

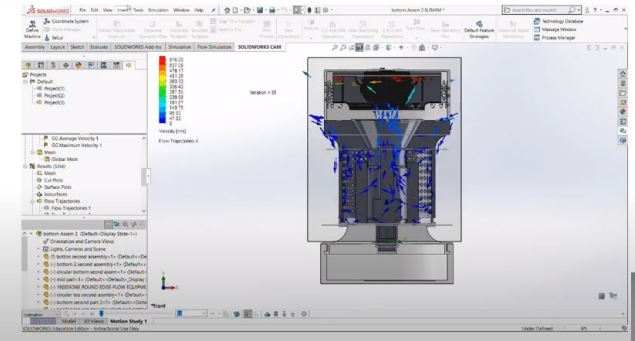
3-Stage Air Purification Unit

Team Members
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WHY WE CHOSE THIS PROJECT

- COVID-19 Pandemic
- Poor ventilation in dorm rooms
- Promote better living conditions

Operation and Design



SOLUTION

- Developed an air cleaner that is sized for the largest dorms offered at Alfred State College
- Utilize low-cost material
- Utilize technology that are proven to eliminate particulate matter and inactivate bacteria and viruses

Results



RESULTS

- Properly worked
- Effectively removed odors and particulates from air



OBJECTIVE

- Develop, design, and fabricate an operating air purifier
- Effectively filter the air of the college dorm rooms
- Utilize a user-friendly method to operate the system

Classes That Helped Develop the Project

- Fluid Mechanics
- Mechanical Design Principles
- Instrumentation
- Control System
- Manufacturing Processes
- Material Science

3-Stage Air Purification Unit



ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	JUV-LAMP HOLDER	3D PRINTED ABS PLASTIC Dio 9.10 in. H 7.80 in.	1
2	WIRING CONTAINER	3D PRINTED ABS PLASTIC Dio 5.20 in. H 2.75 in.	1
3	VENTED INTAKE FRAME	3D PRINTED ABS PLASTIC Dio 8.75 in. H 3.25 in.	1
4	MIDDLE PASS THROUGH FRAME	3D PRINTED ABS PLASTIC Dio 8.75 in. H 3.25 in.	1
5	1928K56	Round Edge Floor Equipment Cooling Bore	1
6	OUTPUT VENTED FRAME	3D PRINTED ABS PLASTIC Dio 8.75 in. H 3.25 in.	1
7	FILTER BASE	3D PRINTED ABS PLASTIC Dio 8.75 in. H 3.25 in.	1
8	94175A310	HEP NEED SCREW M4 x 0.7 mm Thread, 8 mm Long, CN White	4
9	ADH508	3 Filtration Stage True HEPA & Activated Carbon Filter Self	1
10	SOCKET	Ceramic, Standard Medium Screw Socket E26 E27 Bulb Comp Holder	1
11	IN-QH41	15 WATT 120 VOLT CERAMIC/DAL DIMENSIONAL REGULATION LINC BULB	1

Future Improvements

- Reduces noise
- Better 3D printing Quality
- Fan speed control
- Reduce size while keeping the same performance