

Environment and Green Energy



Green Transportation & Eco Friendly Urban Design

- Green Mobility Solutions : Harnessing Carbon and Kinetic Energy for a Cleaner Future
- Innovative Approaches to Carbon Extraction and Energy Conversion.



MEET OUR TEAM

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Automobile Pollution

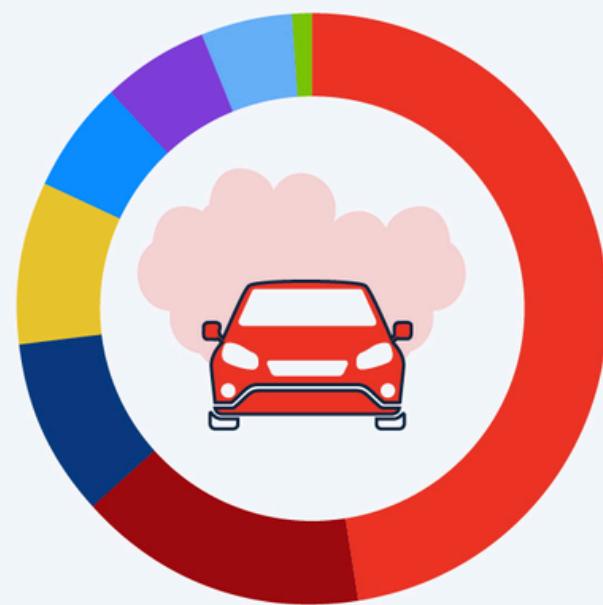
The release of toxic pollutants in the atmosphere through vehicle emissions adds to air pollution, climate change as well as global warming. Energy wastage during braking and even just across speed bumps increases the amount of fuel consumed endlessly, thus depleting resources.



