

PolluSense: A Gamified Computer Science Approach for Air Pollution Reduction and Real – Time AQI Awareness

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Abstract— Air pollution is one of the most dangerous and emergent problems in the modern world. Around 98% of the world's population breathes air that exceeds WHO safety limits. In India northern states like Punjab, Haryana, Uttar Pradesh experiences surge in pollution levels due to factors like stubble burning, vehicular emissions, industrial activities and unfavourable winter metrology. The contaminants like (P. M)_{2.5}, (P. M)₁₀, has worst effects on health, environment and economy. Though Bengaluru and Delhi are similar to each other in terms of Industrialization and Urbanisation but still Bengaluru has better AQI than Delhi due to governance and environmental policy. Cities like Bengaluru and Zurich on contrast with Delhi and Kuala Lumpur maintain better air quality through technological innovation and long-term planning. Beijing's story from world's most polluted city to modal of air quality index recovery demonstrates impact of sustained policy and citizen participation. To address the problem of air pollution, this paper developed the solution "Pollusense" a mobile based application that integrates with real time AQI that rewards user for activities like carpooling, planting, walking, cycling etc. The app has automated gamification features (streaks, leaderboard, badges) and a reward – voucher system to encourage behavioural change. The app has activity verification system which initially verify activities like, cycling and walking with GPS location, photos and distance measure. And rewards voucher after approval. Pollusense aims to reduce pollution, increase community engagement and health fitness by integrating daily personal activities with positive environmental results. The proposed solution proves how computer science, AI, IOT sensors and cloud technologies can overall contribute to improving air quality index.

Keywords: Pollution, AQI, stubble burning, vehicle emission, Delhi, Punjab, Kuala Lumpur, Zurich, Beijing, India, Air quality index, Bengaluru, Sahaya, FixMyStreet, Urbanisation, "Cycle Routes Act", "Spatial planning Act", API keys, cycling, walking, rewards, voucher, photo, geolocation, authentication, voucher, streak, leaderboard, badges, rewards, community participation, DHT11, python, MATLAB, MQ135.

I. INTRODUCTION

Pollution is a process of introducing of substances in air. Substances can be (solid, liquid, or gas) or energy (such as radioactivity, heat, sound or light). Substances can be foreign or natural. Pollution can be caused through natural as well as manmade factors. The natural factors include volcanoes, wildfires etc. The eruption of volcanoes leads to release of gasses like CO₂, hydrogen halides which results in acid rain and sulphur dioxide. The major natural cause of pollution is wildfires which is caused by lightning strikes. The smoke from wildfires consists of carbon dioxide and carbon monoxide.

Air pollution refers to the release of contaminants in air. The air consists of 78 % of nitrogen and 21% of oxygen and rest 1% of mixture of gases (argon, carbon dioxide, methane, hydrogen, helium). Substances like sulphur dioxide, nitrogen dioxide and carbon monoxide are directly released in air from fossil fuel that is burned in power plants and factories. One of the major causes of air pollution in the world is vehicle emission. According to WHO data nearly 98% of global population breathes air that exceeds WHO guideline limits.

The common causes of air pollution are burning of fossil fuels, industrial emissions, vehicular emission, transportation, agricultural practices, ineffective waste management etc. When substances are inhaled, they first attack, but the particle with the size less PM_{2.5} leads to inflammation, stress etc. Almost every organ of our body can be impacted with it. Some disease due to air pollution includes stroke, heart disease, lung cancer, pneumonia and cataract formation. Long term exposure of substances can lead severe diseases like diabetes, adverse pregnancy. The diseases like Dementia are related to air pollution led to death of more than 625,000 people in 2023. In adults over 60 years, 95% of death are due to air pollution.

Air pollution is increasing rapidly in South Asia, South America, Siberia and central Africa due to agricultural burning, wildfires and Industrial growth. In US nearly almost 46% of the pollution lives in area of unhealthy air. Cities like Delhi and Los Angeles are having more than 100 unhealthy air days each year.

