CO_2 Filter (12)

Introduction:

At the tender age of 12, driven by an insatiable curiosity for science and a compassionate concern for the environment, I undertook a remarkable journey to address carbon emissions in my hometown, Calgary. This wasn't just a fleeting interest but a genuine commitment to fostering change. Armed with youthful optimism, I boldly communicated my visionary ideas to city officials through email. My goal was to showcase the potential of a CO2 filter system and actively contribute to creating a cleaner and healthier atmosphere for the residents of Calgary. In retrospect, the CO2 filter project at 12 was not just a snapshot of youthful exuberance but a profound step in a lifelong journey of inquiry and innovation. It showcased a genuine commitment to environmental stewardship, scientific curiosity, and the belief that even the most imaginative ideas can pave the way for real-world change. The project wasn't just a moment in time; it was a glimpse into the potential of a young mind to contribute meaningfully to the world.

Motivation for This Project:

My motivation for delving into environmental science at such a young age was rooted in a deep-seated concern for the impact of carbon emissions on our planet. Witnessing the visible effects of pollution and climate change motivated me to seek solutions. The project was not merely an intellectual exercise but a manifestation of a genuine desire to take responsibility for the environment's health and our community's future. It was a hopeful endeavour to be part of the solution rather than a passive observer of the problem.

Design:

The design of the CO2 filter system was an exercise in youthful innovation. I envisioned an incubator as the core element, a controlled environment where a unique aerosol substance would be strategically released. Upon exposure to sparks, this substance would undergo a meticulously orchestrated chemical reaction. The crux of the design lay in the precise disconnection of electrons from CO2 molecules, a process aimed at reducing carbon emissions. The vision was to propose a theoretical concept and lay the foundation for a sustainable and scalable solution to a real-world problem.

Thinking:

Behind the youthful imagination of a 12-year-old inventor was a thoughtful approach to addressing the complexities of environmental issues. The project required understanding chemical reactions, energy transfer, and the potential impact on carbon dioxide molecules. The endeavour wasn't just about proposing a fanciful idea; it was an exploration of scientific principles, a creative endeavour that sought to bring about a positive change in the world. It reflected a curiosity-driven thought process, showcasing an early inclination toward scientific inquiry. I learned about static electricity from school and how the buildup between negative and positive charges in an object causes discharge.

Similarly, how lightning works. To use this to my advantage, I proposed that a bolt of electricity could be constructed if there is enough static buildup between objects. Unfortunately, at the age of 12, I did not have enough exposure to Chemistry to confidently develop the aerosol, but the theory I had was that if enough high energy was directed to the bonds in carbon dioxide, the bond would break.

System Components:

Aerosol Release System:

Mechanism: The controlled release of a specialized aerosol substance within the incubator.

Purpose: Initiates the reaction with CO2 molecules, creating the conditions for subsequent electron disconnection.

Spark-Induced Reaction:

Mechanism: Strategic application of sparks within the incubator.

Purpose: Triggers a specific chemical reaction, leading to the disconnection of electrons from CO2 molecules.

Electron Disconnection:

Mechanism: The released electrons change energy levels and disconnect from CO2 bonds.

Purpose: Facilitates the reduction of carbon dioxide, contributing to a cleaner atmosphere.

Contingency Planning:

While the CO2 filter project was largely theoretical and imaginative, contingency plans were considered to enhance the project's reliability. Even in the realm of youthful imagination, a consideration for reliability and adaptability was evident. Contingencies involved adjustments to the aerosol release rate or modifications to the sparking mechanism, ensuring optimal efficiency of the CO2 filter system. This forward-thinking approach, even in the realm of a 12-year-old inventor's imagination, highlighted a commitment to addressing potential challenges and improving the project's overall effectiveness.

Communication with Officials and City:

Gmail **Shaurya Dave <daveshaurya@gmail.com>**

CO2 Filter Machine

daveshaurya@gmail.com <daveshaurya@gmail.com> Thu, May 2, 2019 at 7:44 PM
To: "themayor@calgary.ca" <themayor@calgary.ca>

Hello Mr.Nenshi

I am Shaurya Dave, I am 12 years old.