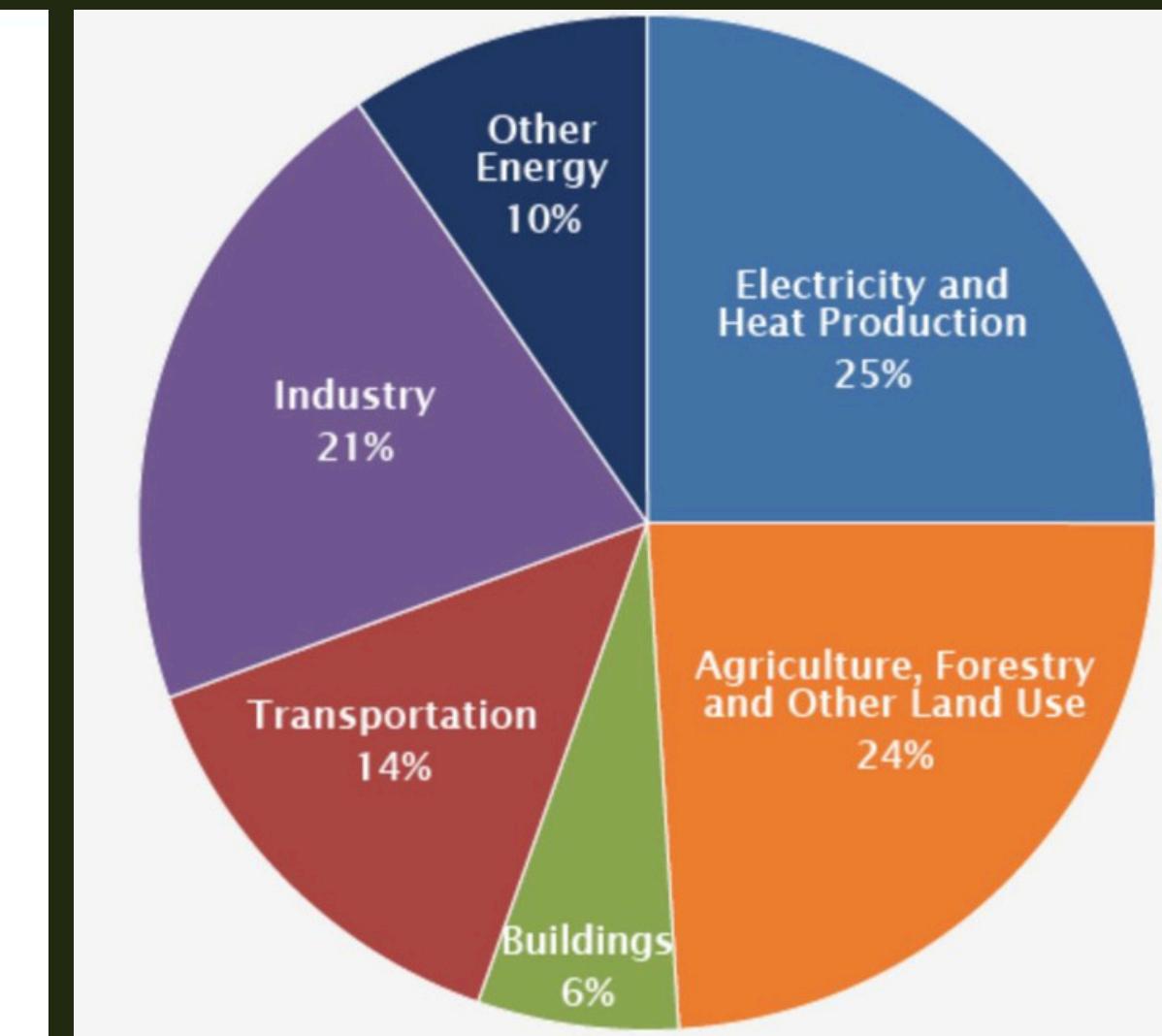
