«INNOVATIVE BUSINESS INFORMATION AND SUPPORT SERVICES FOR YOUNG ENTREPRENEURS IN HERBS PRODUCTION AND ECO-TOURISM»

DEVELOPMENT OF SIMULATION MODELS & PROVIDING BUSINESS SUPPORT AND TRAININGS FOR THE FLOREO PARTICIPANTSIN FLOREO
Del. 5.2.1
(Greek Simulation Models)

Responsible beneficiary:
HELLENIC DEVELOPMENT CITY NETWORK

Project website: https://floreo-gr-bg.eu/

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1. INTRODUCTION

FLOREO Simulation herb production and products models development was a valuable tool for all the trainees, amateur farmers, agricultural researchers, and young and new entrepreneurs involved in the project.

Such simulations can help optimize various aspects such as herb cultivation, predict yields, imagine products, dream of innovative ideas and explore various scenarios.
Simulations save time and resources by providing insides and predictions that might otherwise require extensive real world testing.

Our simulations about the herb-based cosmetic products were be an engaging and informative way to explore the production process, benefits, and market potential of such a product and provide knowledge and information to the students, new entrepreneurs.

The Simulation Models that we made in the FLOREO project aimed to educate users about the development, structure, step by step production, and marketing of herb-based cosmetic products. Users played the role of a cosmetics entrepreneur, making decisions at various stages of the product's lifecycle.

We know that such simulations play a crucial role in the development of herb products in the field of agriculture, herbal medicine and related industries.

2. SIMULATION STRATEGY

Here's the basic outline of how we performed the simulations on FLOREO project:

Goals and **Objectives** definition of the Project & simulation:

In a simulation model objectives are the specific goals or outcomes that the models are designed to achieve and evaluate. These objectives are often used to assess the performance or behavior of a system being simulated.
In FLOREO project simulation models process we started by clearly defining the goals of our simulation ideas.

The Question was:

- Are we interested in optimizing herb production, predicting yields, research for products, describe ideas, develop new products in related areas like tourism tourism and herb products or services or explore different cultivation practices?

We Collected Data:

For this reason we made two teams among the students that gathered data on the specific herbs we wanted to simulate.

This included information on growth requirements, environmental factors, and market needs and demand. Historical data on herb production from the specific region was particularly useful and helpful as well as tourism attractions from the area in order to develop more ideas.

Choose of Simulation Tool / Software:

There are various simulation tools and software packages available that we could choose to assist in our FLOREO herb production simulations.

We made a search and we found MATLAB, Python with libraries like NumPy and SciPy, but we decided with the Trainers, Mentors and the students to work on our own tools and try create our own tools since all the above were mostly structured for medical purposes. So we started from scratch and enjoyed the “trip”.

The FLOREO Model Development:

Our FLOREO model was scheduled to consider factors like area of product origin, climate conditions, types and style of harvesting techniques, ways to create products at home or at the lab, and possibilities to disseminate these products afterwards in stores or online.

So we created the FLOREO simulation Models combined from different models for different herb types and different types of products and services.

Parameter Estimation:

We had to keep the two teams work together since we decided that what we were about to present was connected, products and services.

Simulation model calibration is a process testers use to ensure that a computer-based simulation model accurately represents the real-world system it is intended to simulate. Calibration involves adjusting the parameters and assumptions within the model to make its behavior and predictions align closely with the observed data and behaviors of the real system.

The goal is to improve the model's accuracy and reliability for decision-making, experimentation, or analysis.

For our FLOREO Model calibration we used the data we've collected, area, climate, types of herbs, tourism etc. We had to try to adjust the model parameters to match real-world observations. No a very easy process in such a short time and with a team with different back round knowledge and interests.

Results surprised the team members (students) the trainers and the people who were present in our presentations.

Simulation Runs:

In order to have a successful outcome we had to run the simulation for various scenarios and inputs. We simulated the effects of different herb product strategies, different product ideas and combination with other services for better results and due to short time for delivering our work.

These simulation runs were essential part of our products development. The sticks with aroma from the herbs as well as the essence oil were tested so many times among all the students and teachers that we managed to recognize the smells from the different herbs in no time at all.

Also because all these ingredients as sensitive to the environmental conditions we were all very careful along the process and we managed to adapt a new habit, to be careful, tidy with all the material we had to use and ensure cleanness and safety, a habit that all students claimed that start engaging in their lives too.