II. POLLUTION SCENE IN NORTH INDIA

Today our country is facing a serious environmental issue due to pollution in North India. Stubble burning by the

farmers of Punjab and Haryana, after the harvest season is one of the major causes of the pollution in north India. During winter season states like Delhi, Punjab, Haryana, Uttar Pradesh, Bihar and Rajasthan faces a high level of air pollution. In winter season, cold air traps polluted air due to Stubble Burning, Vehicle emission, Factory smoke which leads to difficulty in breathing. Because the winds and low temperature do not allow pollutants to disperse the pollution is getting worse because of the region's geography and weather patterns. One of the most dangerous and persistent problems in India that affects almost every part of life-human health, environment, economy and even the cities weather is pollution of Delhi, Haryana and Punjab. The tiny dust and smoke particles which are harmful pollutants like PM_{2.5} and PM₁₀, which are small enough to enter deep into the lungs and bloodstream are present in the air of Delhi. Cities air becomes extremely toxic due to these pollutants and the gases like nitrogen dioxide (NO₂), sulphur dioxide (SO₂), carbon monoxide (CO), and ozone (O₃).

Pollution in Punjab

Punjab is located in north western part of India. It is surrounded by states like Haryana, Himachal Pradesh, Rajasthan. Punjab is among the top 10 states in India with worst AQI. As of October 2025, Punjab's pollution scenario is extremely severe and complex. The average air quality index of Punjab is around 256, falling in the severe category. The breathing air in Punjab is equivalent and is as harmful as smoking seven cigarettes per day. The major pollutants which contribute to high pollution includes pollutants from fire cracker, vehicles and stubble burning. Stubble burning / crop residue burning contributes major part in Punjab's high air quality index. It contribute up to 40% in pollution in Punjab. Few districts of Punjab like Amritsar, Tarn Taran, Bathinda and Firozpur contributes up to 55%.

Stubble burning basically is burning of crops after harvesting. The practice of stubble burning is due to various reasons like finance, time and limited alternatives. The practice of Stubble farming is found to be quickest and cost-effective field clearing method. One ton of crop residue leads to release of 1400 kg of CO₂, 58 kg of CO, 11 kg PM, 4.8 kg NO_x. Another causes of pollution in Punjab includes industrial emission, vehicular emission, open waste and plastic burning. As 2025 IIT Kanpur and CPCB found out that transport sector contributes around 30% of pollution in Punjab. Stubble burning leads to emission CO, NO_x and SO₂ which results in increase in health issues like asthma, eye irritation, cough, chest pain etc. The smoke/ emission of gasses from Punjab merges with Haryana and nearby states forming dense smog clouds that drift to Delhi, U. P leading to damaging air quality.

If problem of stubble burning is not solved it can lead to loss in soil fertility, ecosystem imbalance, disturbed climate cycle and rising health care cost and economic losses of over \$ 3.4 billion USD annually by 2040.

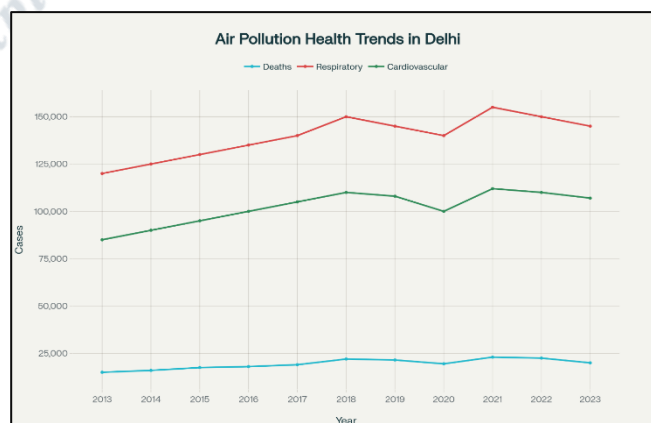
Effects of Air Pollution

In the past few years, the situation has become very serious in India. According to Global report in year 2015, about 2.5 million people died from diseases caused by air pollution. Later, it was found that, in the year 2019, a huge number of people (around 1.67 million) died due to air pollution. Also, in 2019 because of the diseases caused due to air pollution and lost work productivity, India lost about US \$36.8 billion - almost 1.36% of its GDP. According to this data we can say that pollution not only dangers our health but also it is a burden for country's economy.

