ASSIGNMENT 2 – HAPTIC GLOVE LITE: ELECTRONICS

INFR 3380U: INDUSTRIAL DESIGN FOR GAME HARDWARE

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AGENDA

- Reintroduction
- Electronics
  - Bill of Materials
  - Schematics
  - Circuitry Integration and Working Simulation
- Project Progression
  - Planning
  - Remaining Assignments

REINTRODUCTION

DEFINING THE PRODUCT

REINTRODUCING THE HAPTIC GLOVE LITE

Product: Haptic Glove Lite

- Haptic Glove for Enhancing VR Experiences
- Vibration-Based Feedback
  - No Movement Tracking
  - No Force Feedback
- Slim and Low Cost
  - Average Consumer-Oriented

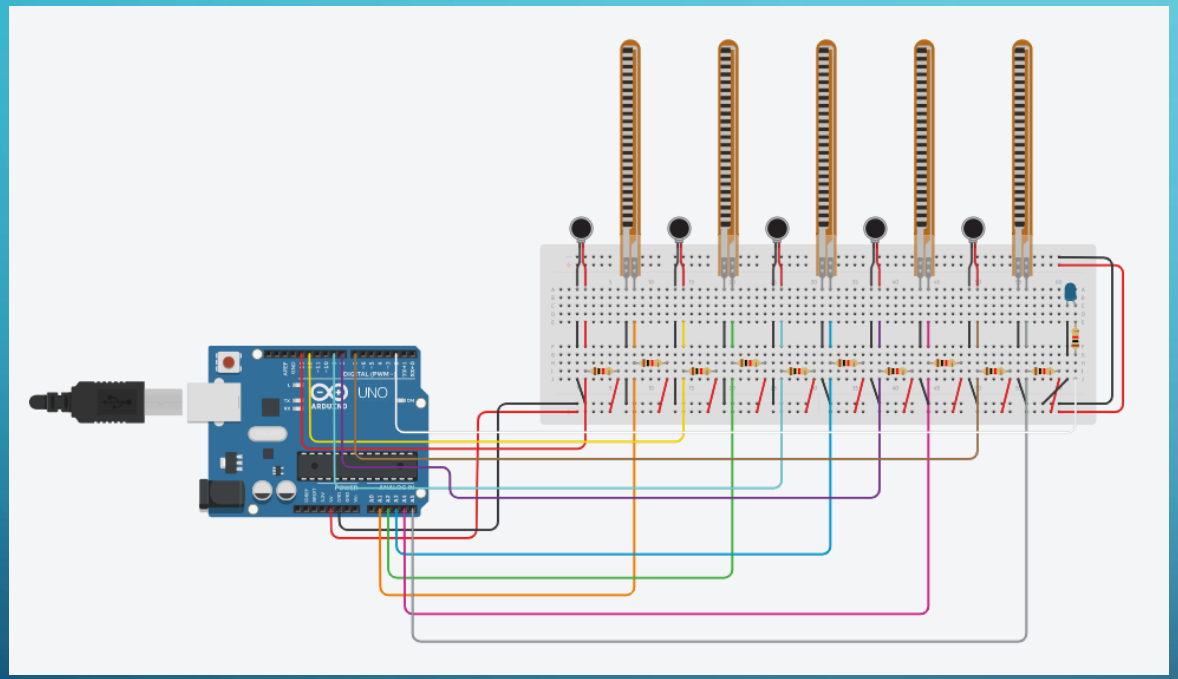
ELECTRONICS

HAPTIC GLOVE ELECTRONICS

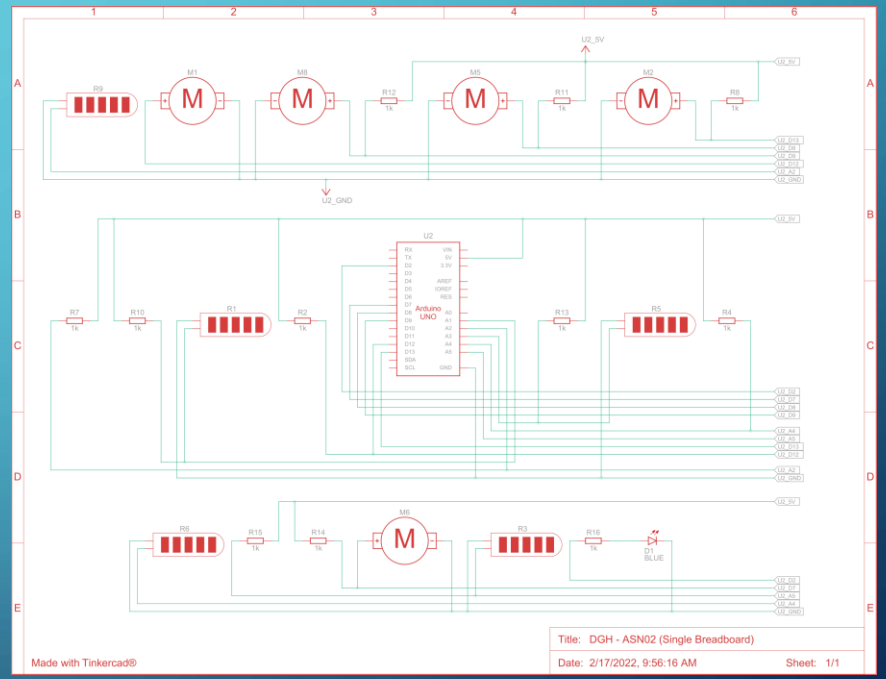
BILL OF MATERIALS

Component	Quantity	Price (Individual) [CAD]	Price (Total) [CAD]	Role
Flex Sensor (2.2")	5	$14.75	$73.75	Measures the bends in the user's fingers.
Arduino Uno R3	1	$4.50	$4.50	Provides power to the breadboard.
Vibration Motor (Mini - 10mm)	5	$3.59	$17.95	Vibrates in reaction to triggers in the virtual space.
1 kΩ Resistor (1/4W at 5%)	11	$0.25	$0.50	Regulates power for the other components. Being bought in packs of 10 for a total of 20 resistors.
Blue LED (1W)	1	$1.50	$1.50	A blue light that blinks to indicate that the device is on.
