FEBRUARY 2023

CO-CREATING GREENSCENT APPS

WORKSHOP IN THE GREENSCENT YOUTH ASSEMBLIES, FEBRUARY 2023

Prepared for GreenSCENT by Ida Skov Nielsen and Elsa Alves, Project Managers at The Danish Board of Technology

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INTRODUCTION

The GreenSCENT Youth Assemblies convened on February 1st and 2nd 2023 for a 3-hour workshop to generate ideas on four tools from the GreenSCENT project, all of which are still under development.

There were 22 participants in Assemblies 1 and 2, and 20 in Assemblies 3 and 4. Participants were aged between 14-25 and from Italy, Spain, Greece, Finland, Serbia, Romania and Denmark.
The assessed tools were:

- The Environmental Monitoring Tool
- The GreenSCENT Citizen Journalism App,
- The GreenVerse Immersive Platform, and
- The Air Quality app.

PURPOSE OF THE WORKSHOP

The purpose of the meeting was to develop and present ideas on how to use the apps in an educational setting. Developers from UNINETTUNO and BSC attended the brainstorm and had opportunity to present the tools and exchange with the Assemblies' members.

As the tools are still under development, the participants entered the innovation process in the ideate level, moving forward to a level of starting the prototyping of the ideas.

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BRAINSTORM PROCESS

The participants were tasked to brainstorm on all tools in break-out rooms, following a 4-step approach:

1. The participants began the brainstorm with an individual brainstorm,
2. After the individual brainstorm, smaller groups brainstormed and clustered their ideas,
3. The participants worked with detailing and proto-typing their ideas,
4. In the end of the brainstorm, the participants pitched their ideas to another group in their assembly.

NOTABLE ACHIEVEMENTS

The participants developed **more than 150 ideas** on how the green apps could be used in an educational setting and more generally; which features the apps could incorporate and other interesting and useful ideas and reflections regarding the use of the apps.

The insights and ideas will help the app developers to develop useful GreenSCENT tools and the assemblies will be able to track their progress in a meeting in June, where the tools are prototyped and the participants get a chance to give more detailed feedback on features and usability of the apps. In the following sections the ideas are collected and presented.

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THE WORKSHOP SPARKED HOPE FOR A GREEN FUTURE

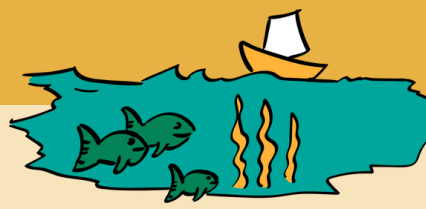
> *A lot of interactive ideas that give me hope that the fight against climate change and all types of pollution is gaining an increasingly modern approach*

The participants expressed how the co-creation workshop and the ideas generated gave them hope or made them excited to be part of the GreenSCENT project.

The following is a collection of ideas developed on the workshops.

Some of the ideas are merged, adjusted, or represented by other ideas as the participants developed similar ideas. For that reason, the following does not contain every single idea developed and posted in Mural.

05 THE ENVIRONMENTAL MONITORING TOOL



With the environmental monitoring tool, users will be able to reuse their uploaded environmental data and share content that can be used in publication, research, journalism, school and university programmes. Below are the participants' ideas for how to use the app.

IDEAS ON HOW TO USE MAPS AND TRACKING PROGRESS

Maps connected to areas

- The app should have a map where you can click on different regions and see the reports from that area
- The map should show important locations on interactive maps and notify you when you are near a place with a photo/video

Maps based on topics

- Maps should have different layers divided by topics and the definition of each topic. For instance, “roadside flowers”, “polluted lakes”, “edible plants”, etc.
- It would be good to have a definition of each main point (for example, if a map is made about different environmental disasters, it would be good to have the definition available in order to compliment the map and clear up any doubts the students may have)

Maps with an impact

- Users could recommend stores where you can buy sustainable products
- Notify when something good happens in your local area
- Markers on the map of our area with useful facilities such as recycling areas or parks
- The app itself should also promote walking instead of using public/personal transport
- The app should suggest environmental challenges and offer ideas of more sustainable alternatives

