CIVICS

INTERACTIVE ACTIVITY AND ASSIGNMENT

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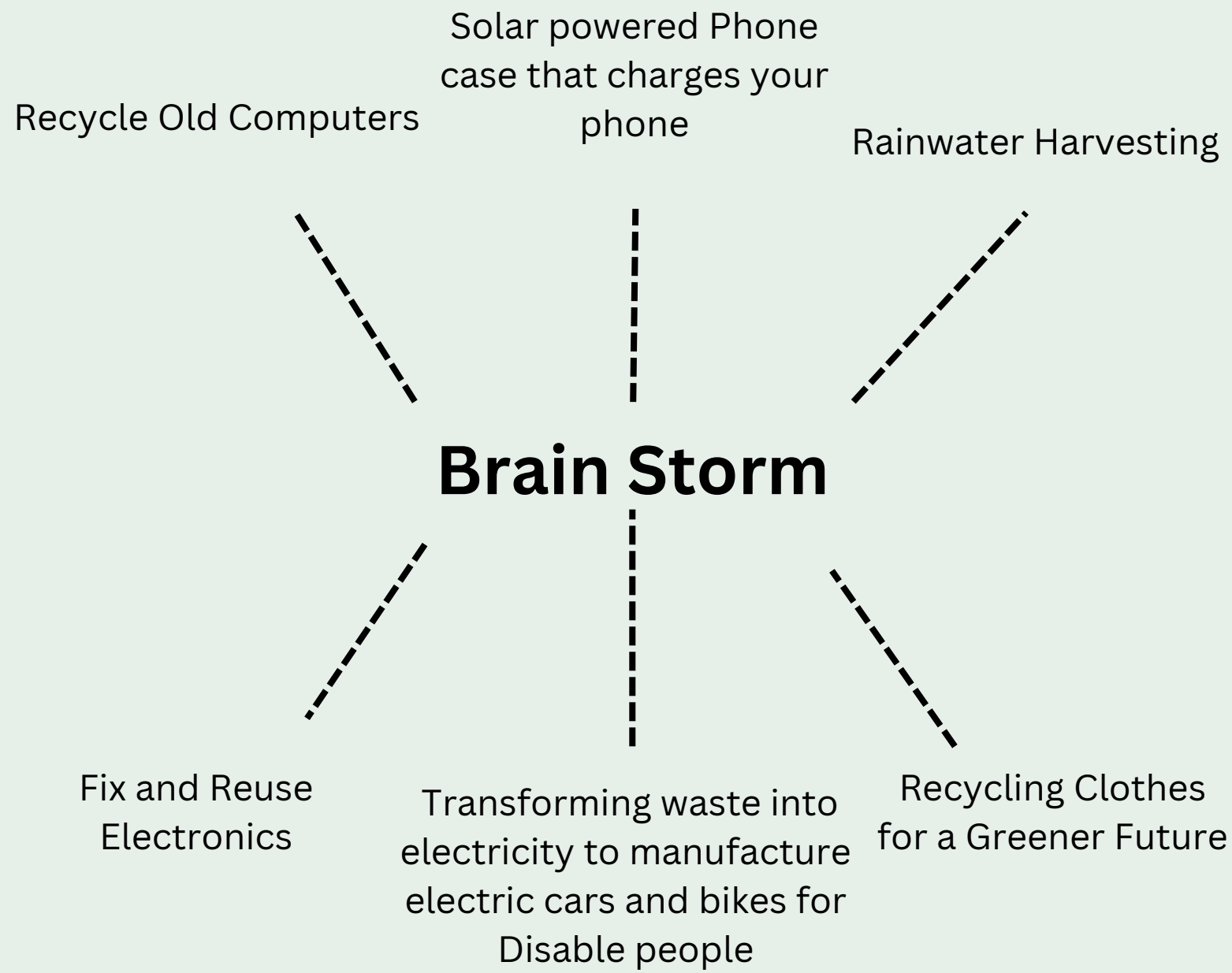
Introduction:



Final topic selected after discussion :

After discussing with all group members, we concluded that the most impactful and suitable topic is transforming waste into electricity to power the production of electric cars and bikes for people with disabilities.

Transforming Waste into Electricity (Engineer 1(Hamzah)):

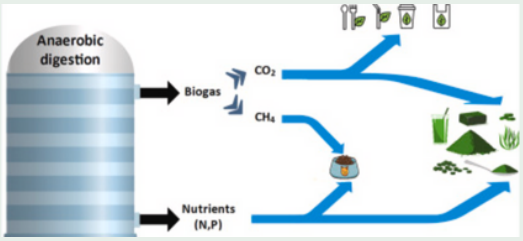
Objectives to be achieved by the plant:

Proper Waste Sorting: Implement an efficient waste sorting system to separate recyclable materials from non-recyclable waste, ensuring that only suitable garbage is used for energy generation while recyclables are processed properly.

