

Efficient Cleaning of Smog using Quadcopter (ECSQ)

SUMMARY

ECSQ is a research prototype for providing a better smog cleaning mechanism. The prototype is build using a Quadcopter (wingspan: 250mm) erected with a functional unit attached at the bottom of it. The working ratio of the Quadcopter to the Functional unit is 3:1.

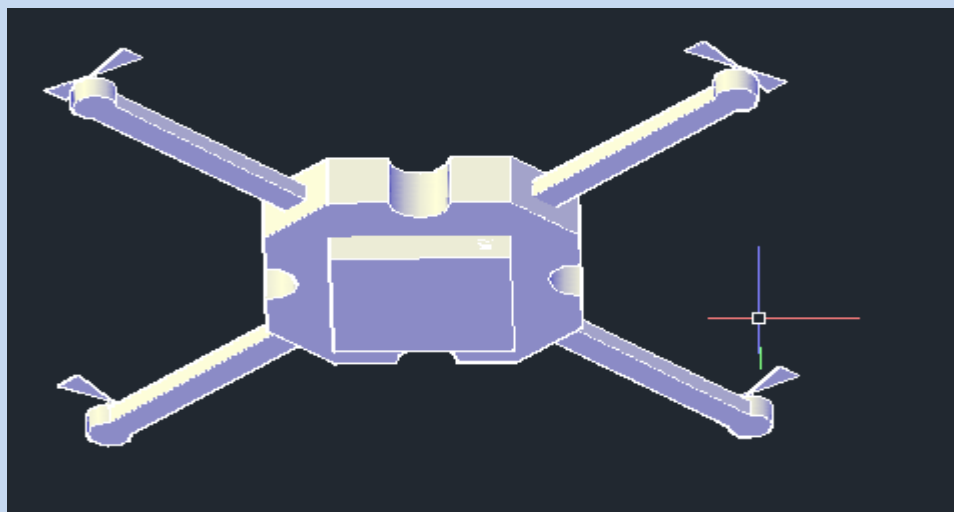
BACKGROUND

The concept of ECSQ was inspired from the event when during “Diwali - Indian Festival” due excessive burning of crackers and simultaneously because of the burning of staple in “Punjab- North western state in India” the level off smog were monumentally high. The conditions were these worsened that it was hypothesized that breathing in Delhi is like breathing 40-Cigarettes a day. So, after researching for 4 months, making and re-making various prototypes and analyzing the current methods proposed to solve the problem I came up with ECSQ-Efficient Cleaning of Smog using Quadcopter.