The two simulations models, were:

- **ONE** : products from herbs under the name ETHERIUM
- **TWO** : an App including the Herbs and areas to visit, observe, collect herbs and find the products as well

2nd Stage Data Analysis:

Then, the teams had to analyze the results of our demo simulations. We tried to look for trends, patterns, and insights that can help improve herb products and services promotion. Most of the herbs are not available in the market yet.

We included optimal collecting herbs dates, best practices for herb maintenance, predicted future of herb sustainability, services that can the area can benefit together with the people's benefit.

Validation and Verification:

The class tried as much as possible to compare the simulation results to real-world data to ensure that our models are accurate and reliable. Both validation and verification are critical processes in the development of a simulation model. These processes help us ensure that our models represent the real – world system and produce reliable results.

In the Verification process of Simulation ONE, we had to make sure that all methods are implemented correctly. All tests were done. No errors or bugs and inconsistencies in the model's implementation. Data inputs were confirmed as well.

In simulation TWO, we had more actual things to check, such as history of the area, harvesting periods and promotion of the products made from the herbs.

For that reason, adjustments had to be done to the models as needed.

Scenario Testing:

When we finalized our simulation model, to had the opportunity to test it in different scenarios.

For instance, we explored how changes in market conditions or different areas/places may affect herb product distribution and profitability. If our products from simulation ONE can travel, can stay outside in any environment, can be presented in a cosmetic store window next to other products.

Also we had to observe as possible, how the law in several countries can stop a specific product

to “travel” from one country to another.

How we can promote a product or a service in other European countries and attract clients, which social media and what type of advertisement is the most suitable.

That was easier with simulation TWO, since the App can “travel” around the world BUT it has to be accurate when the visitor will follow and visit the places we were about to present and find the local herbs, the products etc.

Decision Support:

To move on further from the simulation ONE and TWO to the real product or service we were promoting, teachers taught the students and new interested entrepreneurs how to use the insights gained from the simulations to make informed decisions about herb product and services.

This includes recommendations and tips from business people and entrepreneurs with similar production.

Deciding what s best for a product or service in the simulation making process involves a comprehensive strategic approach to ensure the product meets the market needs, is feasible to produce and aligns with the business goals – our goals. We made a trip to some cosmetic stores and asked the sales people for costumer trends and needs. We did not have time for further analysis, but we made sure the students understood exactly how the process works.

Continuous Improvement:

Another very important issue while making a simulation project is the ongoing tool for continuous improvement. As new data becomes available, and technology advances you have to update the simulation model to make it more accurate and useful. This was another lesson we taught our students to be more accurate in future, in other simulations or in the process of further development of the same or similar products and services.

We suggested our students / trainees not to miss any lesson, and they did. They participated carefully in the simulations classes and they learned that success depends on the quality of the data that we gather and the accuracy of the model.

Additionally, in the lessons we told the students that real-world conditions can be complex and may not always match the simulations perfectly.

But a well-designed and calibrated model can still provide valuable insights and guidance.

3. SIMULATION LESSONS

Organizing the **FLOREO simulation lessons** was fun and informative experience. Both for us and the students. In the simulations ONE and TWO all students took part.

Since the simulations were “connected” it was nice to watch students to sit down and discuss and ask each other which will be the best way to promote, or how the logo covers their need, and how the App will promote all they made more successful.

They were all, passionate about natural skincare, and tourism services with herbs experience. The steps teachers and mentors followed are described below:

Definition of the Objectives:

Teachers started the lessons by outlining the goals and objectives of the project and the task of simulation.

The main lesson we wanted our students, participants to learn or take away, was to help them structure the content accordingly.

Acquaintance with the students / audience:

Teachers spend the first day to learn more about the audience, the students. They had to determine the level of expertise and prior knowledge of the participants in the lessons.

They had beginners, intermediate learners and some advanced. This influenced the content and teaching approach which was planned accordingly.

Selection of a Suitable Venue:

Since the audience was young and older people teachers had to choose to have the lessons in physical locations, some in classrooms, in a meeting room. Some lessons had to be done outside, since the training included visits to the market of herbs and stores. Teachers also had to do a lesson online.

Collection of Materials and Equipment:

Teachers make a list of all the materials and equipment they had to use, including herbs, essential oils, carrier oils, containers, labels, mixing tools, packaging machines and safety gear. They also ensured before starting the simulations that they had enough supplies for all participants and to cover mistakes and failures.