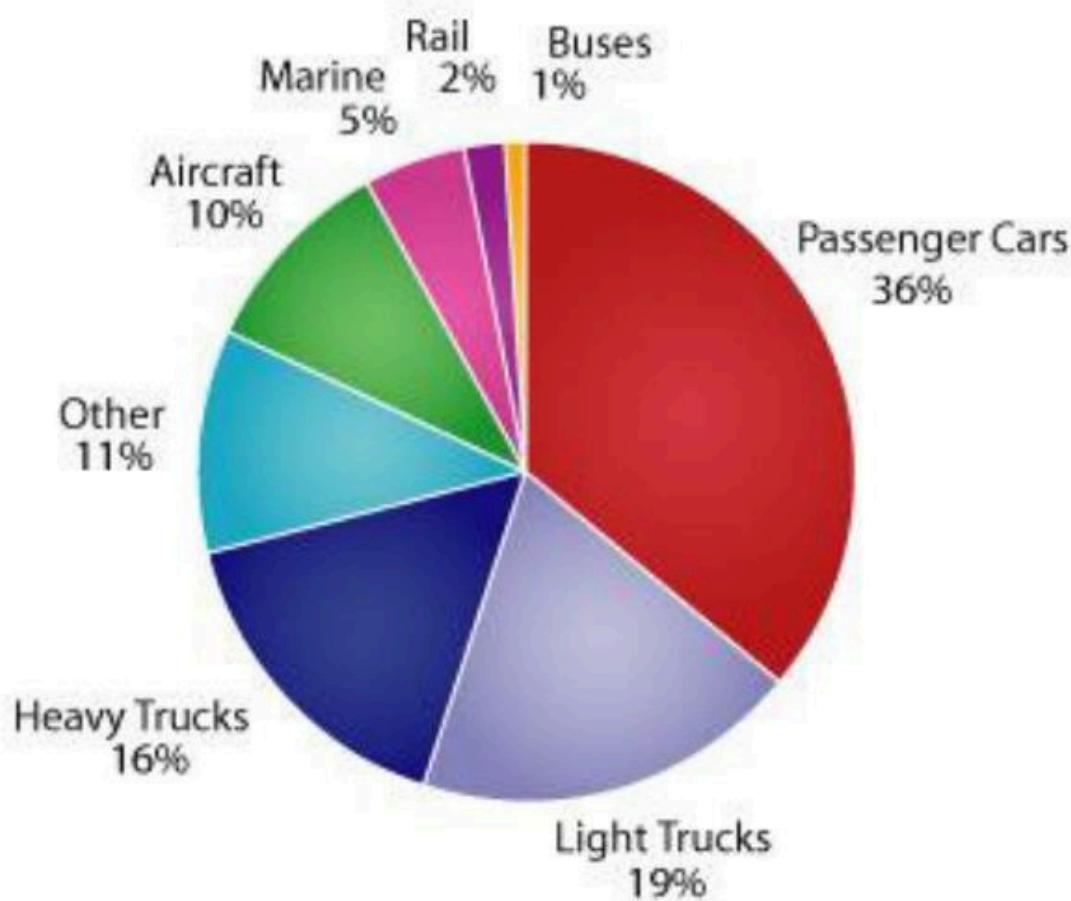
GRAPHICAL ANALYSIS