IDEAS ON HOW TO USE THE APP IN AN EDUCATIONAL SETTING

Field trips using the app

- Students could go in field trips to investigate the environmental situation in the local area and build, for instance, a descriptive map
- I would be useful to provide some form of cheap air/water pollution testers
- Use the photographic features to collect images of local polluted areas and collect information
- Provide guidance to the students while on task

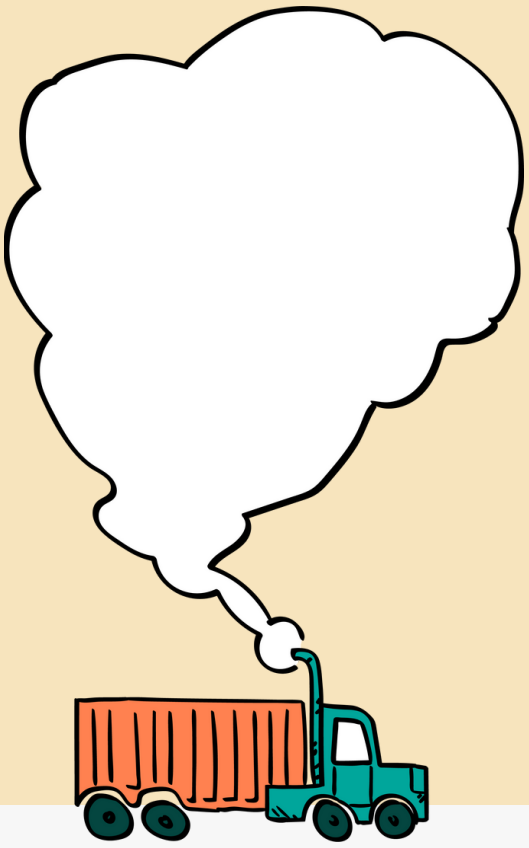
Progress tracking

- Using the app as a tracking device, taking pictures in the same area where we are taking care of/doing harm to the surroundings, to see how it changes and the effect we have on an area

Competition in school/class

- A "competition" running for one month on who uses the bike more when getting to school and at the end there would be a winner. There would be other "competition" running as well, for those who don't bike to school
- Have students take before and after photos of the challenges that they have been set
- The challenges should be as encouraging as possible to make it fun and interactive
- A quiz, where you can guess what kind of environmental problem is in the picture on the screen

A CLOSED MAP FOR GROUP PROJECTS IN SCHOOL



The environmental monitoring tool should give accessability to work in closed maps, where the only information found in the map is added by the group members in the project.

This could for instance be used if students go to a field trip to meassure different types of pollution or other interesting elements in the sorrounding environment being used in school.

MOBILIZATION OF AFFECTED CITIZENS

The app could have a group chat or a place where a community or town could talk about their envorinmental issues.

The app should advise the citizen to use this feature when they see a problem within their community and share it with other citizens or decisionmakers in that particular town or area. To support the mobilization of citizens they could be a possibility to schedule a meeting whitin the app, in order to discuss the issues at hand.

If the issues isn't achievable to fix by citizens, then take it to a higher level of authority and/or notify decisionmakers.

IDEAS ON FEATURES TO IMPROVE THE USE OF THE APP

Data collection features

- An educational tab with interesting ecology facts and tips on how to live more sustainably
- Automatic diagrams and charts and a feature to compare data
- Organise the posts by tag (location, type, etc)
- Be able to take pictures and record videos. Use AI paired with camera
- Be able to connect to devices to register measurements
- Be able to compare information of different places

Shared and private apps

- A map where everyone in class could plot their observations
- The app should have the posibility to work in closed map, for instance, when doing a group projects
- An option to see specific disasters/infra-structures, for example a building collap-sing, a lake, a city - and different info about each place such as the PPMs, the temperature, the light pollution, etc.
- Geo-tracking feature that caters to what has happened/is happening in local areas. That way, if we travel, the app can use our location to decide what information to show first

User experience and accessibility

- Lots of colors, graphs, diagrams, all sorts of things (updates from other cities too)
- The app should provide different ways to testing e.g. air or water quality. There should be different options for documentation, hence students or citizens would be able to also test and check up on the data outside of school
- Engaging and interactive design with different media types (photo, text, video, sound)
- Available for different levels from primary school to university students

Gamification

- The app could have some kind of an award system, to motivate use of the app
- Simulate a small garden where you grow vegetables with points from using the app