The Curriculum:

Creation of a very structured curriculum that included the following elements:

a. Introduction to herbs:

Teachers and mentors started by teaching their audience about the specific herbs we had to use and their benefits for skincare, health etc.

b. Safety guidelines:

They introduced them to essential safety precautions they have to take when working with herbs and essential oils.

c. Cosmetic formulation basics:

They explained the basics of formulating cosmetics, including ratios, ingredients, and the role of preservatives.

d. Hands on activity

They lead participants through the process of making a herb-based cosmetic product (e.g., herbal-infused oil, lotion).

Development of a Lesson Plan:

The teachers:

- Created a detailed lesson plan that outlined the schedule, topics we had to cover, and the duration of each segment. We made sure that we allocated time for hands-on activities and questions.

Handouts and Visuals:

Asked the students to keep notes further from the handouts that were send by email to save printing and keep an Eco-Profile. These extra notes included recipes, ingredient lists, and safety guidelines.

Safety Precautions:

Emphasized safety throughout the lessons. They provided clear instructions on how to handle herbs and essential oils safely, use personal protective equipment, and avoid common allergens.

Demonstration:

They made a demonstration of the herb cosmetic making process to show all participants the correct procedures. They also explained each step clearly.

Hands-On Practice:

Then allowed participants to create their own herb cosmetic products, following the demonstrated procedure. Teachers and guest, Maria Douma were walking around to assist and answer questions.

Q & **A Session:**

Then teachers saved time for participants to ask questions and clarify any doubts they might had. This was helpful for both sides. Helped the teachers to understand how far they could go with the terminology and students had the opportunity to clarify all the issues they had.

Evaluation and Feedback:

At the end of every lesson, teachers asked for feedback from participants to help improve future lessons.

Follow-Up:

Although lessons ended we keep in touch with all participants and shared additional resources. Also encouraged the students to continue exploring herb cosmetics on their own and keep in touch with the Organization for future projects in the same issues.

TIPS

Teachers Mentors and Guests, tried to customize the lessons to meet the needs and expectations of the audience.
Herb cosmetic FLOREO simulation lessons proved to be a great way to empower individuals to make their own natural skincare products while promoting the benefits of herbs and natural ingredients from the area of Trigrad.

Summaries of the following curriculum

What we taught our students:

Start-up and Development

Year 1: Creation

1. **Investment:** Invest in land acquisition, building infrastructure, and hiring staff. Keep track of all your expenses.

2. **Cultivation:** Begin growing the selected herbs in your greenhouse. Document the cultivation process, including soil preparation, planting, and maintenance.

3. **Eco-Tourism Packages:** Develop and market eco-tourism packages. These may include guided nature walks, herb harvesting experiences, and workshops on herb product preparation (e.g., herbal teas, oils, and cosmetics).

4. **Marketing:** Promote your venture through various channels, including social media, travel websites, and partnerships with eco-friendly organizations.

Year 2: Expansion

1. **Eco-Tourism Growth:** Monitor the number of visitors and feedback. Consider expanding your eco-tourism offerings based on demand. This could include bird-watching tours, camping facilities, or educational programs.

2. **Herb Product Development:** Begin processing and packaging herb products for sale. Explore different product lines, such as dried herbs, essential oils, and herbal soaps.

3. **Sustainability:** Implement sustainable practices, such as rainwater harvesting, waste recycling, and responsible harvesting of herbs. Keep track of your environmental impact.

4. **Collaborations:** Partner with local communities for mutual benefit. This can include buying herbs from local growers, supporting local artisans for packaging, or involving the community in eco-tourism programs.

Year 3: Evaluation and Growth

1. **Financial Evaluation:** Review your income and expenses. Analyze which aspects of your venture are most profitable and which need improvement.
2. **Visitor Satisfaction:** Collect feedback from tourists and use it to improve your services and offerings.
3. **Marketing Strategies:** Adjust your marketing strategies based on the effectiveness of different channels.
4. **Scaling:** If the venture is successful, consider expanding to additional locations or introducing more herb product lines.

Year 4: Sustainability and Future Planning

1. **Environmental Impact Assessment:** Continue assessing your venture's impact on the environment and work on reducing it further.
2. **Long-Term Planning:** Plan for the long-term sustainability of your eco-tourism and herb product business. This may involve setting up conservation programs or creating partnerships with conservation organizations.

General tips for audience:

Teacher pointed out to all students to remember, in a real-world scenario, there will be many external factors to consider, such as changing environmental regulations, market trends, and economic conditions.