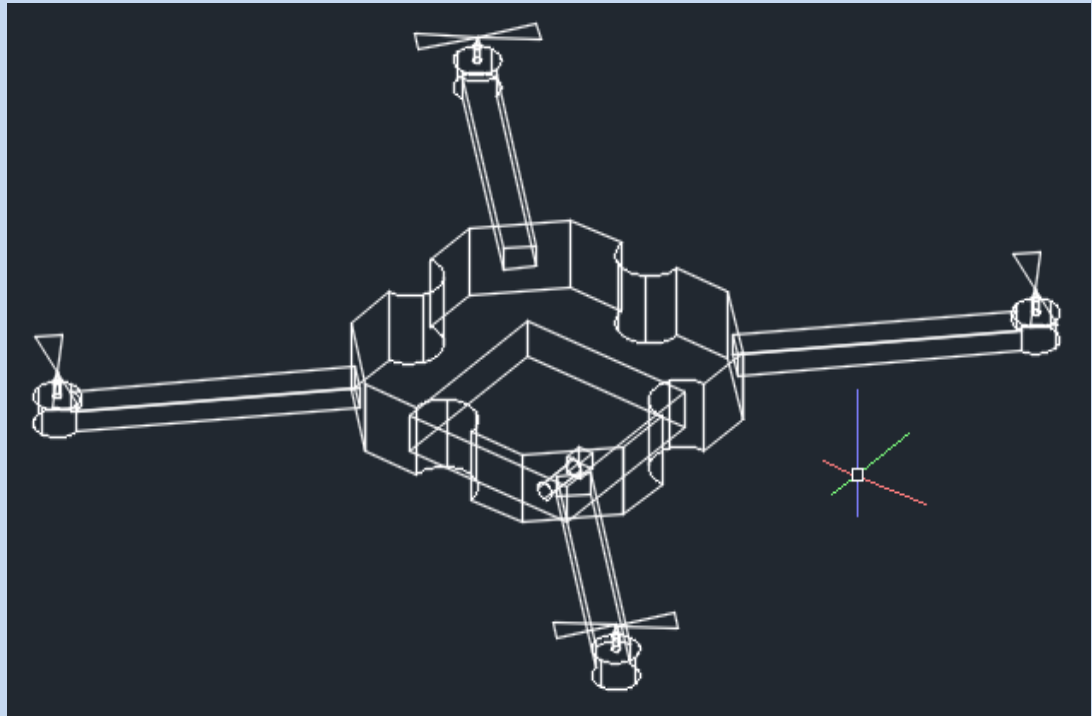
Computer Aided Designs

1. ECSQ

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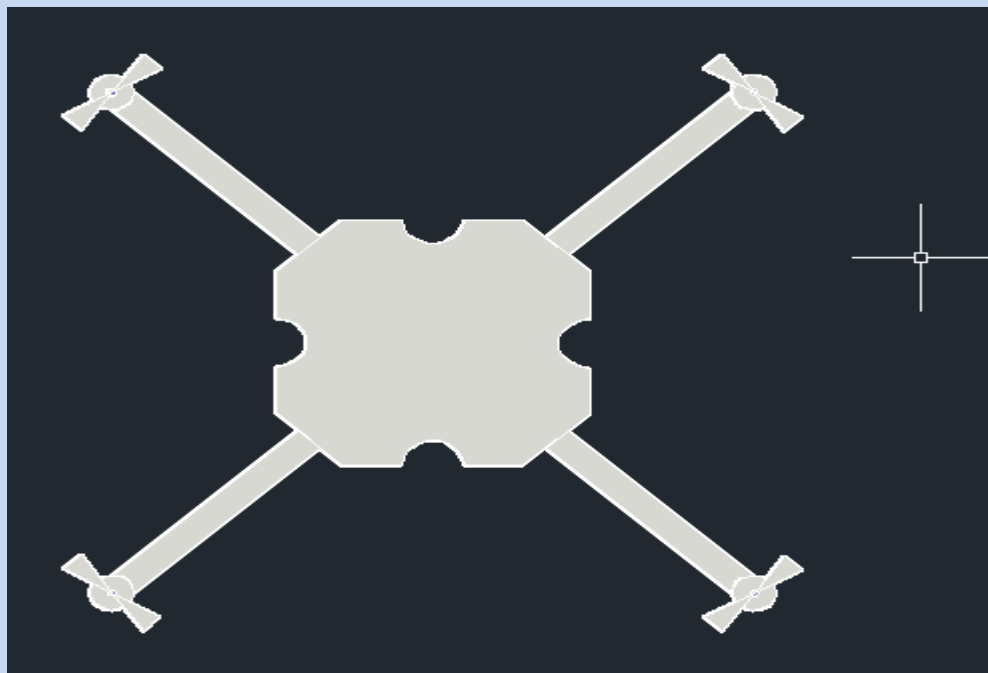


