

Disinfector Drone
By: Jayzen, Liam, Aiden, Venice and Miles
Team: 10142Y

My idea for the recycle-bot online challenge is a drone that's main purpose is to sanitize surfaces. The drone flies around with a UVC light because I researched that UVC lights exterminate the virus SARS-coV-2 which creates COVID-19. I think it would be a good design because of the pandemic happening right now. I Also researched that UVC lights can kill many other bacteria too. This UVC light is mostly used after the surfaces have nothing on it like dirt and dust so if you clean that off first, then disinfect the surface using UVC light, it is the most effective way to use the UVC light.

The disadvantages with the UVC light is that it can only efficiently disinfect surfaces if people aren't around. This is because it can be very harmful to humans. The advantages of a UVC light is it does not release any sticky residue like some kinds of cleaning chemicals do, and sometimes the sticky residue isn't good for your health and can cause someone to fall if they create a slippery surface. UVC lights would be better than ordinary cleaning chemicals that we currently use in school like alcohol or other cleaning chemicals because it won't leave the sticky residue that is left behind if you use these kinds of cleaning chemicals.

We added an autonomous program to the recycle-bot so it would be easier to use. It would launch off the ground and then fly to the center of the room and then activate the UVC light for 15 minutes and shine it around the room. We programmed it to shine for 15 minutes because that is how long it takes to eliminate SARS-coV-2 from an average room.

The drone will be connected to an app so the custodian or teacher could be notified to pick it up and move it to the next room after it finishes the other room. It would also have a base that you could put it on to carry it on to the next room after it finishes cleaning the room to make it easier to carry.

We will add a thermal sensor on the base that the drone lands on. It will have a safety feature, which is the thermal sensor, which makes sure that no one gets hurt while using this drone. For example someone could get cut by the propellers.

The thermal sensor will be placed on the base and connected to the drone with an electronic connection so if anyone walks in the room, the drone will turn off the light and land on the base. The person with the app will get a notification that somebody has activated the sensor and then the person with the app can go there and tell them that the room was being cleaned and they could not be there at that time.

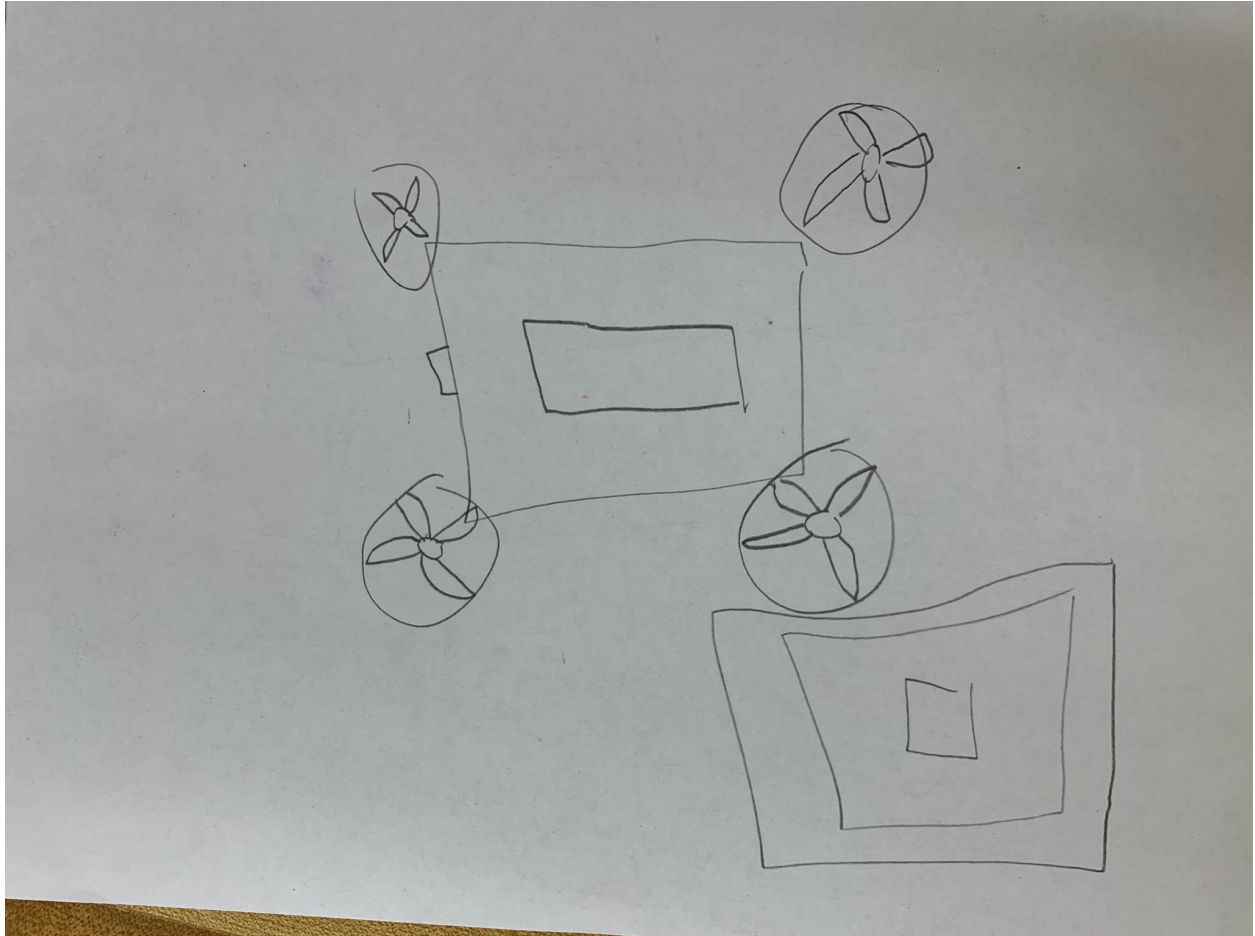
Each grade would have their own so that they wouldn't have to use so much money for each classroom and so they can clean faster because if they only had one for the entire school it would take too long to finish cleaning and they would never get it done. We will also add a small brain so it's easier to carry and you can insert multiple smaller batteries for extra battery. The time for it to work varies depending on how close it is to the surface or how bright the light is.

Another possibility to consider is the bulb that we could use for the light. If the drone is farther away, we need to have a more powerful light so that the drone can still disinfect the items/surfaces. If it is close, we can use a smaller light. At first I wanted to use a small light because it would use less power and save money but I researched that UVC light takes 30 minutes at 8 feet away so I changed my design idea to make a larger, bright light so it will work faster.

The design of the robot would have 4 propellers on each corner and a square-rectangle base. I will add motors on each propeller to help it fly. Since it doesn't use a cleaning chemical or water, you wouldn't need to make the parts water-proof, which makes it a lot easier to build.

This school year has been hard for all of us, mostly because of COVID-19. We are hoping for a better school year next year and we think that robots like this could help with that. Our school has become 100% in-person learning and we hope that robots like this will help more schools reopen in-person learning too. We hope you agree.

Here are some photos of our recycle bot.



Drawing of Drone



Top View



Bottom View



Side View



Side View + Base



Front View + Base



Top View + Base