According to Chicago University's Air Quality life index report from August 2023, the exposure of PM_{2.5}, has shortened the lives of Indians by 5.3 years. In Delhi, this number was at 11.9 years. In pregnant women, air pollutant affects the development of the child in the womb. Organ like lungs and heart remain underdeveloped. It also increases the risk of premature birth or the child's death during delivery. Because of this, children are born with heart defects.

According to the state of Global Air Report, 2020.

In 2020, air pollution caused the death of 116,000 babies in India within 27 days of birth. This means that in India, every 5 minutes, a newborn baby dies due to air pollution. During 2024 in India the average pollution level (PM_{2.5}) was about 50.6 µg/m³. World Health Organization's safe limit was 5µg/m³ but India's average pollution level was ten times higher than this. In winters cities like Delhi, Gurugram, Lucknow and Patna often record extremely high pollution level. In winter the average of Delhi goes above 180 µg/m³, reducing visibility and creating thick smog. Due to these conditions people feel difficulty in breathing and for safety reasons it even causes schools and offices to close. According to the Centre for Science and Environment (CSE) specially during the cold season, air pollution in most of Indian cities remains much above the safe levels.



Environmental and Climate Effects

Pollution not only harms people but it also damages the environment and imbalance the natural ecosystem. The unusual the rainfall, drought, floods, rising sea levels and melting glaciers in the Himalayas occurs due to climate

change which is caused by Global warming. Global warming is caused when the harmful gases and smoke fill in the air and they trap heat. The air, water and soil are no longer clean and the forests are being destroyed many plants and animals are losing their habitats because they depend on these. Acid rain is caused due to air pollution which damages trees, crops, buildings, and historical monuments like Red Fort, Taj Mahal. Pollution also impacts on the country's economy along with health and nature. Due to air pollution alone India's economy in year 2019 lost around US \$36. 8 billion. Pollution not only impacts economy but it also affects tourism, farming, and outdoor labour. Due to smog schools and offices shuts down in the cities like Delhi, which also causes economic loss additional.

Delhi Vs Kuala Lumpur Vs Zurich

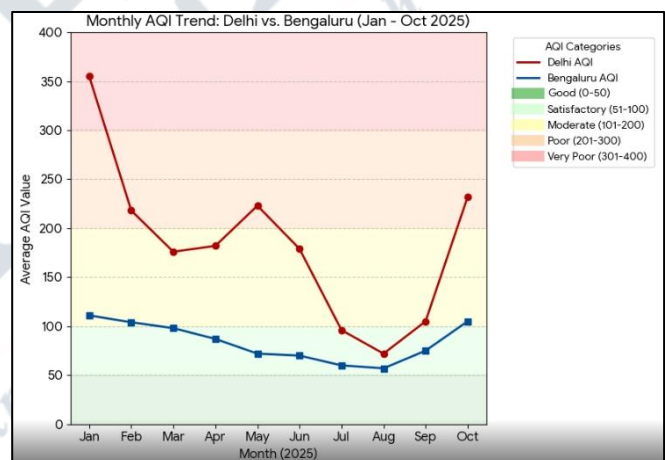
Air Pollution not only has health disadvantages but also has economic, social and mental wellbeing. As we have already taken context of India about how it affects the human being in India. In Kuala Lumpur around 88% of days the air quality index surpasses the WHO's air quality limit. The common citizen faces difficulty in visibility and respiratory discomfort. According to Berkeley Earth exposure model Breathing air in Kuala Lumpur is equivalent to smoking about one cigarette per day. Health effects due to pollution results in medical leave which leads to loss of productivity in healthcare and workforce. In contrast between Delhi and Kuala Lumpur, Delhi's PM2. 5 levels are 4-5 times higher than that of Kuala Lumpur. Long terms exposure to high air quality reduces life expectancy by over 11. 9 years in Delhi and in Kuala Lumpur high air quality index reduces lifespan by 1. 8 years. Smoking air in Delhi is equivalent to smoking multiple cigarette's daily. The common problem faced by both Kuala Lumpur and Delhi are high vehicle emission and traffic mismanagement, industrial and construction emission, ineffective waste management and open burning.