Resources

- Access to relevant resources on the web
- Able to detect possibly dangerous and harmless species
- Be able to make reports to authorities

THOUGHTS ON INFORMATION RELIABILITY

Reliability of information

- Implement measures to improve data reliability, e.g. ways of doing fact checking
- Task for students: Find mistakes/ misinformation from people's posts, and fix them

Information missing

- There could be somet information which people seem not to be posting (for example about extinction, it's hard to notice). This should somehow be visible in the app

IDEA: A CALL TO ACTION

- The app should contain a feature to mobilize people locally for recycling events, planting trees, cleaning up streets
- The app can give contact information on people or companies who can regulate a specific area, which the users can contact with collected information on envorinmental issues

USING THE APP IN TEACHING

- Treasure hunt; find this and that and plot it into the app (making the students observe nature)
- When students learn a new word related to the environment, they can learn it by searching for real life examples
- Teacher could divide the class into small groups, and each of them would have their own continent/region to study what kind of environmental issues that are typical for that area
- Use the app to teach how to save energy and avoid waste

09 THE GREENSCENT CITIZEN JOURNALISM APP

With the GreenSCENT citizen journalism platform, users will be able to collect information, monitor and report environmental issues or solutions about a specific area or territory. Below are the participants' ideas on how to use the app:

IDEAS ON HOW TO USE THE APP TO RESEARCH PURPOSES

Publishing new research

- A great way for researchers to publish their work, as well as a good source for university students to consult it in open access
- Useful for educational problems - e.g. if someone works on a paper, they would be able to use the app to get data
- Able to share news articles
- Able to peer review through use of reliable sources
- Would be useful to have a part of the app which automatically analyses data

Risk management of misinformation

- Should be reliable to use in research
- Hard to identify which information is reliable or not - but you could maybe show who is presenting the data
- There should be a fact checking software or moderators to prevent misinformation or uneducated people improperly using the app

IDEAS ON HOW TO USE THE APP IN AN EDUCATIONAL SETTING

Educational approaches

- Using it in class for different subjects, maybe writing an essay, but also understanding different mechanisms in nature
- Thinking exercise: ”Why are some environmental topics more popular than others?”
- Encourage students to go out and tell about their experiences with what's happening in their local area
- Teachers could have a feature where they can create a quiz using the information/photos in the app and have the students try to figure out where it is and what happened

Transdisciplinary learning

- Biology/language teacher (or several teachers together, multidisciplinary) can make home-work tasks related to the app. For example writing an article about a lake nearby. Teacher could highlight the best articles posted

Supporting education online/remote

- A way for teachers to teach remotely, if conditions such as those during COVID happen again

HOW TO REACH USERS FOR THE APP AND INFLUENCE AS MANY AS POSSIBLE

Go through the trending apps at the moment (e.g. TikTok or Instagram), creating informative videos to promote the app, showcasing its main characteristics in order to catch the general public’s attention

The app should be closely related (or at least in accord) with other social media apps, such as Instagram or twitter, so it could reach more people and influence many to also start using the app.

IDEAS ON HOW TO USE MAPS AND TRACKING PROGRESS

News and blogs on a map

- The user should be able to read articles/ blogs from all over the world. The user could access the different articles through the map. The user would be able to click on different countries and get a quick overview of the latest news in that country
- When reading the article there should be a function that allows the reader to click on and show the reader where in the world the article/blog is taking place

Private map

- It would be good to have a general map with all the information where users can add on what they find
- There should also be a feature to create private maps that only the owner can see and add for themselves (maybe they only want to see things they add, or specific areas of information, for instance fire incidents, etc)

Divided by theme or categories

- The app should have categories/filters, for example water pollution, biodiversity, etc.
- When making a post it should include tags to help categorize it. The writer should check off main areas/categories of the post

Progress tracking

- Users should be able to track the progress of their area trough simple data/statistics
- It could be a board for each topic, so if you want information on global warming you can go to the designated board
- The app could have a feature where it organizes the posts based on the location from where the photo/post was posted from and be able to organize the information based on location and date of publication so we could see how the environment changes over time

