

Final Project Ideas

challenge: cheap, easily replicable electronics

1. watch with display and additional sensors on clothes for monitoring
2. exoskeleton arm with motor (??) printed chassis? (detectors or buttons on arm for control)
3. powered gloves with motors to give feeling and resistance when interacting in VR
4. very small and cheap drone (??) printed chassis)
5. separate robotic arm that mimics a human arm (for use in dangerous(?) situations)
6. self centering mouse pad (motorized) don't have to move mouse back to center
7. wearable self refracting mask (like the ones you see in movies)
8. sensor to tell if you're left the store or when the front door is opened
9. detect facial movement using electrodes then map into a virtual avatar
10. put a small language model on an Arduino (no clue how that one goes wrong)

Selected Idea: Exoskeleton arm (because it sounds cool af)
Details: (kind of like several above ideas rolled into one)

1. make out of wood probably could see if I can get aluminum
2. inner layer will be lined with buttons to detect movement
3. joints will have potentiometers to detect movement
4. hands will be actuated by strings
5. joints will also have motors
6. will likely need to be a frame to keep it tight
7. inner layer may be separable
8. sensing components and actuator on different circuits
9. will probably only be for one arm
10. may need more than 1 Arduino

Clavator pitch

- focus video games and entertainment / cultural applications
- will have little practical use on the other side
- since it is only a small project
- use in VR to give tactual feedback
- cheap & open source
- cosplay (?)

Probleme:
to force
the two
function
as 1 position

button,
when pressed,
it sends
a run
motor and
the motor
should
move
it

v1:

What's wrong with VR today? Sure, you can see objects and interact with them but you can't feel them. It is essentially a phone strapped to your face, I want more from my gaming experience. I want what has been promised in movies, books and ads alike. As such, I propose an Exoskeleton arm that can sync the virtual and the real in a way that players can finally feel for themselves.

Feedback: (20+ years older, business man)

- "why? why an 'Exoskeleton' though?" → how do I say "It's not professional"
- "isn't media already doing this?" → not just for gaming

v2:

In this day and age, the line between what is virtual and what is real is already blurry. I, however, want to blur it some more. I want to make a mechanical exoskeleton that can serve both as a way to interface with VR and a way to bring VR to life. It will be able to both provide tactual feedback in the virtual world and bring the beloved characters to life through cosplays.

Feedback: (30+ years older, doctor + investor)

- "who would use this" (serious question, not mocking)
- "how strong will it actually be?" → not strong, but cheap
- "why would you need that for 'cosplay'" → you can use it for anything

v3:

In this day and age, the line between what is virtual and what is real is already blurry. I, however, want to blur it some more. Virtual Reality already is already a massive market for games yet it only includes two of the five senses. I want to up that to three, with an Arduino powered Exoskeleton, we can bring tactual sensitivity and feedback to VR. Not only that, with how cheap and accessible the open source Arduino is, it can have a wide range of applications besides everything from being used in cosplay to medical applications.

Reactions (to business card):

* persons 1-3 were interviewed
in the tech lab

Person 1:

- "wow"
- *immediately accidentally drops it
- "how did you make the text line up with the folds?"
- "very sturdy"
- "cool"

Person 2:

- "so did you insert first, then fold it?"
- "so innovative"
- "where are the programs?"
- "good insight" (regarding exporting software)
- "good idea"

Person 3:

- "so was there a grade for creativity?"
- "lovely fun"
- "is that made out of cardstock?"
- "cooler than those thin metal cards"
- "must have been a pain to fold"

Person 4:

- Fengren Wang
- add feathers
- more detail
- 3D is creative!!!
- Add something under the wings

Person 5: Olivia Kim

- move letters so it isn't folded
- very cute
- I like the 3D
- cute that it brings back elementary memories
- give it eyes.