Zurich (Switzerland) has been one of the world's cleanest and most environmentally progressive nation. Switzerland has clear skies year around. As of October 2025, Switzerland Average air quality Index ranges between 15 & 30 which considered as good under international standards. The reason behind good Air quality Index of Switzerland is due to excellent governance and environmental policy. Over 98% of Swiss electricity comes from low carbon sources like hydro power and Nuclear. The 'Cycle Routes Act' and 'Spatial Planning Act' lead to health benefits and reduce vehicle emission in Switzerland. In Switzerland the People/citizens can breathe without restriction. Kid's lungs grow optimally their immune system is strong and his risk of respiratory disorder is minimal.



Bengaluru Vs Delhi

Cities like Bengaluru and Chandigarh are almost similar to Delhi in factors like urban infrastructure, economy, education, connectivity and lifestyle but lower Air Quality Index. In contrast to Delhi, Delhi often exceeds 300, falling into the very poor to dangerous range the Air Quality Index of Bengaluru remains in moderate range of (60-120) while Delhi often exceeds 300. However, Chandigarh typical AQI was around 120-150 compared to Delhi in 300 in 2025. Bengaluru and Chandigarh are closest to Delhi in terms infrastructure, urbanization etc. But still has low AQI than Delhi.



Problems in Delhi's Environment and Governance Policies

1. Multiple Agencies share or have mixed opinions which leads to conflicts and lack of unfulfilled actions.
2. No Single authority is accountable, weak coordination among Agencies, interest is diverging among Agencies.
3. Policies/rules like Green Crackers, odd/even schemes of vehicles are only implemented when pollution reaches at dangerous level and once the AQI starts improving the policies and rules are removed/ relaxed.

In the year 2025 Delhi didn't had single 'Good' AQI, even heavy rainfall fail to lower the AQI the process capacity of Delhi garbage is far lower than the actual capacity i. e. Delhi has 11,000 tons of solid waste generated daily which leads overflowing of landfills (like Ghazipur, Okla, Bhaswar) due

to which process like respiratory illness arises. Stubble burning from nearby states like Punjab, Haryana etc contributes 2. 6% of Delhi's Pollution during off season. But during on season, it increases up to 27%.

Outdated Technology

1. Many industries and factories in Delhi have outdated components such as precipitators / scrubbers which leads huge emission of gasses and dust particles.
2. Poor waste Management System Municipal waste infrastructure does not have proper and systematic way of waste management which composting, mechanical sorting and waste to energy operation.

Ineffective Crop Burning Mitigation.

Delhi government has no authority over neighbouring state agencies Inter-state coordination is also weak. small manufacturing units in NCR regions are operated without advanced abatement data sharing and inspection lags.

III. WHY BENGALURU HAS BETTER AIR QUALITY INDEX THAN DELHI ?

Smart City Application

Bengaluru emerges as India's tech hub. The city body and civic bodies affiliated with local startups for effective waste management, air quality sensing which GPS backed waste collection, IOT enable sensors, real time environmental dashboard. There are some 'for community' apps designed exclusively for citizen to report environmental hazards, track pollution hotspots. Ex Sahaya, FixMyStreet Hackathons and competition are conducted across city to encourage young Innovators to create long term sustainable solution.

Government has Initiated some portals for e. g.: for construction dust reporting, for noise reporting, for garbage reporting. With the help of Municipal and State Government Bengaluru has deployed smart traffic Signals and automatic pollution detectors to reduce congestion origin pollution.

Bangaluru has very well established itself in policy and planning. Initiative like green infrastructure, rain water harvesting and investing in public transport all leads to pollution reduction.

Bengaluru's 2025 AQI Analysis (Jan-Oct)

Annual Average AQI = 80 ("Moderate)

Good Air days = 0. 67 % (~2 days)

Moderate Air days = 78 % (~233 days)

Poor Air days = 21 % (~ 62 days)

Peak Pollution = (Highest AQI = 131)

February

Best Air Period = Lowest AQI = 53

(July)

Delhi Air Quality Index Analysis (2025)

"Good/Satisfactory" days: Rare(<2 % of the year)

"Moderate/Satisfactory": 30-40 % of days

Poor / Very Poor / Severe: for 60% + of the year. (Winters)

"Hazardous": 10-15 + days/year

Highest AQI : 442 (20-21 Oct 2025)