IDEAS ON FEATURES TO IMPROVE THE USE OF THE APP

Interactions and connections

- People must be able to comment and like articles
- The most liked posts get to be on the front page
- It would be good if the app worked as a community only for schools, as it would be easier to control the things on the app, but also that it's a good way to connect for students globally and learn from each other
- The app could have an interactive section, where users can react to posts of their friends and that way create a community within the app

Appearance and tools

- A search bar where you can search key terms
- The look of the app could be like a board where you can see opinions of people around the world and you can add suggestions or comments

SoMe connections and familiarity

- linked with other apps that students use (Instagram) to pass information between them about environmental problems around them
- The app should mimic other social media so that it is easy and fun to use, without leaving educational purposes to the side
- It should be possible to share measurements and pictures as well as to link to videos and documentaries

THE APPERANCE IN THE APP, AND ITS FUNCTIONS - A USER JOURNEY

The first thing the user would interact with when opening the app should be the map. On the map there is icons that display what is going on in the particular region, country or continent. The user should be allowed to click on this icon.

If there isn't any icon on a particular country the user should still be able to click on the country and get the latest news.

When the user clicks on the country or icon they should be able to choose between news or pictures. If the user clicks on pictures they should be presented through slideshows or stories, for instance like Instagram or Facebook, with short but precise text from the events ongoing there.

USE THE APP TO BUILD POSITIVE IMPACT?

- The app could have a notice board of nearby events so people could add their own events
- The app could have a system to detect species of plants and animals in photos. If the species is considered endangered or invasive, the information could be sent to the local government
- The app could help raise awareness on projects organized by companies and help recruit volunteers

By utilizing 360° video technologies, the GreenSCENT platform will allow teachers and educational designers to create 360° environmental video experiences on which students can contribute with content that can be shared and reused by other users and educational institutions. Below are the participants' ideas on how to use the app:

IDEAS ON HOW TO SHARE KNOWLEDGE AND INCREASE AWARENESS ON SOCIAL MEDIA

Communication and visual impact

- Students can use the app to make creative content for social media. The technology will have a bigger visual impact than other sources of information, so this should be capitalized. The experience of watching a video 360 degrees will add to the intensification of the message
- As the technology is engaging, the video itself could invite the participation of viewers themselves, asking rhetorical questions such as "what are YOU doing for the environment?"; Explore possible solutions to the problems presented.
- 360° screen focusing on nature's sounds to increase impact
- It should have a social feature, where other people or classmates could interact with the content, for example by liking, commenting or sharing the video

ACTIONS AND BUILDING A POSITIVE IMPACT BY INSPIRIRING OTHERS

Inspiring others

- Students can make videos with 360 degrees cameras of them doing something in favor for the environment, for example picking up trash from nature
- It could be used for an advertisement surrounding climate change: Students could make their own campaigns on how to improve daily habits with the use of this technology
- Create reactive environments

Food and recycling

- Follow a food chain, from the ground to the table
- Show the difference between locally produced and imported food. Invites to reflect on what it means for the climate and the environment
- Using voice narration to follow daily things you are already doing (shopping for food whether they are organically grown and the consequences after) and the impact on life
- Following an item that is getting put into the trash/recycling bin to see where they both go

IDEAS ON HOW TO USE THE APP IN AN EDUCATIONAL SETTING

Using the app in teaching

- Involve students to find environmental problems online and upload contents on the platform
- Make students add content – pose questions to research and answer them – to see how many different aspects it affects
- Walk through a regular home and pointing out the energy inefficiencies in all the rooms
- Plastic problem in our daily environment: Give students a better understanding of how plastic in the oceans effect the wildlife living on the waters. Walk through of the life cycle of plastics vs sustainable materials

IDEAS ON SIMULATIONS AND SCENARIO GAMES

Simulations

- Simulate how real life disasters have an impact on society; discuss the consequences and how disasters affect people in the vicinity
- Simulations of how places will change due to climate change (sea level rising, droughts etc.)
- Make simulations based on data collected from the past to get students to see the change in environment over years; Get students to interact with a simulation that shows the effects of their choices

Scenario games

- Roleplay/game with disasters – create missions and clues. Levels depending on age
- Make a scenario game that show how the users' consumption habits and life choices affect the planet in the future (for more details, see page 12)

