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https://github.com/CatWeng/CART360

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Initial Project Intent and Change

Realizing that my original prototype would not work, I have decided to change my concept into something more achievable. However, I will be using a lot of the same concepts. Instead of the cape, the form of the project will be changed to be a plush creature that sits across the wearer's shoulders. A cape is a whimsical article of clothing associated with adventure, costumes, superheroes, not something that would normally be worn like a shirt or pants. I would like to create something with a similar sense of whimsy. The plush will take the form of a long, serpentine creature draped across the wearer's shoulders, with the head raised up as if keeping watch. The serpentine shape is chosen because it is easy to balance and mold to the wearer. The creature sitting on your shoulders acts as a guard and protector in place of the cape. While a cape covers the body like a safety blanket would, a plushie is also something evocative of the comfort it brings in childhood years. Even into adulthood, teddy bears are commonly offered as Valentine's Day presents and many people, myself included, keep their childhood stuffed animals around.

Following the previous prototype, I have not had time to get a proper prototype together but the plan is fairly simple. The plushie will have thick gauge wire inside for support in keeping the shape and regular polyfill stuffing, with adequate space for electronics. The circuits will be made by stitching across the body of the plush with conductive thread. There will be an inner layer of plain sturdy stretch fabric to hold all the components together and an outer layer for cosmetic purposes, to give the plush a creature like feel (perhaps scale printed spandex or various fake furs). The sensors I'm using will be visible on the outside but they will be placed to appear as eyes or other protrusions on my creature. As for the actual interaction aspect, the main point of this project is still the personal space of the wearer in a social context. As a guard, the creature will alert the wearer of approachers outside of the normal field of view of a human looking forwards, a range of about 190 degrees. It will do this in two ways, one- with a piezo buzzer installed in the mouth to create a sound and two- with a neopixel placed around where the creature might be expected to have a heart. When no one is nearby, the heart will glow with

a soft white pulse. On detection of a person, the light will change colour to reflect how the person is approaching, according to the same principles as a traffic light. This creature is supposed to be evocative of childhood, and traffic lights are one of the first and most important lessons to be taught. These colours are a universal constant through the Vienna Convention on Road Signs and Signals (except Japan, where blue and green are interchangeable). Red has long been understood to be a colour of caution, yellow means slow down and green means go, a straightforward system. So when someone approaches the wearer in the desired way, from the front, the colour will change to a steady green pulse. When approached from any other way, the light will at first change to yellow, accompanied by an alarm from the creature's mouth. If the personal space intruder ignores these warning signs, then the light will turn red and flash more frantically depending on the distance, and the alarm buzzing will intensify. The alarm serves to alert both the wearer and the intruder equally. Both alarm systems are necessary because it is often the case that one sense or the other is occupied, people aren't known for paying attention to their surrounding out in public, or it is simply the case that someone is deaf or blind.

The project will still stick to using the ultrasonic sound sensors to detect for approaching objects, and PIR sensors to detect that the objects are living. To expand on this project, I'd like to introduce simple animatronics. Have some motors to move the head, tail and perhaps limbs in accordance with the other actions. I would also like to add an atomiser to the mouth and have the creature spew mist at random intervals when it's neutral and when it appears to be agitated.