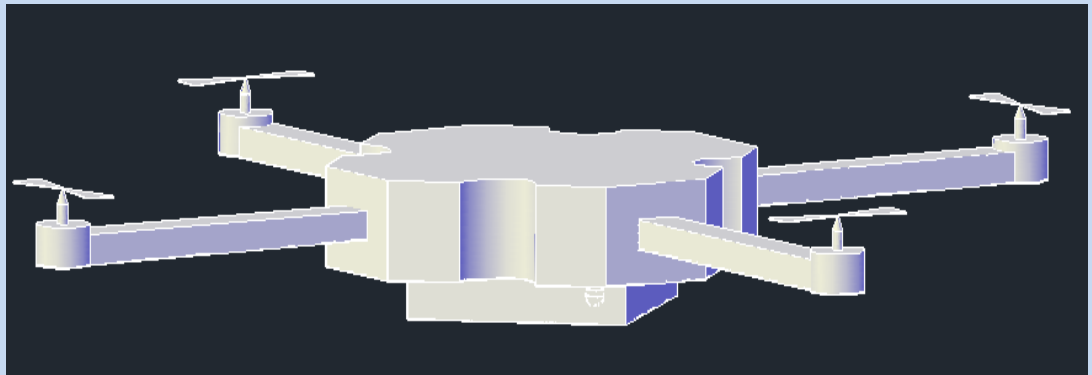
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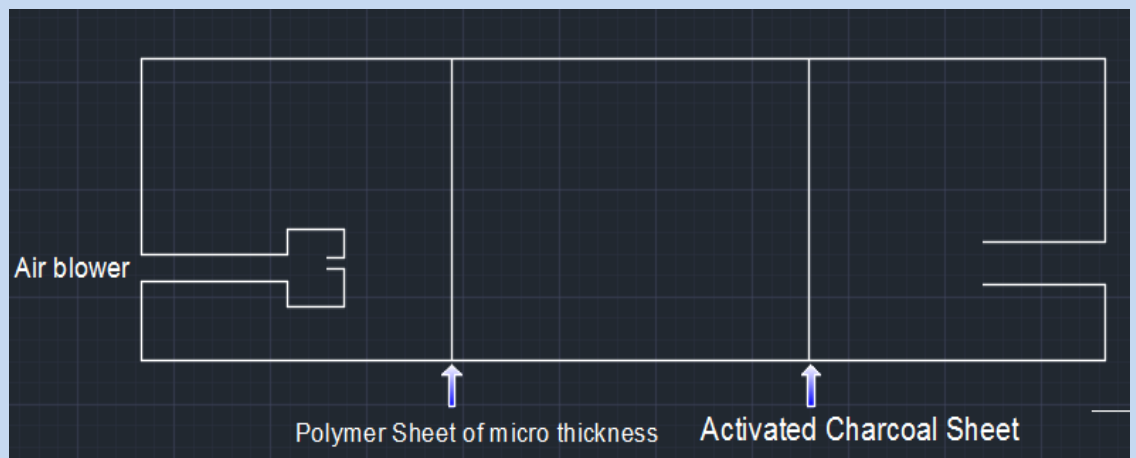
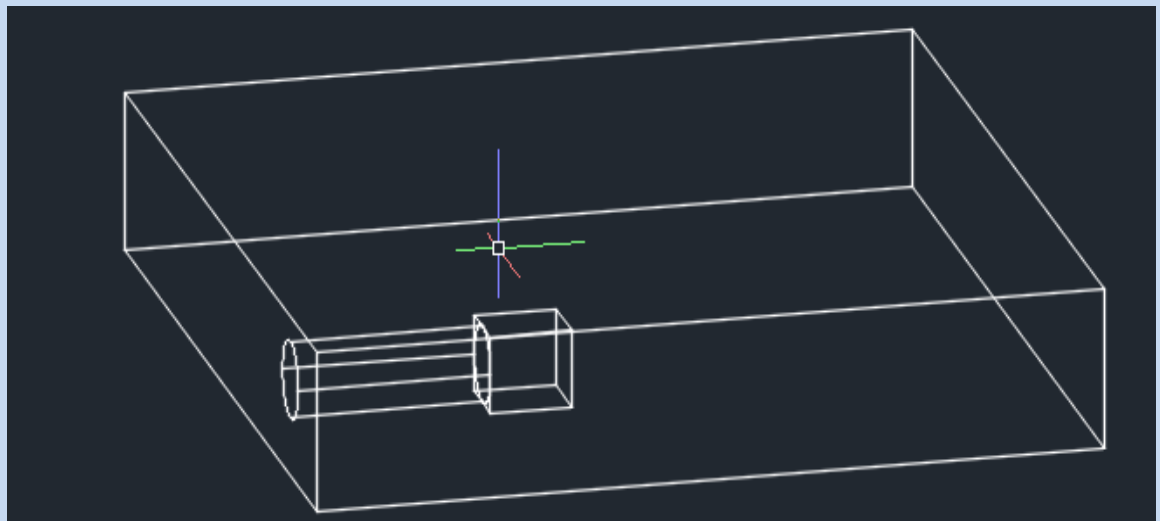
2. QUADCOPTER

