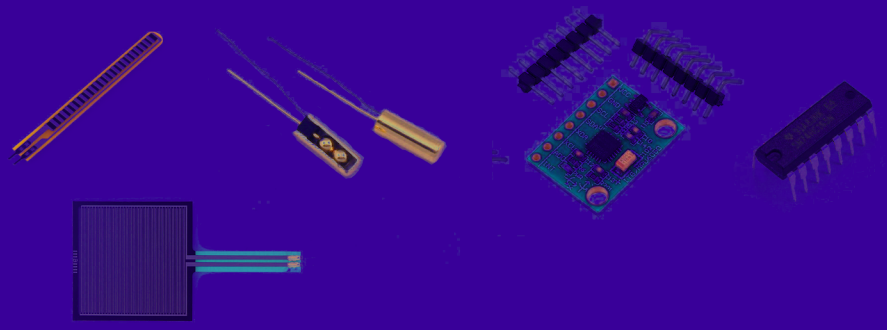


> Pseudo-circuit diagram
> Shows connections between components
> Starting point for Tinkercad this week

> Concept sketch
> Shows completed model idea
> Components inside silicone casing
> Only button, photoresistor & screen visible

> Concept for silicone body mould
> 2 part case with seam in middle
> Buttons & sensor travel enabled with tactile webbing
> Holes for screen & photoresistor
> Boards held in place by grooves in flexible silicone

Components List/Technical Requirements



> Flex sensor OR pressure pad
> PISO shift register for sensors
> Gyro breakout board OR tilt switch
> Pull-down resistor[?]
> Photoresistor
> Push button
> Various wires & resistors
> Solder
> Silicone mould (3D printed)
> Silicone 2-part mix
> LCD screen

Code-wise, the decision tree & the story actions advance must be bulletproof to make it feel intuitive - hence the week ringfenced for coding alone.
There must be some points of commonality for each story, otherwise it will balloon and become impractical.
It should be possible to use a polling method for sensor input, as it will only be relevant at certain times - as with the button to advance text (the screen will be too small to show more than one or two lines at a time). This should make things simpler to implement in code, as I'm more familiar with this technique over the interrupt method.

DEPENDENCIES
> If components are not ordered and/or do not arrive in good time, it will not be possible to proceed with a physical build and the project must advance on Tinkercad alone
> Unlikely to be able to afford/ have time for a proper build of casing as proposed herein