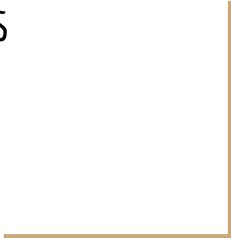


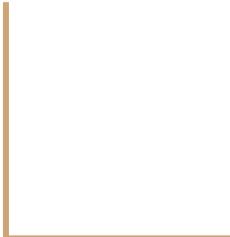


CSMA 112 Final Review

By: Natalia Campos



Air Quality



My research on Mitigation Technology

Mitigation

Air Purifiers have become part of the everyday in countries with high levels of pollution
(Xiaomi's [Mi Air Purifier](#), Tesla's "[Bioweapon Defense Mode](#)", LG's PuriCare air purifier mask, ...)

Mitigation: the action of reducing the severity, seriousness, or painfulness of something. -Oxford Dictionary

In terms of air quality, I will be demonstrating the air pollution mitigation technology and methods that have been developed and are being developed.

Problems mitigation solutions are particle pollution, greenhouse gases, and other air pollutants such as organic living compounds like viruses.(Yashasvi. (2020, September 15). 7 different types of air pollution and its causes and effects. Retrieved March 25, 2021, from <https://stylesatlife.com/articles/types-of-air-pollution/>)

Particle Pollution:

1. Fighting fires

Air tree - drone that cleans air after forest fire created by high school student and [uOttawa Engineering](#)

[Drone to clean air after forest fires - local high school student teams up with uOttawa Engineering | Faculty of Engineering | University of Ottawa](#)



2. EV and Non-fuel Transportation

Electric vehicles and non-Fuel vehicles use electricity or hydrogen as power instead of fuel that emits harmful gases. Examples include Tesla, Nikola, and Foothill transit.



Greenhouse gases:

1. Negative Emission Technology

Major oil companies such as Chevron are using air capture in their factories and fuel emissions.

"So how does it work? It varies by company but, essentially, giant fans pull in air, which travels through a thin, chemical-coated plastic film that creates a chemical reaction with the carbon dioxide to create tiny pellets of calcium carbonate. The pellets can then be heated to create gaseous carbon dioxide streams for industrial uses." - Article by Jordan Blum

Blum, J. (2019, March 05) Giant sucking sound: Technology removes greenhouse gases [from atmosphere](#). Retrieved March 25, 2021, from <https://www.houstonchronicle.com/business/energy/article/Giant-sucking-sound-Technology-removed-13656069.php>



2. Vulcanol

Created by Carbon Recycling International CRI, Vulcanol is basically reused carbon dioxide emissions and electricity producing methanol for fuel and they also

use geothermal steam to produce energy as well.

Rapier, R. (2018, October 16). [How a technology from iceland is fighting climate change](#). Retrieved March 25, 2021, from <https://www.forbes.com/sites/rrapier/2018/10/16/how-a-technology-from-iceland-is-fighting-climate-change/?sh=2e069ec024bd>



Viruses and others:

1. LG PuriCare Mask

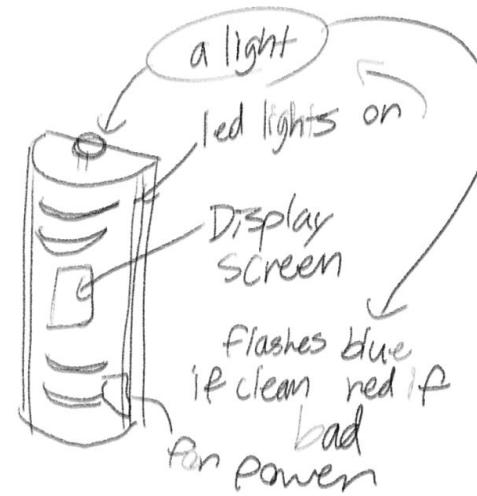
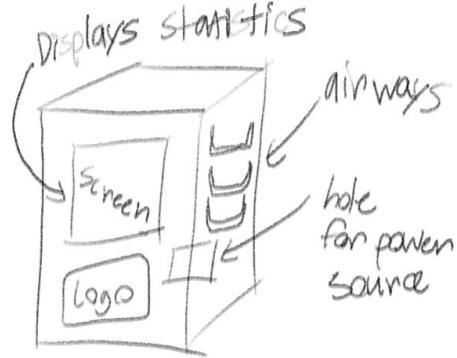
A mask for the face that has filters inside to clean the air inside you are breathing. The charging system also cleans the mask with UV lighting.