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3. FILTRATION UNIT



(**Image Courtesy By Anubhav Tewari; Contact: anubhavtewari7@gmail.com)

TESTS CONDUCTED:

1. TEST 1: MAKING A FILTRATION SYESTEM FOR CLEANING THE SMOG.

RESULTS: A three layer filtration system consisting of (i) “Polymer sheet (of micro thickness)” and (ii) “Two layers of activated charcoal” was constructed in order to clean the smog. The first layer of cleaning layer was created in order to clean the macro particle in the air to perform the consecutive functions efficiently. The second and third layer prototyped with activated charcoal in respect of creates a medium to perform physical adsorption.

The second and third layer helps in adsorbing the undue and unpleased or reaming particles of smog.

2. TEST 2: MAKING AN INITIATION MECHANISM.

RESULTS: The filtration mechanism was initiated with a suction pump. The sole purpose of prototyping a suction pump followed by the 3 filtration layers was to increase the kinetic energy or entropy of the system during the passage of contaminated air through the first layer of Polymer sheet of micro thickness.

3. TEST 3: USING A QUADCOPTER AS A CARRIER

RESULT: A quadcopter was used as a mobilizing medium to increase the range of the ECSQ to cover a wide area to clean the smog.

4. TEST 4: ADJUSTING THE SIZE OF THE QUADCOPTER AND FILTRATION UNIT.

RESULT: The ratio of the filtration unit and the wing span of the quadcopter were adjusted to a ratio of 1:3 to provide extra stability

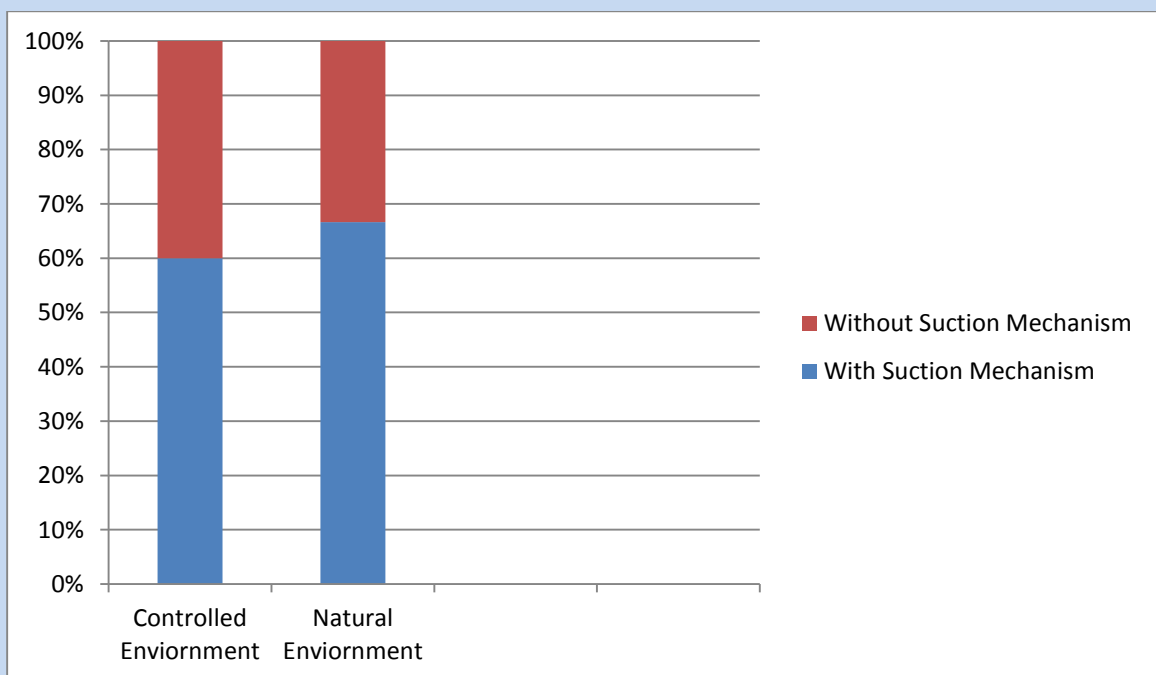
less unwanted vibration during the flight which would further lead towards an increased level of filtration in the unit.