These simulations provide a simplified overview of the eco-tourism and herb product venture but should be adapted to real-world conditions and updated over time.

4. SUMMARY OF SIMULATIONS

4.1 FLOREO project SIMULATION ONE

Users started by selecting the type of herb they want to base their cosmetic product on (e.g., lavender or chamomile). Each herb has unique properties and benefits. They experiment with various formulations, adjusting ingredients and their proportions. A lab environment let users test the safety and effectiveness of their formulations.

Users needed to source herbs sustainably and cost-effectively. They learned about the cultivation, harvesting, and extraction processes. They were responsible for managing the production facility, making decisions on equipment, quality control, and packaging.

Users navigated the complex world of cosmetic product regulations, ensuring their product meets all safety and labeling requirements. They had to make choices that align with different international standards.

For Marketing and Branding, they created a brand for their product and design packaging, including labels and marketing materials.

Their marketing decisions included pricing, distribution channels, and advertising strategies. Users received simulated feedback from customers and reviews. Based on this feedback, they adjusted their product, marketing and production processes.

Since we are on a competitive Market, they had to pretend competing with other *cosmetic companies*. They adapted changing market trends and consumer preferences. They were encouraged to take in consideration sustainability of the product and to make eco-friendly choices throughout the simulation, such as using recyclable packaging or sustainable sourcing.

Their Educational Resources, included informative resources about the benefits of herbs in cosmetics, herbal properties, and their impact on different skin types.

FLOREO project SIMULATION TWO

Creating a simulation of a travel and herb look for & collection app can be an exciting project. Here's a simplified outline of what we “dreamed” with the students (the actual creation is less detailed and our aim is the sustainability of the project which will give the opportunity to create this App):

App Name: **ETHERIUM**

Description:
ETHERIUM is a mobile application that allows users to virtually travel to Trigrad (or later to other locations as well), explore the natural world, and observe or collect various herbs and plants while learning about their properties and uses.

Features:
User Registration and Profile:
Users can create an account or log in using their email or social media accounts. They can set up a profile with their name, profile picture, and a short bio.

Virtual Map:
Users can choose a virtual destination to explore. This destination could include forests, meadows, mountains, and more. Each location offers a unique set of herbs and plants to collect. (in our app the destination is Trigrad - Bulgaria)

Trigrad Herb Catalog:
The app should have an extensive catalog of herbs and plants from the area. Each herb or plant entry includes details such as name, description, uses, and any cautionary notes.

AR Herb Collection:
Users can use augmented reality (AR) to simulate collecting herbs. They can point their phone's camera at a spot in their chosen virtual location, and the app will superimpose images of herbs on their screen. Users can "collect" these herbs by tapping on them.

Herb Information:
When a herb is collected, the app provides detailed information about it, including its name, appearance, medicinal uses, and how to properly identify it in the real world.

Herb Collection Album:
Users can view their collected herbs in a virtual album, which they can organize by location or type. This can serve as a reference for the herbs they've discovered during their virtual travels.

Social Features:
Users can connect with friends, share their collected herbs and achievements, and even compete in collecting specific herbs or completing virtual challenges.

In the next step they will be able to upload their experience from a trip to observe herbs, collect, find products etc on the App special section, and promote, inspire and invite others to do the same as well.
Very promising and innovative as well.

In-App Currency:
Users can earn or purchase in-app currency that can be used to buy virtual tools (like a magnifying glass or gardening gloves) or unlock new locations.
This is for the future version and upgrade of the App.

Notifications:
The App can send users notifications about new herbs or special events happening in their chosen virtual locations.
Invite them to events and new products and share experience with videos and photos.
Inform also about contests and competitions among participants.

Educational Content:
Provide articles, videos, and resources about herbology and plant identification to educate users about the real-world applications of the herbs they're collecting.

Settings and Customization:
Users can customize their experience by adjusting settings such as sound, notifications, and account preferences.
In-App Store:
Users can purchase virtual and actual goods, such as additional locations, tools, or decorative items for their virtual herb collection album and herb products.

Sponsored Content:
The App can give the opportunity to all new Entrepreneurs to include – promote and advertise their herbal products, their services, their companies with sponsored ads, articles and extensive content.