Enhance Waste-to-Energy Efficiency: Utilize advanced technologies (e.g., anaerobic digestion) to maximize energy production from waste, ensuring minimal environmental impact and maximum electricity output for sustainable mobility solutions.

Project Goals and Aims:

Phase 1: Waste collection and sorting system setup.
Set up systems to collect and sort waste, separating recyclables from non-recyclable materials. Only non-recyclable waste will be used for energy generation.



Phase 2: Development and testing of waste-to-energy technology.
Use waste-to-energy technologies like pyrolysis or anaerobic digestion to convert non-recyclable waste into electricity.

Phase 3: Energy storage and distribution system implementation.
Develop a system to store and reliably distribute the electricity produced from waste. For example large scale battery storage or connection to grid.

Phase 4: Community outreach, awareness campaigns, and project scaling.
Run awareness campaigns to educate the public on the benefits of waste-to-energy and the benefits of recycling waste and protecting the environment. Encourage public support by inviting donations to help fund the project, whether through financial contributions or other resources.

Electric Car and Bike manufacturing for disabled people (Engineer 2 (Atta))

OBJECTIVES OF THE WORKS:

The main purposes of the project are to:
· Develop electric cars and bikes with specialized features like adaptive controls, wheelchair accessibility, and advanced safety systems for disabled individuals.

· Promote electric mobility by advocating for government incentives, infrastructure development, and public awareness campaigns.

PROJECT MAIN OUTLINES AND GOALS:

1. Makings the electric car which would completely run on the electricity with no consumption of the fuel.
2. The power consumption would be coming directly from the engineer which is producing electricity from garbage to reduce cost.
3. There would be special features like:
· Automatic start of vehicles to avoid any extra work.
· Auto adjustments of features.
· Special placement of accelerator for people with disability of legs and hands
4. It would be provided on special discounts to disable persons.
5. Discounts would be given upon their category of disability.
Specials cars and bikes would be manufactured on order for the persons according to their type of disability.

StakeHolder 1 (Ismail): Disabled Individual

Issues for Stakeholders with specific needs:

· **Wheelchair Users:**
Accessible ramps or lifts for vehicle entry, spacious interiors for easy movement, and secure wheelchair tie-downs to ensure safety and stability.
· **Hearing Issues:**
Visual alerts for safety warnings, haptic feedback for notifications, and text-based communication on screens for better awareness.
· **Respiratory Issues:**
High-efficiency air filtration systems, adjustable climate controls to maintain air quality, and easy access to charging stations with minimal physical effort.
· **Visually Impaired:**
Audio navigation systems, user-friendly control buttons, voice-guided dashboard functions, and vibration feedback for important alerts.
· **Individuals with Mobility Issues:**
Low-floor entry for easier access, comfortable seating, automated parking assistance, and remote start/stop features for convenience.
· **People with Allergies:**
Non-toxic, hypoallergenic materials used in the vehicle interiors, air filtration systems that remove allergens, and controls for adjusting air quality to personal preferences.
· **Mental Health Disorders:**
Calming interior features such as mood lighting and reduced noise levels, simple operation with minimal effort, and integrated health-monitoring systems for well-being.

Emergency Situation Handling:

Emergency Response Protocol:
In case of an emergency, the closest office or facility should have a designated emergency contact who can immediately respond and provide assistance.
Remote Assistance:
If the emergency occurs in an isolated location, remote monitoring systems should help from a distance using technology, such as phones, video calls, or specialized software.

Stakeholder 2 (Rohan): Government official

- Regulatory Compliance: Ensure the project adheres to environmental and waste management regulations, with necessary permits and environmental impact assessments.
- Public Health and Safety: Implement clean technology and safety measures to minimize emissions and prevent any negative impact on public health or the environment.
- Data Privacy: Establish data protection measures to ensure that any collected user data (e.g., waste tracking or participation data) is kept private, secure, and used only for project-related purposes.
- Cost and Funding Transparency: Provide a clear financial plan demonstrating long-term economic viability, minimizing reliance on ongoing government funding or subsidies.
- Community Engagement: Actively involve local communities and stakeholders through consultations and educational campaigns to gain support and address concerns.
- Collaboration with Local Authorities: Foster strong partnerships with local governments to ensure seamless integration of the WTE project into existing waste management systems and support in areas like waste collection, logistics, and public outreach.
- Job Creation and Economic Impact: Highlight the potential for job creation within the local economy, including positions in waste management, plant operations, maintenance, and research, making the project an economic driver for the community.
- Risk Management and Contingency Plans: Develop a comprehensive risk management strategy to address potential operational disruptions (e.g., plant downtime, technical failures, or natural disasters), ensuring that the project remains resilient and can continue to meet its objectives under unforeseen circumstances

Stake holder 3 (Tariq): Waste management contractor

Household Waste:

Collection:

- Improper sorting of waste leads to contamination, which leads to wastage of time.