5. TEST 5: TO CHECK THE EFFECTIVENESS OF THE PROTOTYPE.

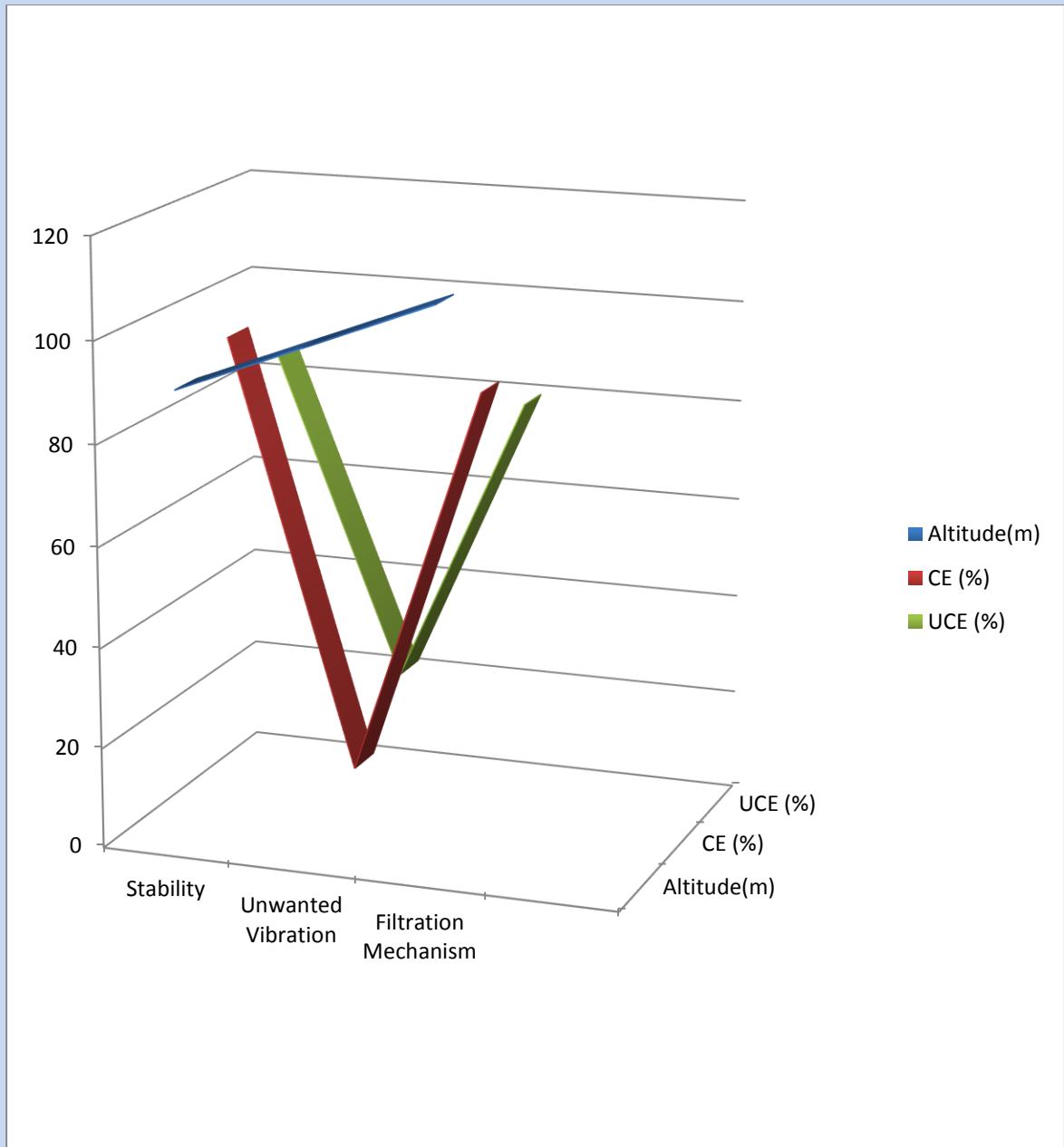
RESULT: To check the effectiveness of the filtration unit an incense stick was burnt in the vicinity of the filtration unit in order to create a simulation of smog. ESCQ was capable in removing the contamination from the air and provide a visible after air from the smog the incense stick.