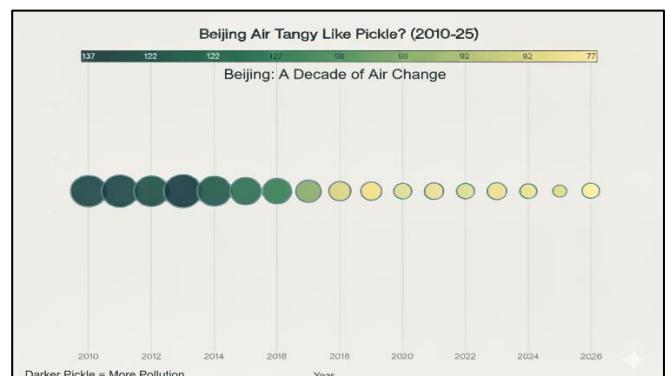
Lowest AQI : 53 (August 2025)

Though Bangaluru is much similar to Delhi in terms of lot of factors like urbanization, transport, industries, factors but still has low Air Quality Index. Just like Delhi, Bangaluru too has multiple Agencies like Central government, State government and Municipal which works and co-ordinate with each other to ensure one aim that is to lower air quality index. Bangaluru, instead of focusing on short term solution focused on long terms solutions that are effective for years. Delhi in contrast with Bangaluru always took steps when situation become severe. Bangaluru with aim of clean and breathable air for everyone involved its citizens to engage with government for an aim of clean and breathable air collectively.

Beijing Case Study (1998-2017)

Beijing is located at Northern most tip of China. Beijing Transformation from bicycle city to megacity is an example of how urbanization led to multibillion dollar economy. Due to rapid increase in economic growth, population and surging number of vehicles the city's environment has been vestal affected. Since, Beijing has made remarkable jumps in recent times to improve its air quality and has settled a global benchmark for other cities with same challenges.

By the early 2010's Beijing air quality was the worst in the world. The Average PM2. 5 levels exceeded 110 µg/m³. Visibility fell below 200 meter that led to cancellation of high and increase in respiratory disorders. The Beijing pollution crises lead to loss of \$ 159 billion annually equivalent to 9. 9 % of national GDP. Major causes of Beijing pollution were coal combustion from factories, Industrial emission, vehicle Pollution, fast motorization since 1990's. Beijing was the city where the urbanization was fast paced. As Urbanization Increased, demand Increased demand increased, need increased coal combustion for generating electricity increased the transition of Beijing from worst air quality index to best air quality index wasn't fast paced as its urbanization. It was systematic slow process that led to successful long-term solution. It was a 20-year multi phasic environmental mission involving strict governmental policy, industrial reforms and citizen engagement.



1. Foundation of Regulation (1998-2011)

- In this phase major cause of Beijing Pollution was solved which includes heavy coal combustion from polluting factories, it was solved by closing down of high emission power plants.
- Coal fired boilers were replaced with cleaner fuels. Due to these measures by 2011 over 2000 heavy polluting enterprises were closed.

2. The Beijing Clean Air Action Plan (2013-2017)

The Beijing clean Air Action Plan was started with an aim to reduce 25% in PM (2. 5 concentration) in Air. This was very achieved through Energy Transformation where over one million homes were converted from coal to natural gas/Electricity. Beijing made some strict rules and regulation in Vehicles and Transport strategies which includes Retiring old vehicles, Odd-even traffic restriction and encouragement of electric mobility. Deployment of 1000+ PM2. 5 sensors for accuracy tracking which had real time dashboard for government and citizen.

By the end of 2017

The levels of PM 2. 5 fell from 89. 5 $\mu\text{g}/\text{m}^3$ to 58 $\mu\text{g}/\text{m}^3$ which accounts 40% reduction. Over 1. 9 million vehicles were scrapped and 2000+ polluting companies were closed. Due to these reforms Beijing has not only created Environmental impact but also created a Health and Social impact.

- Premature deaths due to air pollution decreased from 24,700 (2013) to 13,500 (2020)
- Pulmonary Illness hospital visits declined by 16 %.

Beijing's case study proves that with the help of systematically planned approach, legal Guidelines and citizen involved approach a city with once worst air quality index became a model of air quality index recovery.