4.2 FLOREO project SIMULATION TWO

Creating a simulation like this would require a team of developers, designers, and content creators. Also needs 3D modeling and AR development skills to make the augmented reality herb collection realistic and engaging. This is part of the next project the partners are willing to apply

Creating an App like the one described in the Simulation Model we designed through FLOREO lessons, in the Greek side, **can promote tourism** in small villages known for their herbs, can also be **used in health and cosmetics** and finally can be **an exciting and beneficial venture**.

Benefits of the Simulation process:
Users gained a deep understanding of the cosmetics industry, from product development to marketing and compliance.

The simulation process

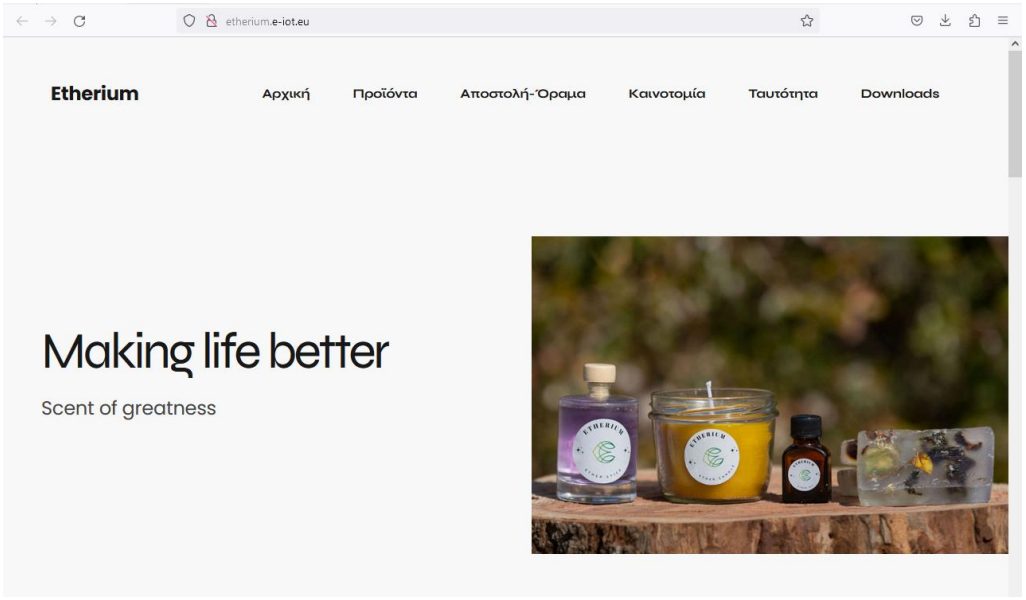
Promotes awareness of sustainability and responsible sourcing.
Encourages creativity and critical thinking in formulation and branding.
Provides insights into the potential challenges and opportunities in the cosmetics market.
At the end of the simulation, users received a score / evaluation based on their product's success, market positioning, and sustainability practices.

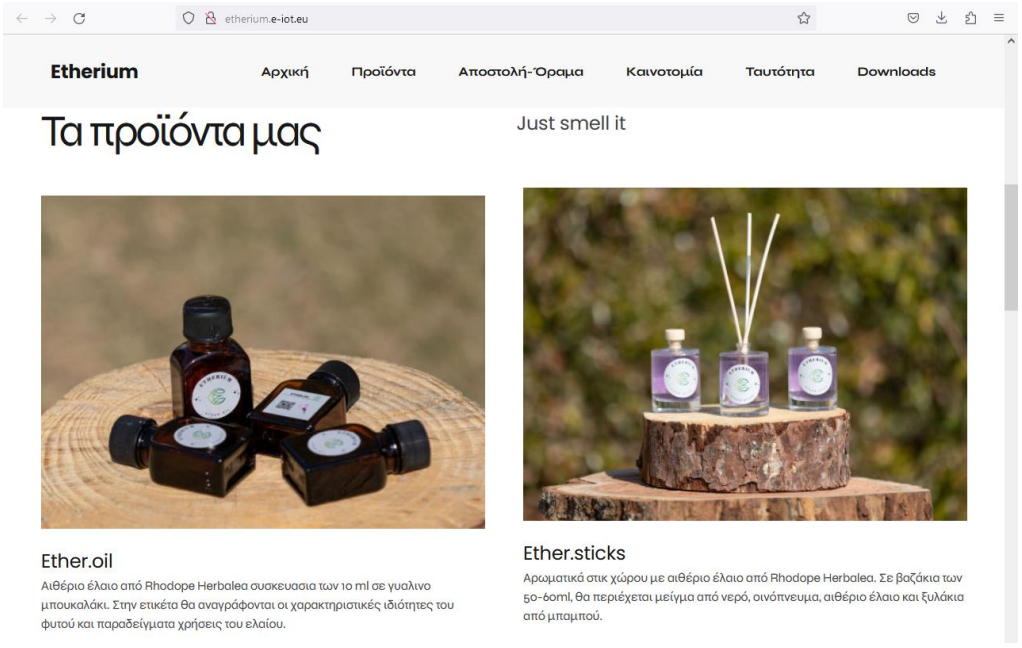
This innovative simulation provided an immersive and educational experience, allowing users to appreciate the complexities and nuances of herb-based cosmetic product development while fostering a sense of entrepreneurship and sustainability