2. Sanitization Air Filtration

Removes about 99% air particles from the air sanitizing the air almost like the way airplane filtration works. Examples include AirDoctor and Puro2xygen

Then it was time to analyze the air myself.











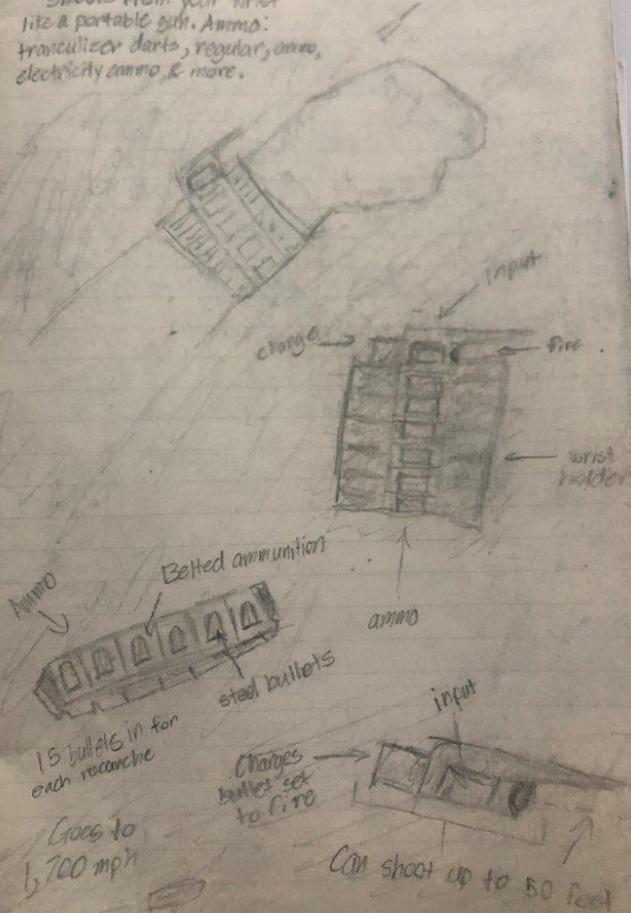
Let's check out my readings from the past 48 hours!

[IO - Sensor Readings \(adafruit.com\)](#)

Wearable Project

Fire Arm

Shoots from your wrist
like a portable gun. Ammo:
tranquillizer darts, regular, amm.
electricity ammo, & more.



Fire Arm (My concept)

P.S from middle school

- One of my first concepts
- Into weaponry and technology at a young age
- Inspired by Black Widows fire-arm bracelet
- Meant for undercover espionage missions
- Can be worn for men or female but the current design is more for the female
- Bracelet revolves with ammo around the revolver bracelet for easy loading
- Miniature gun pops out of the top of the bracelet
- Since it is small it does not shoot very far since it is not capable of holding so much fire power without self-destructing or harming the wearer

The Brains

```
#CSMA112 03/02/2021
#Natalie Campos
#Fire Arms code

#imports
from machine import Pin, PWM
import time
import math
from machine import ADC, Pin

#pin assignments
analogPin = ADC(Pin(36))
analogPin.atten(ADC.ATTN_11DB)

buzzer = Pin(0, Pin.OUT)

#variables
servo = PWM(Pin(26))      # wire up the yellow wire of your servo motor to pin G26
servo.freq(50)             # common servos want updates 50 times a second
pos = 13                   #assigns position for rotation
on = False
#run code
while True:
    flex = analogPin.read()
    buzzer.on()

    #if flex sensor is greater than 124 rotate servo motor
    if flex >= 1000:

        servo.resume()          #continue
        print("Start")           #check code run
        servo.duty(pos)         # tells the servo to move to one position (angle)
        buzzer.off()
        time.sleep_ms(100)       #shorter run
        servo.pause()            #pause
        print("Done")             #check code run

    print("Run")
    time.sleep_ms(1000)

#output = 3.3 V
#call off method
```

The process