Delivery:

- Lack of awareness may cause households to send waste to the wrong facilities, increasing landfill use.

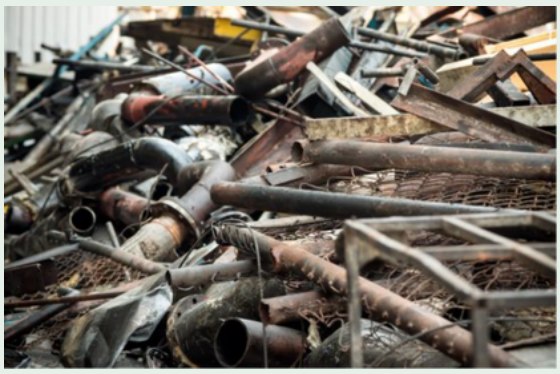
Industrial Waste (Factories):

Collection:

- Large volumes of mixed waste or hazardous materials can delay processing and lead to environmental pollution.

Shipping:

- Inefficient logistics or lack of contracts with waste companies can cause delays in waste transportation.



Office Waste:

Collection:

- High paper waste volume may disarrange recycling efforts, sending recyclable materials to plants unnecessarily.

Distribution:

- Inconsistent waste sorting can result in contamination, reducing the effectiveness of waste to energy processing.

Feedback and Conclusion

After gathering the users and stake holder's suggestions as engineers the main goal is to mold and adjust the project design according to their requirements and make a sustainable design that benefits the society and reduces negative impacts on the society.

IMPROVEMENTS IN CAR DESIGN:

- Wheelchair Users: We are designing vehicles with wider doors, low floors, and spacious interiors to ensure easy entry and exit, providing a safe and comfortable experience for wheelchair users.
- Hearing Impairments: To assist individuals with hearing impairments, we've incorporated visual cues, such as flashing lights and screen notifications, to alert users about important warnings or changes during the ride.
- Respiratory Issues: We are enhancing vehicle air quality by integrating advanced ventilation systems and adding a clean oxygen supply chamber to ensure users with respiratory conditions have a comfortable, safe environment.
- Visual Impairments: To support users with visual impairments, we provide hearing aids that deliver real-time ride information and alerts, ensuring they stay informed throughout the journey.
- Allergies: We are designing the vehicle interiors with hypoallergenic materials and improved air filtration systems to minimize allergens and prevent discomfort for those with sensitivities.
- Mental Health: Our vehicles are equipped with calming features such as adjustable lighting, noise control, and stress-reducing designs to create a peaceful environment for people with mental health concerns.

ENHANCED STABILITY AND SAFETY FEATURES (Motorbikes):

1. Improved Stability: Use three-wheeled designs or wider tires for better balance.
2. User-Friendly Brakes: Implement easy-to-use braking systems for limited hand strength.
3. Safety Features: Include reflective materials, LED lights, and visibility flags.
4. Comfortable Design: Focus on ergonomic seats for users with spinal or joint issues.
5. Affordable Access: Offer cost-effective bikes through subsidies and community programs.

Improvements in recycling process according to needs of stakeholders:

Education & Awareness:
Launch comprehensive, multi-platform awareness campaigns that educate households, industries, and offices on the importance of sorting waste and the benefits of waste-to-energy. Utilize social media, local events, and educational programs to reinforce the message.

Technology & Automation:
Integrate IoT-based smart waste bins and AI-powered sorting systems at waste collection points to improve sorting accuracy and efficiency. Use data analytics to track waste patterns and optimize recycling processes for better energy recovery.

Incentives & Rewards:
Introduce reward programs that provide incentives to households, offices, and factories for meeting recycling targets, such as rebates, tax breaks, or even community recognition for businesses that reduce waste effectively.

School Outreach & Engagement:
Organize recycling workshops and create green curriculum content that teaches students about sustainable practices. Partner with schools to create eco-friendly playgrounds and classrooms, showcasing the tangible benefits of recycled materials.

Conclusion

- Utilized Renewable Energy Sources: We prioritized renewable energy generation, reducing reliance on nonrenewable resources and minimizing environmental impact.

- Incorporated Sustainable Design Principles through feedback: Our design integrates sustainability at every stage, ensuring long-term environmental and social benefits.

- Empowered Underserved Communities: We focused on providing support to marginalized groups, ensuring that our solution offers equal access and opportunities to those often overlooked in society.