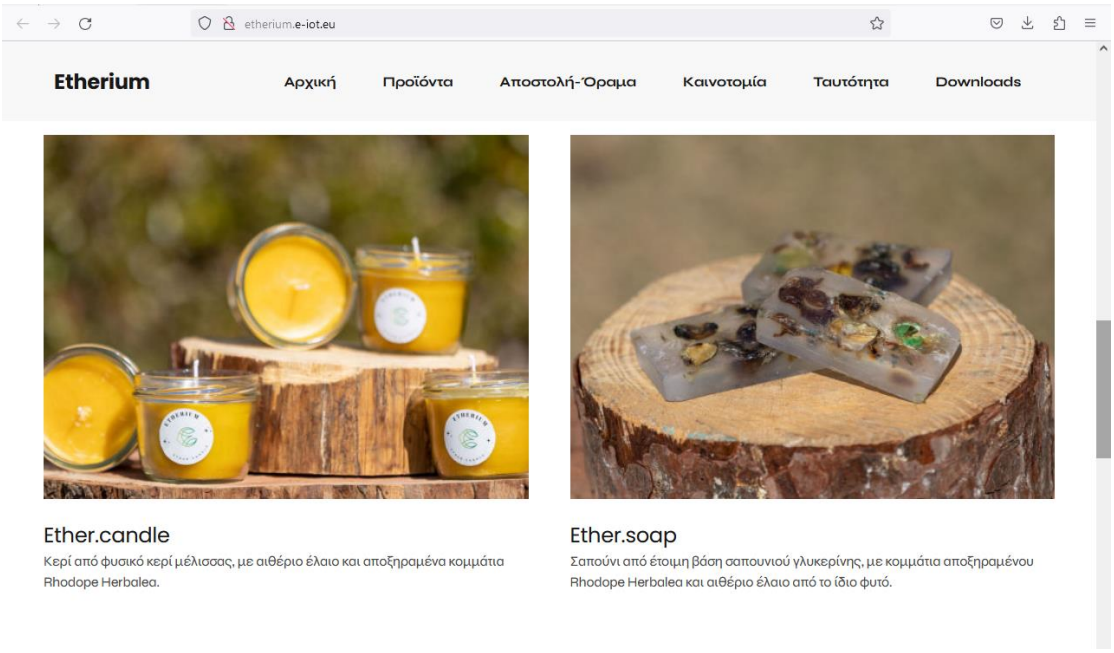
PHOTOS

FLOREO SIMULATION ONE - products
ETHERIUM OIL – STICK – CANDLE

FLOREO SIMULATION TWO - ETHERIUM APPLICATION



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Ether.candle
Κερί από φυσικό κερί μέλισσας, με αιθέριο έλαιο και αποξηραμένα κομμάτια Rhodope Herbalea.
Ether.soap
Σαπούνι από έτοιμη βάση σαπουνιού γλυκερίνης, με κομμάτια αποξηραμένου Rhodope Herbalea και αιθέριο έλαιο από το ίδιο φυτό.

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Για κερι:
• φυσικό κερί μέλισσας
• αιθέριο έλαιο
• γυάλινο βαζάκι/καλούπι
• φυτίλι
Για σαπούνι:
• Βάση σαπούνι γλυκερίνης
• Αιθέριο έλαιο
• καλούπια
• οινόπνευμα
• Rhodope Herbalea
Για αρωματικά στικ:
• Ξυλάκια μπαμπού (για αρωματικό χώρου)
• Αιθέριο έλαιο
• βαζάκι (50-60ml)
• νερό
• οινόπνευμα
Αιθέριο έλαιο:
• μπουκαλάκι (10-20ml)
• αιθέριο έλαιο
• νερό