IV. "POLLUSENSE: REWARDING EVERY ECO ACTIONS."

Our proposed solution is an application named as Pollusense that automatically generates AQI according to user's location. It then encourages users to perform activities or task that results in reduction in pollution levels. The activities/task includes cycling, walking, planting trees, public transport and carpooling. Once users submit authentic proof their activity, they receive rewards in the form of points which can be redeemed for vouchers.

Gamified features of application include streaks, badges and leaderboard to maintain user.

Components of Pollusense

1. Pollusense is integrated with API keys of AQI sources to track real time AQI exact user's location.

It enables:

Personalized air quality awareness.

Activity recommendation based on local pollution severity.

2. Eco – Activity Logging Impact Estimation.

Pollusense provides a set of activities. Each action provides a set of point on doing it and after it authenticating it.

Examples:

- a. Walking/Cycling instead of driving – promotes good health and reduce CO₂ and PM emissions.
- b. Using public transport – lower per capital pollution.

These metrics generate points awarded to user after verification.

Authentication and Activity Proof Verification:

Pollusense has authentication verification system that makes sure that, every activity user is logging is legitimate. The activity proof verification involves:

1. Photo + geolocation
2. Server-side AI/ML check for authenticity.
3. GPS movement traces for related activities.

These steps ensures that Application is fraud free.

Reward Mechanism:

Verified and authenticated actions earns environmental points with Pollusense.

These Points can be redeemed for:

1. Partner store voucher.
2. Food Voucher.
3. Online shopping voucher.
4. Eco- friendly product coupons.

This reward system enables environmentally positive behaviour in good personal value. And encouraging repeated user participation.

Gamification

Multiple gamification layers include:

1. Daily Streaks
2. Friend leaderboard
3. Achievement badges
4. Milestone rewards

These factors ensure habit Formation.

Expected Outcomes of Pollusense

1. Reduction in Pollution and AQI levels.
2. Increase in community participation.
3. Increase in fitness level.
4. Micro level behavioural change across the city.

By linking personal actions to real environmental outcomes, Pollusense claims citizen as an active agent in decreasing pollution.

Why Pollusense is Unique ?

1. Rewards are only awarded once the activity is verified and authenticated with proof.
2. Reward system linked with environmental change.
3. Gamification for sustainable Engagement.
4. Its architect allows easy adaptations to metropolitan

area such as Delhi, Kuala Lumpur etc.

- Pollusense demonstrates how technology and community Participation can lead to long term health and environmental benefits.

Welcome Back
Continue your eco-friendly journey

Email
Vk662336@gmail.com

Password
.....

[Forgot password?](#)

Sign In

Don't have an account? Sign up

PolluSense
Hey Sakshi

Current Level: Beginner
Your Points: 0

Kuala Lumpur
25
Good

Activities: 0
Check-ins: 0
Vouchers: 0

Log Activity **Daily Check-in** **Get Voucher**

Leaderboard

Rank	User	Points	Level
1	AARYA	14 pts	Lat 2 + 1
2	Manisha	10 pts	Lat 2 + 1
3	Comprehensive Test User	12 pts	Lat 2 + 1
4	Hybrid Test User	12 pts	Lat 2 + 1
5	Game User	10 pts	Lat 2 + 1

Log Green Activity
Record your eco-friendly action with verification

Activity Type
Select activity

Description
Describe your activity

Photo Proof (Required)
Choose File no file selected

Duration (minutes)
e.g., 30

Distance (km)
e.g., 5.2

Location Verification (Required)
Capture Location

Enhanced Verification: We'll capture your location, validate timing, and check for authenticity.

Log Green Activity
Record your eco-friendly action with verification

Activity Type
Select activity

- Carpooling (15 pts)
- Cycling (20 pts)
- Planting Trees (25 pts)
- Public Transport (10 pts)
- Walking/Steps (12 pts)

Duration (minutes)
e.g., 30

Distance (km)
e.g., 5.2

Location Verification (Required)
Capture Location

Enhanced Verification: We'll capture your location, validate timing, and check for authenticity.

