Earth Prodigy
Earth's True Hero

Problem Statement: Humans are the main cause of Climate change. We burn fossil fuels and chop down forests, causing average temperatures to rise worldwide. That global warming trend is increasingly disrupting our climate – the average weather over the years.
There are several ways[1] in which we can reduce our carbon footprint, like Reducing food waste by planning meals ahead of time, freezing excess leftovers, Switching of lights when leaving the room, unplugging electronic devices when not in use, installing low-flow shower head and so on.

Education is an essential factor[2] in the ever more urgent global fight against climate change. Knowledge regarding this phenomenon helps young people to understand and tackle the consequences of global warming, encourages them to change their behavior and helps them to adapt to what is already a global emergency.

We intend to **develop a game/educational app** for children (for ages 5-12) that would not only teach them importance of conservation of resources but also develop an instinct that they would hopefully follow throughout their life and become "Earth's True Heroes".

Motivation: For UNESCO[2], education, especially when focused on children and young people, is a key factor in helping to curb climate change. Specifically, it says that "education... encourages changes in young people's attitudes and behavior and helps them to adapt to climate change-related trends".

As part of this change in approach, experts point to the importance of starting to use concepts that hitherto seemed the reserve of scientists. We're talking about global warming, greenhouse gases, renewable energy, carbon footprint, deforestation, recycling, green jobs, green taxes, water footprint, sustainable food, etc.

It would be easier to develop such responsible habits in children than that for adults and working groups as children do not have other responsibilities to attain.

App Description: The app would present several different scenarios to children and ask to choose an action that they would take in those situations. The correct action would receive a positive reinforcement. It would also present facts about climate change, how a small contribution could impact the world on large scale. The app will also consist of an educational component where children would learn about measurement of resources used or saved, along with Q&A. The questions and scenarios of the app will vary according to the age of the child and their progress towards developing a responsible mindset.

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[1] https://news.climate.columbia.edu/2018/12/27/35-ways-reduce-carbon-footprint/
[2] https://www.iberdrola.com/social-commitment/climate-change-education

Reward/Reinforcement: The correct answers result in a positive score of 10. And incorrect answers would add up a negative 2 to their total. The total score by the end of the week will be shown in a leaderboard along with several other users.

There will also be a daily[3] check-in score (+5). There would be a leaderboard among peers.

Finally, the parents would be asked for a feedback, once a month, with objective questions: like On a scale of 1 to 5, how much do you think your child has become cautious towards using resources responsibly.

Educational Content: The app will consist of Technical infotainment. The users will learn about Flow rate of water, Electric Power consumption, solar power and tips on how to reduce their carbon footprint; all that based on their age, educational level, and progress and level of engagement with the app.

The educational content would gradually overtake the scenario/action gameplay, with the progress of the user. The app would use clustering (using Machine Learning) for better and targeted content. It would also use generative models to randomly generate questions.

Point – Counterpoint: While it can be argued that parents are already frustrated that their kids spend too much time on the phone and adding this as a daily activity could seem counter intuitive.

The daily time spent on the app is limited by 15 minutes and the app cannot be used again for the next 24 hours. We want the app to be engaging but not addictive.

Demonstration: We have developed a very basic prototype app that shows a scenario/action gameplay.
Here is a link for our web app.

Future Work: The app would to include all the features mentioned in this report. The educational content, facts and gameplay assets all need to be carefully curated.

Timeline: The content curation, creation of initial animation videos, Q&As, and developing the UX would take up to 2 weeks. Furthermore, developing Machine Learning Models that would recommend facts, lessons, and quizzes according to the user's progress level and engagement with the app.

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[3] https://www.cmu.edu/dietrich/sds/docs/loewenstein/HabitChildren.pdf