Wire (3" (M-M) Jumper Wire)	57	$2.50	$15.00	Wires for connecting components on the breadboard. Being bought in packs of 10, so 6 packages are being purchased for a total of 60 wires.
Breadboard (Full Size)	1	$7.80	$7.80	The breadboard for connecting all the components and providing power to them.
Total	81	$34.89	$121.00	

SCHEMATICS



Breadboard View



Schematic View

CIRCUITRY INTEGRATION AND WORKING SIMULATION

- Created in TinkerCAD
  - Composed of All Listed Components
  - **Functions:**
    - Active Vibrators
    - Prints Flex Sensor Values
    - Blinking LED
- **TinkerCAD Simulation:**
  - Link (Public): https://www.tinkercad.com/things/5OKWCgpc1B9

PROJECT PROGRESSION

PROJECT PLANS

PROJECT PROGRESSION – PLANNING

- Completed TinkerCAD Design
  - Assemble Model in Fusion 360 Next
- Real-Life Approximation Needed
- Create Model and Simulation for Unity
  - No Plans for Full Physical Version

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PROJECT PROGRESS – REMAINING ASSIGNMENTS

Remaining Assignments:

- Assignment 3 – Design – 03/11/2022
  - Technical Drawings, Parts, and Assemblies Simulation
- Assignment 4 – Progress Presentation – 03/18/2022
- Assignment 5 – Makerspace – 03/25/2022
  - Iterative Design and 3D printing.
- Final Presentation and Report – 04/14/2022

END

THANK YOU FOR LISTENING