RESULTS:

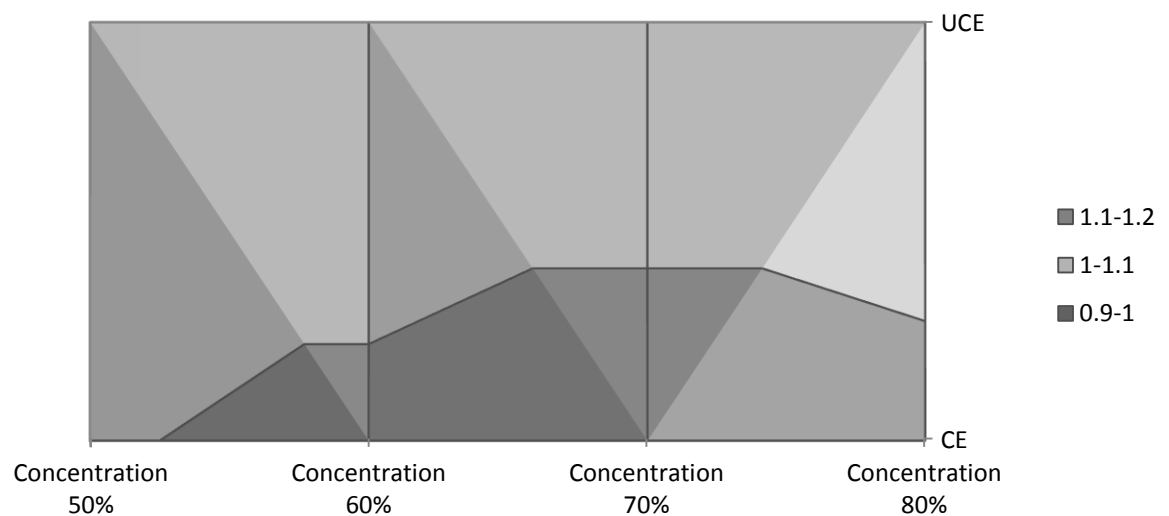
Effectiveness of filtration Mechanism.



Factors Affecting ECSQ



Effectiveness of ECSQ over The Smog By Incense Stick



REFERENCES

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ACKNOWLEDGEMENTS

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