IDEAS ON HOW TO TRACK PROGRESS AND IMPACT

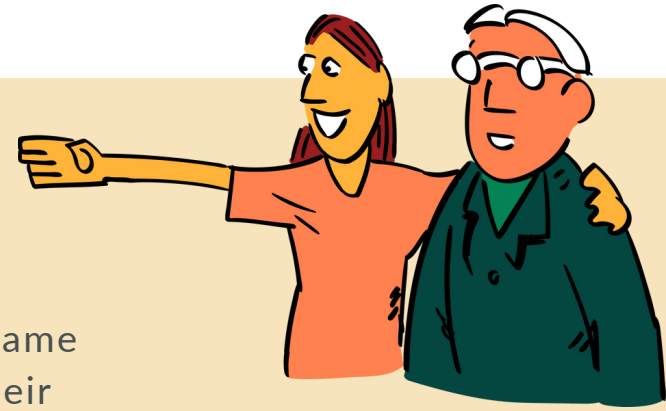
Show consequences of environmental disasters

- Show the consequences of temperature rising, how it affects the polar bears, fires, floods etc. Show it in different scales and levels. Audio/Video with introduction of the situation
- An option where users can observe the difference of a certain place over the years, so they can see how trees grow back after a fire
- Take a trip to the same place where you can change the time 200 years forwards or backwards to gain an understanding of society's development and how it has changed the environment. Reflect on how it will look in the future
- It would be interesting to be able to move around a map or select a certain area and time (years) and teleport to that timeline and see how everything was back then and compare to how things are now. It would be mind-blowing to be able to lets say "live" in the moment from back then. This is all related to the Industrial age or what was in the past

Show changes in local areas or cultures

- Real life differences between cities and urban areas
- Differences between last indigenous people and advanced cultures (in the way they see the nature)
- Focus on places where humans have transformed the nature radically (Amazon Rainforest or Dubai)
- The 360 design can also be used to show the environmental situation in different parts of the world

IDEA: YOUR CHOICE YOUR FUTURE
- A SCENARIO GAME



HOW DO YOUR HABITS AFFECT THE PLANET?

"Your choice, your future" is a scenario game with scenarios on how the players live their life, what they buy, how they transport themselves etc.

The player answers questions about their own life. When the player answers the questions, they'll get a new scenario and new questions.

After answering questions, the player gets a choice to see 10, 15 or 20 years in the future based on their answers, and see how the way they live now, impacts the future. The future is shown in 360° videos technology.

15 THE AUGMENTED REALITY APP - AIR QUALITY

This tool focusing on air quality and "zero carbon" will enable students to create content displayed in augmented reality (AR) related to a specific geographical area. Additionally, the public will have access to it to learn more about their community and projects taking place in other European countries. Below are the participants' ideas on how to use the app:

IDEAS ON HOW TO USE THE APP IN AN EDUCATIONAL SETTING AND FOR RESEARCH PURPOSES

Communicating local air quality through school activities

- Make presentations on the student's journey to school and how they are affected by air pollution, by presenting the data on air pollution where they live
- The app could be part of a larger project where students go out in their communities and teach others about the importance of being educated on air pollution

Games and competitions

- Educational game (maybe a board game or quiz) with the information learnt in the application and test each other's knowledge
- Competition - who can win most trophies within a week - and then test if the number of trophies correspond with the knowledge

Research

- Show data sources for research purposes

IDEAS ON THE INFORMATION AVAILABLE AND RAISING AWAREESS

Information and cources available in the app

- Advanced concepts such as molecules, particles, air flow, etc.
- Causes for air pollution
- Differences between indoor and outdoor air pollution
- Information on which plants and trees are best to grow in the area based on air pollutants/environment
- A human body where one can zoom in on different parts of the body and see the degree of air pollution damage
- Examples of solutions to air pollution
- Information on laws, conventions, and political regulations on air quality

Ideas on raising awareness and taking action

- The application could be part of a larger campaign in which the students raise awareness on taking non-polluting trans-portation to school/work
- Make it visual and shareable on social media

LEARNING AND TRACKING PROGRESS

The app should provide special access for teachers to students' processes in the app, so they can keep track of their progress.

In the same way, students should be able to know what kind of homework or content has to be studied until next time, so they also need to have access to some sort of common platform within the app.

The app should feature a calendar with relevant events, and its activities should be competitive in nature, so students are engaged (such as Duolingo, Kahoot, Google classroom, flashcards, etc.).