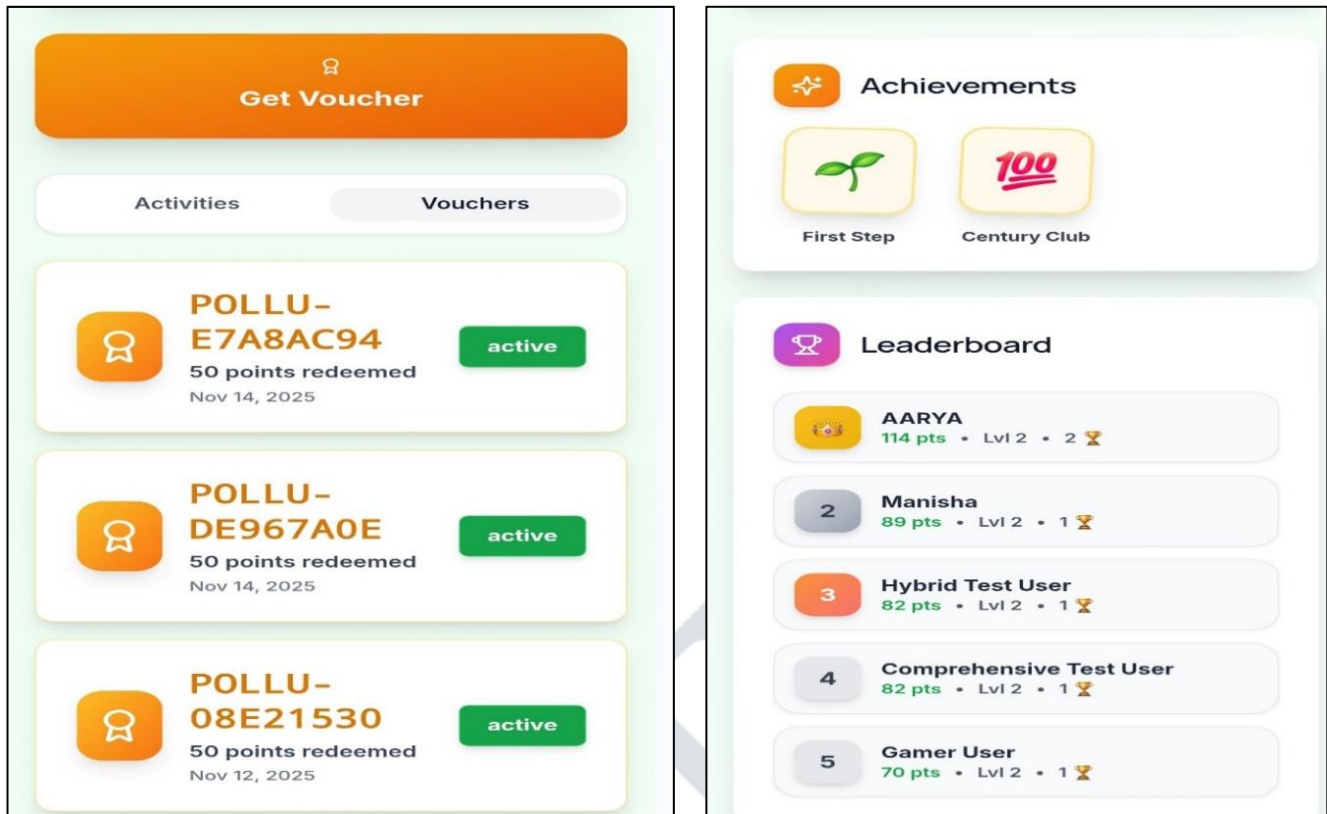
Steps **Approved**

walked for 3 km

Photo verified Location tracked 45min

Nov 15, 2025

+12 points



Relation between Computer Science and Environment

AI and ML are used to predict deforestation through satellite imagery processing. ML models predict weather pattern pollution and also predict future CO₂ and its accuracy is about 92%. The tools used in ML are Python, MATLAB, Excel etc. And the prediction accuracy of ML model is about 90-95 %. Sensors used are:- NO₂ sensor, CO₂ sensor, DHT11, MQ135, PMS 5003 etc. IOT sensors measure air quality, water level, and temperature by detecting PM_{2.5}, PM₁₀, CO₂ and humidity at every 10 seconds. MQ135 collect data on pollutants and measure various harmful gases like CO₂, NH₃, (NO)_x, and smoke and other Sulphides and PMS5003 measures matter (dust). Low power quality microcontrollers (Arduino or raspberry) deploy sensors to collect air quality data.