Cars Cause Biggest Share of Transportation CO₂ Emissions

Estimated share of CO₂ emissions in the transportation sector worldwide in 2022, by transport type

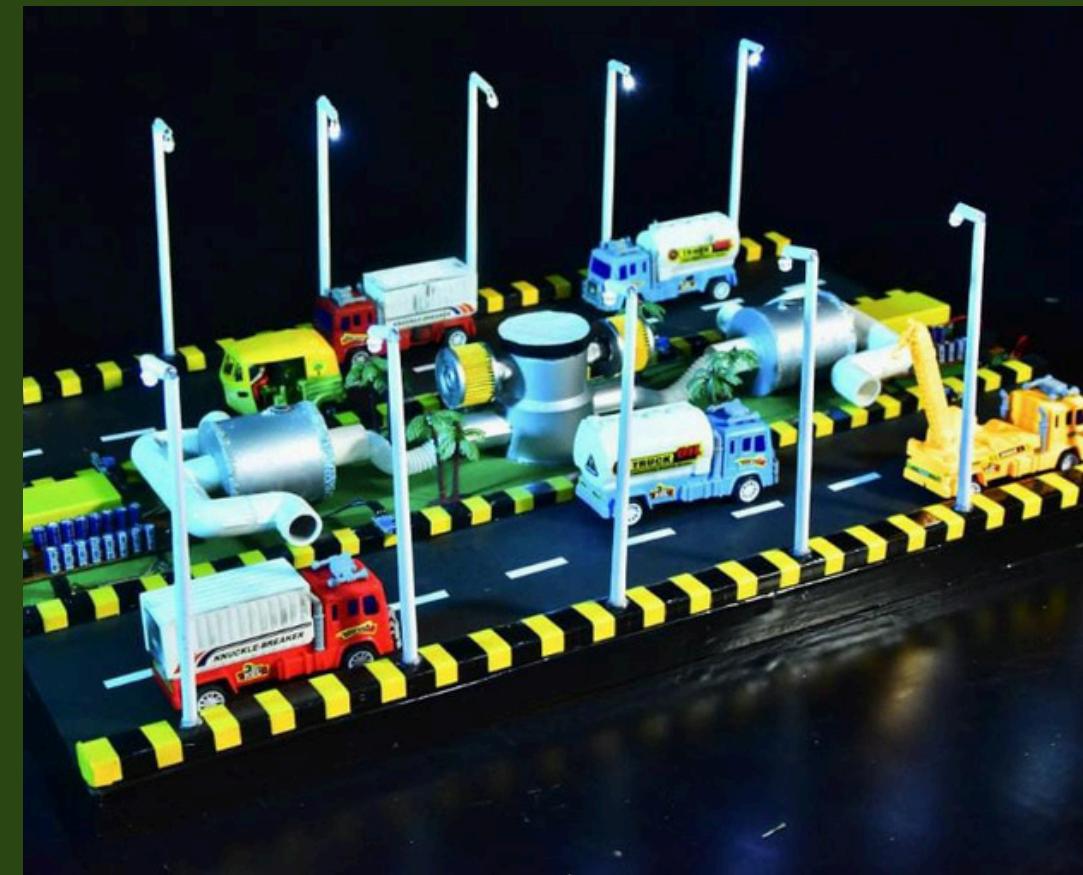


Transportation Greenhouse Gas Emissions



Carbon Extraction

It is an unconventional carbon extraction technology that captures soot and particulate matter from vehicle exhausts and industrial emissions. This comes as a part of a family of techniques termed Particulate Matter Capture.



Procedure for Carbon Extraction

- The proximity sensor detects approaching vehicles. Once a vehicle is detected, the system activates, thereby saving energy.
- The vacuum pump is activated to draw carbon dioxide (CO_2) and other pollutants from vehicle exhaust.
- The captured air is passed through a carbon filter. This filter is designed to absorb CO_2 and other contaminants, effectively reducing the amount of greenhouse gases released into the atmosphere.