IDEAS ON FEATURES TO IMPROVE THE USE OF THE APP

Interactivity and gamification

- AR: playing with scenarios and boundaries, for example an empty landscape and adding modules to see how the air quality changes and may be improved
- The app could contain a Pokemon Go type of game but instead of visiting poke-stops one is visiting good air or/and bad air quality regions and areas
- Geoguessr type of game where 2 or more people try to guess what the biggest source of pollution is in that region
- A competition-style game mode where one gains points for taking walks or visiting areas with good air quality. The game can have leader boards together with classmates, friends or family.
- Levels of knowledge depending on age

Award system

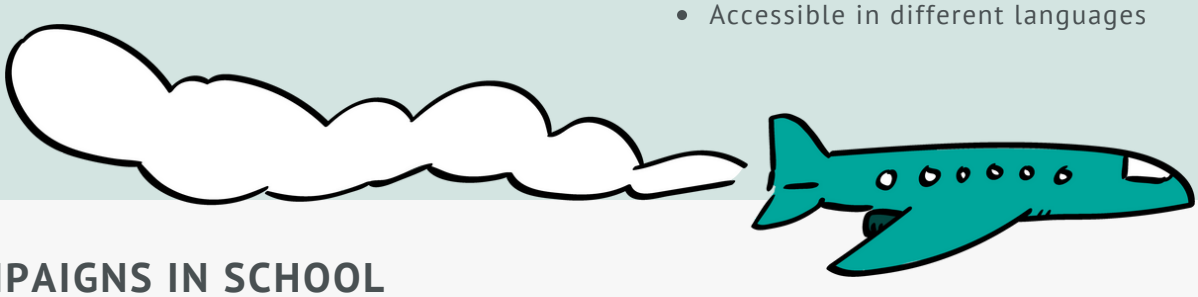
- Grant rewards for completing enough missions on how air pollution effects the world
- The app should have a progression feature similar to Duolingo, where the user goes through a learning path, throughout daily/weekly/monthly goals and challenges

Comparative data & geotracking

- News (weather forecast, environmental disasters) and connecting it with the air quality tracing device throughout the year
- Public transport, to see which is most sustainable as well as healthier routes (least polluted roads)
- Air quality in different areas, in Europe and around the world
- Different factors that affect the air quality
- Showing the locations of the air pollution sources (industrial factory, power plant, etc.) in the area.

Accessibility

- Accessible through any platform or media (as depending on their age, students might not have smartphones)
- Make it possible for the teachers to have access to the students data
- Accessible in different languages



CAMPAIGNS IN SCHOOL

The application could be part of a larger campaign in which the students raise awareness on taking non-polluting transportation to school or work. The teacher will assign areas or institutions to visit such as classrooms at a school. The students will then make presentations on how to minimise ones own pollution and stay clear of pollution already in the area.

The presentations should include:

- What causes pollution?
- The effects of pollution
- What can be done to prevent pollution
- Introducing the app and how it works

IDEA: THE AIR QUALITY GAME

WHAT CAUSES THE MOST POLLUTION?

Two or more players get put in an area of the world (a random city, for example). Players can move around the city and guess what makes the most pollution for that area.

They have around 5 best answers which gives them an X amount of points. Players have 3 guesses to get one of the top answers. There is also a timer from 30-90 seconds per round.

After every player has used all 3 guesses or the time has run out, they move on to next round. After all five rounds, top three players are rewarded. Rewards can be an app reward, or if used in the class, the teacher can decide the rewards for the top 3 players.

AIR QUALITY COMPETITION IN SCHOOL

The app can have a feature that shows the sources of pollution in an area. For example, you're standing on a road and open that app, and as you look around the app shows the locations of the sources (industrial factory, power plant, etc.) of pollution for that area and more information about it. It also shows air quality index for all roads/areas.

High air quality areas could be shown by the AR using green markers or virtual trees, while areas with poor air quality could be shown by red markers or virtual pollution clouds.

Students gain points by visiting areas with high air quality. There can also be challenges to gain more points, such as answering questions about air pollution. At the end of the week, the person with the most point gets a prize (teacher decides).

FEBRUARY 2023

A special thanks to all participants in the GreenSCENT Youth Assemblies for engaging in developing ideas and sharing reflections and insights on the green apps.

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