CS is used to predict, minimize and monitor the ecological damage and also helps us to predict AQI for the next 24 hours. It gives us previous pollution data, temperature, traffic volume and wind speed, so we analyse the data make solution to reduce air pollution. The large-scale pollution data is handled by AWS, google cloud etc. In Bengaluru CO₂ emissions is reduced by 18% after use of AI based signal control. Companies on the cloud can reduce carbon released into the air by 88%.

Cloud Computing:- reduce carbon emission by millions of metric tonnes which helps in reducing air pollution. It reduced the companies carbon footprint and decrease in carbon footprint is a very good thing because carbon footprint

directly contributes to air pollution by increase CO₂ emission, black carbon, climate change etc.

Some Examples are as follows:-

1. Singapore using AI-powered traffic management systems, and this has reduced idling emissions by upto 15% in congested areas.
2. In cities like London satellite data processed CS algorithm's monitors global air quality and this data informs policies that cut urban pollution by 20-30% by ban the high-emission vehicles etc.
3. National Air Quality Monitoring Programme (NAQMP). India's Central Pollution Control Board uses CS driven IOT sensors across 300 + cities to collect real time data on pollutants. Delhi's Odd-Even Scheme Optimization Enhanced by ML algorithms this traffic rationing policy uses data from apps and GPS to dynamically adjust vehicle restricting and it lowered pollution by 10-15%.

V. CONCLUSION

Air Pollution is one of the worst and dangerous problem in the history of mankind. Air pollution also refers to the release of contaminants in air. According to WHO data nearly 98% of global population breathes air that exceeds WHO guideline limits. During winter, city like Delhi and states like Punjab, Haryana, Uttar Pradesh etc sees surge in air pollution levels. In Delhi, in terms of AQI there were less than 2% of the days of year in good/satisfactory range in air quality index. The

peak AQI that was observed was 442 on (20-21 Oct 2025) and lowest AQI was observed was 53 (August 2025) in Delhi. Though Delhi & Bengaluru are same in terms of urbanisation and industrialization. But Bengaluru still has lower AQI as compared to Delhi. Bengaluru's low AQI despite being equivalent in terms of industrialization & urbanization to Delhi is due to the integration of city body and civic body. Which led to effective waste management. Apps like Sahaya and Fix My Street have been built by young innovators to create long term sustainable solution for city. Bengaluru instead of short-term solution focused on long term solution that are effective years. Beijing was considered as one of the most polluted cities in world. Beijing pollution crisis led to the loss of \$159 billion dollar annually equivalent to 9.9 % of national GDP. Steps like closing down of high emission power plant, retiring old vehicles, deployment of sensors and providing real time dashboard for government and citizen etc. lead to greater results. It was a 20-year multi phasic environmental mission that made Beijing a model for air quality index recovery. The reason why there is urgent need to solve air pollution is because of its effects. Air pollution has worst effect on health. In 2019, around 1.67 million people lost their lives due to pollution. Hospitals saw surge in cases of asthma, cough, lung infection etc. The common problem faced by Delhi & Kuala Lumpur are high vehicle. Emission, construction emission, ineffective waste management and open burning. Majority of the days in Kuala Lumpur Air quality index lies in Moderate range from the context of Delhi and Kuala Lumpur with Zurich; Zurich is one of the world's cleanest and most environmentally progressive nation. Most of the days its AQI ranges between 15-30 Acts like 'Cycle Routes Act & Spatial planning Act' led Switzerland have best air quality index in world.

The Pollusense-An Application that measures real time AQI based on users' location. If user does any activity that leads to results in reduction of pollution, then that user gets a reward. The rewards are in the form of vouchers. Pollusense has Gamification which includes streaks, Achievements, leaderboards etc. the activities include walking, cycling, carpooling, planting etc. The rewards are only awarded after verification of activities. Pollusense helps in decrease in pollution levels, inc. in community participation, Inc. in fitness etc.

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