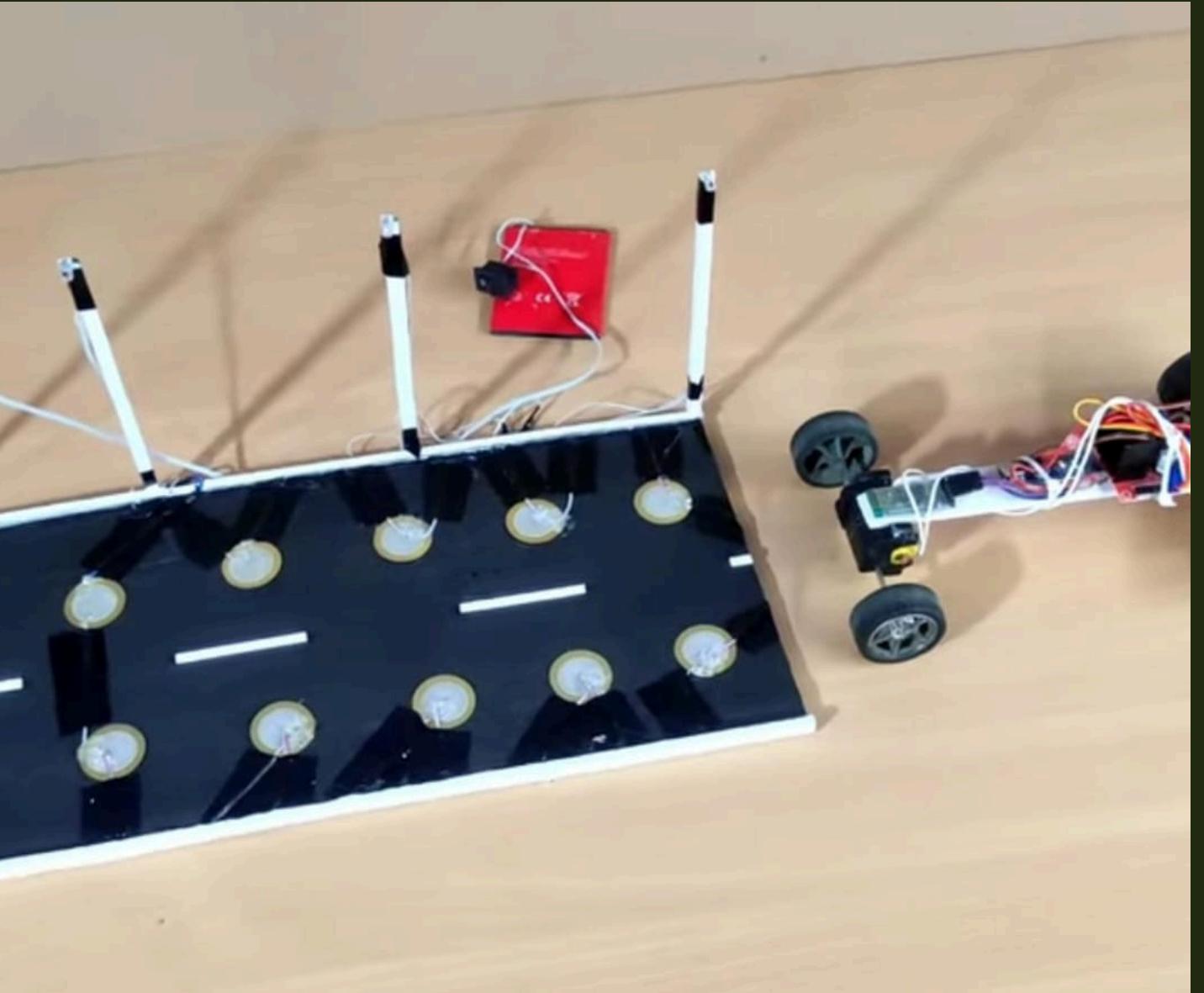
Benefits of Carbon Extraction

- Reduces Greenhouse Gases
- Improves Air Quality
- Supports Carbon Offsetting
- Promotes Sustainable Agriculture
- Generates Renewable Energy

- Boosts Economic Opportunities
- Encourages Innovation
- Reduces Ocean Acidification
- Enhances Climate Resilience
- Potential for Industrial Use

Harnessing Kinetic Energy for Electricity

As vehicles pass over the road or speed breakers, the kinetic energy generated is used to power the system. This energy can drive the vacuum pump, proximity sensors, street lights and other components.



Video Implementation



Implementation Challenges

- Integration with Existing Infrastructure
- Carbon Extraction Efficiency
- High Initial Costs
- Public Acceptance and Adoption
- Environmental Impact
- Maintenance and Durability
- Power Management and Storage
- System Efficiency

Solution to the Problems

- Infrastructure: Retrofit during road projects.
- Carbon Capture: Optimize filters and pumps.
- Costs: Seek subsidies and partnerships.
- Public Support: Educate on benefits.
- Environmental: Use eco-friendly materials.
- Durability: Choose robust materials.
- Energy Storage: Use batteries and smart grids.
- Efficiency: Use advanced designs.

Outcomes of the Project

- The extracted carbon can be used in manufacturing of Bricks and Construction Materials, Carbon Ink and Paint Pigments, used for Soil Enrichment, Combustion for Heat and Simple Filtration and Adsorption.
- The energy generated at speed breakers can be used to light up the street lights, the sensors of carbon extractor and many more.
- The extraction of carbon will also be reduced.

Future Scope & Innovations

- Smart Road Integration
- Enhanced Carbon Capture Materials
- Scalable Modular Designs
- Wireless Energy Transfer
- Regenerative Braking for Public Transport
- Carbon Capture Utilization
- Self-Powering Sensors
- Data-Driven Optimization

Key Insights

- Current efficiency: 5-10% from vehicle kinetic energy; improving with new technologies.
- System is durable but may require regular maintenance in high-traffic zones.
- High initial costs, offset by long-term energy savings and pollution reduction.
- Advanced filters capture up to 90% of CO₂ from air pollutants.

Conclusion

- Integrating carbon extraction and kinetic energy conversion addresses pollution and energy needs.
- Highlights importance of adopting innovative green technologies for sustainable development.

Closing Message

“Together, we can transform challenges into solutions for a greener, more sustainable future.”

Feedback / Q&A

We are excited about this capability to use kinetic energy and carbon capture technology towards improving sustainability, as the comments will help us to ensure that this system is both efficient and durable while impacting positively on the environment.