I have been working on something that might be able to change the carbon footprint for Calgary. I have put out a lot of effort and research into this idea. I basically made a blueprint for a filter that could be put on the chimneys of Calgary residents. The filter would take most of the CO2 from the chimney vents. Doing so this would lower Calgary's carbon footprint. I even thought of one of those big industrial building vents were loads of carbon is getting released in the environment. My filter could lower down the CO2 release.

I am dedicated into saving the environment or helping it. My passion on saving the environment has led me to make a machine that only uses (chemicals) Manganese (IV), Hydrogen Peroxide, Glucose, and H2O (water). I only use 2 artificial chemicals. The chemicals are not good nor harmful chemicals.

Please let me know what you think about this.

Regards:

Shaurya Dave (12)

Gmail

Shaurya Dave <daveshaurya@gmail.com>

CO2 Filter Machine

Close, Nancy <Nancy.Close@calgary.ca> Wed, May 22, 2019 at 4:01 PM
To: "daveshaurya@gmail.com" <daveshaurya@gmail.com>
Cc: Office of the Mayor <TheMayor@calgary.ca>

Good Afternoon Shaurya,

Thank you so much for writing to Mayor Nenshi and sharing the tremendous work you have done in designing a C02 Filter machine. Mayor Nenshi has asked that I respond on his behalf and share his sincere thanks for not only sharing your personal action and dedication in support of making a difference, but he has also asked that I have our City Administration in Environmental Services respond to your email and your idea.

You should be receiving a response from them in the very near future. In the meantime, thank you again. Mayor Nenshi always enjoys receiving emails from students and regrets that he can't always respond personally.

We would like to wish you all the best as you complete your school studies this year. And, thank you again for your most thoughtful idea.

Sincerely,

Nancy

Nancy Close

Community Relations Coordinator

Office of the Mayor

The City of Calgary

Historic City Hall

Mail Code: #8069

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Email: nancy.close@calgary.ca | **Twitter:** @neclose
Web: CalgaryMayor.ca | **Facebook:** Mayor Nenshi
What are your 3 Things for Canada ?

ISC: Confidential

Business Unit: Office of the Mayor

(403) 268-5622

Web: CalgaryMayor.ca | **Facebook:** Mayor Nenshi

What are your 3 Things for Canada**?**

[Quoted text hidden]

Gmail **Shaurya Dave <daveshaurya@gmail.com>**

Re: COs Filter Machine

Ebersohn, Dick <Dick.Ebersohn@calgary.ca> Thu, May 23, 2019 at 4:26 PM
To: "daveshaurya@gmail.com" <daveshaurya@gmail.com>
Cc: "Close, Nancy" <Nancy.Close@calgary.ca>, "Harris, Lauren M." <Lauren.Harris@calgary.ca>, "Harckham, Natasha" <Natasha.Harckham@calgary.ca>

Good afternoon Shaurya,

First off, congratulations on being an innovative mind!! It's so good to see fellow-Calgarians and especially youth, taking on difficult questions and coming up with possible solutions.

My team and I work on many solutions for our climate challenges. We rely much on our colleagues at universities to come up with technology solutions. In reviewing your proposal we thought it best to connect you with some of our peers at secondary institutions here in Calgary.

- Prof. George Shimizu at University of Calgary is renowned in carbon capture. He researches materials called "metal organic frameworks" that are promising absorbers of CO2. His email is gshimizu@ucalgary.ca
- Don Lawton is the head of the Containment and Monitoring Institute (CaMI) at CMC Research Institutes up at the U of C research park. Dr. Lawton is a geologist, so maybe not precisely the right person to help you with his project, but he definitely would know the right people. Don's email is don.lawton@cmcghg.com
- You could also connect with Dr. David Layzell from CESAR who works on energy and carbon innovations in transportation and buildings? dlayzell@ucalgary.ca

Please keep us in the loop on how your project is progressing.

We look forward to hearing from you in the future. Please stop by the Mayor's Environment Expo during Environment Week.

If you have any questions, please let me know.

Thanks

Dick

Dick Ebersohn ***MTRP, MCIP***

Manager, Climate Change and Environment

Environmental and Safety Management

City of Calgary

403-512-0641