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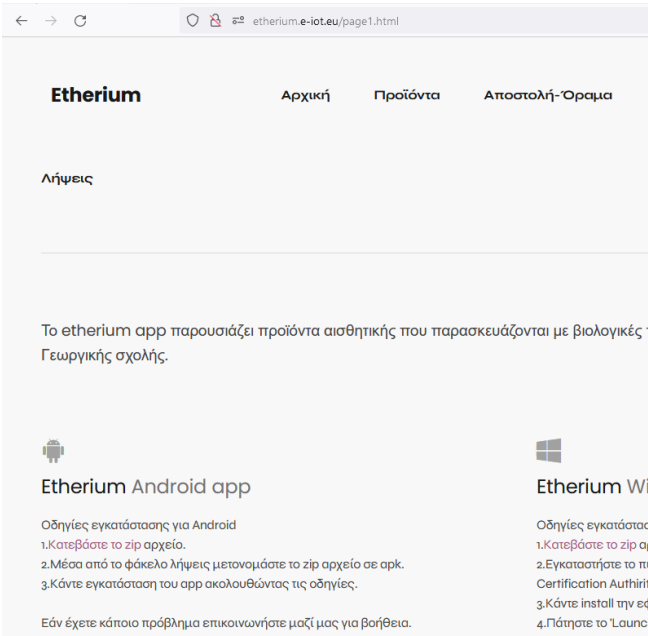
Αποστολή - Όραμα
Η Etherium στοχεύει στη μέγιστη ικανοποίηση των πελατών της, με αμεσότητα και προσεγμένη ποιότητα.
Αποστολή λοιπόν της εταιρείας, είναι η εκμετάλλευση μοναδικών αρωματικών φυτών από την συνοριογραμμή ελλάδας-βουλγαρίας μέσω βιολογικών προϊόντων. Στοχευοντας στην ευαισθητοποίηση και παρότρυνση των αγοραστών στην χρησιμοποίηση φιλικών προς το περιβάλλον προϊόντων.
Το όραμα της είναι να αντικαταστήσει τα συμβατικά προϊόντα αισθητικής με βιολογικά. Μεγαλύτερος στόχος μας είναι το προϊόν μας να διαδωθεί σε κάθε οικία. Ακόμα προσδοκά να δημιουργήσει ένα ισχυρό brand name εισάγοντας στην αγορά ένα βιολογικό και φιλικό προς το περιβάλλον προϊόν.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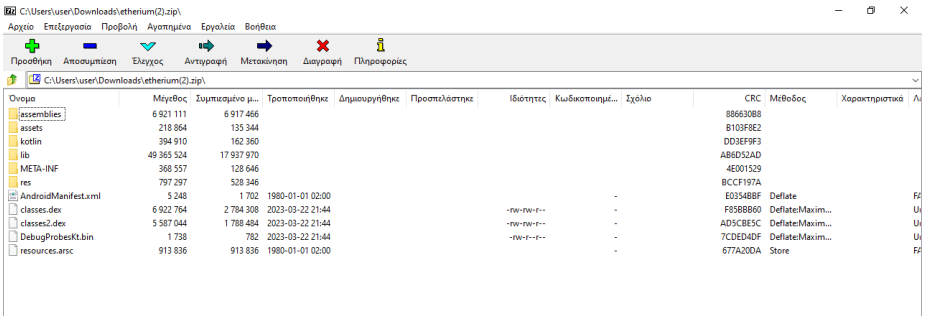
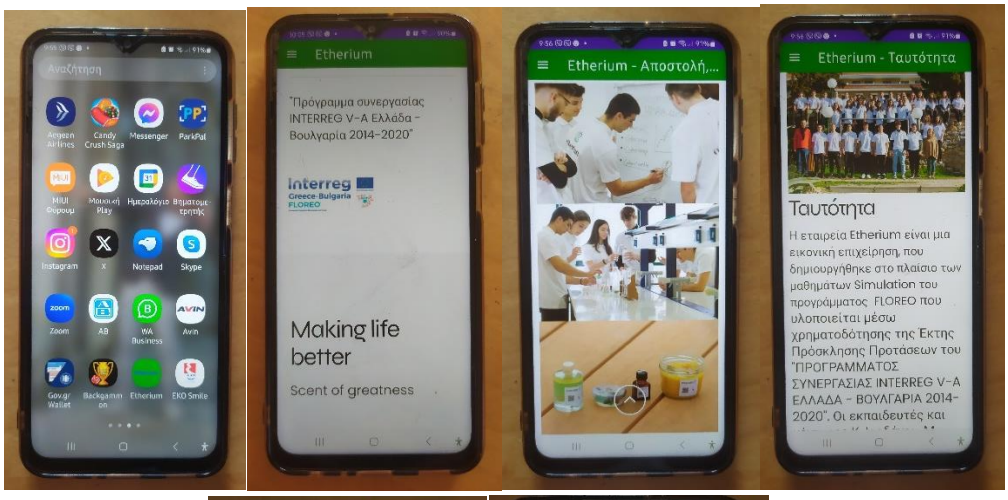
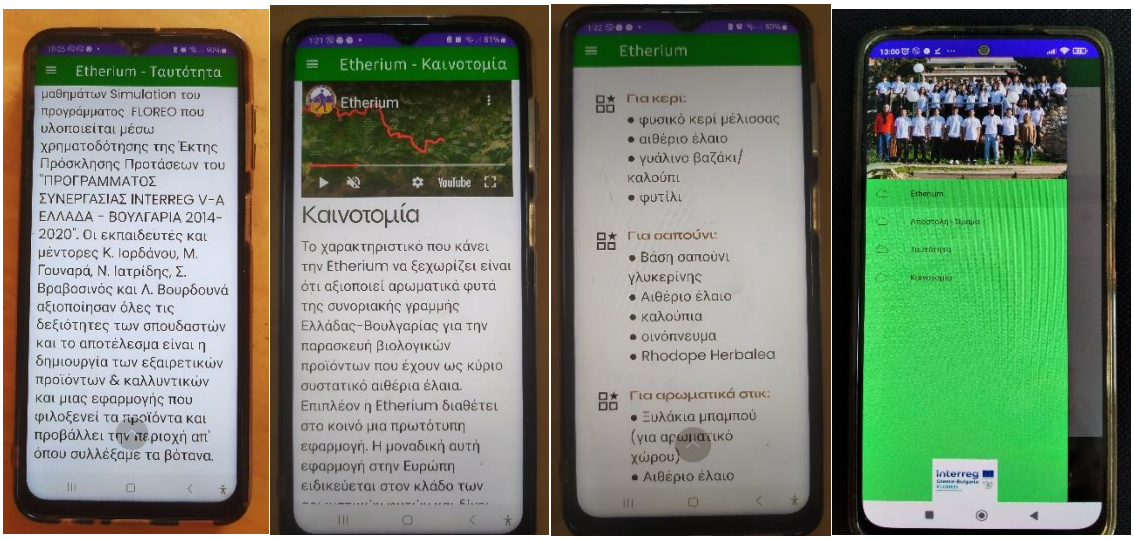
Etherium Android app
Οδηγίες εγκατάστασης για Android
1.Κατεβάστε το zip αρχείο.
2.Μέσα από το φάκελο λήψεις μετονομάστε το zip αρχείο σε apk.
3.Κάντε εγκατάσταση του app ακολουθώντας τις οδηγίες.
Εάν έχετε κάποιο πρόβλημα επικοινωνήστε μαζί μας για βοήθεια.
Etherium Windows app
Οδηγίες εγκατάστασης για Windows
1.Κατεβάστε το zip αρχείο, αποσυμπιέστε σε υπακατάλογο.
2.Εγκαταστήστε το πιστοποιητικό Etherium.cer επιλέγοντας το "Trust Root Certification Authirities".
3.Κάντε install την εφαρμογή 'Etherium.msix'.
4.Πάτηστε το 'Launch' .
Εάν έχετε κάποιο πρόβλημα επικοινωνήστε μαζί μας για βοήθεια.

SIMULATION APP download process



SIMULATION SHOOTS





5. Conclusion from Quality Expert

Collectively, these five simulation models showcase a commitment to quality and effectiveness in educational program design. Each simulation model leverages clear learning objectives and alignment to ensure that participants understand the core concepts and objectives within their respective field. The design and structure of these simulations provide a logical and progressive learning journey.

Furthermore, the content and materials in these simulations are rich, offering participants valuable information and practical insights. Real-life examples are frequently employed to illustrate concepts, enhancing the applicability of the knowledge acquired. Importantly, all five simulations excel in facilitating the application of learned concepts to real-world scenarios, encouraging critical thinking and problem-solving.

These simulations serve as valuable tools in providing learners with the knowledge and skills needed to succeed in their future endeavors. These simulations empower participants to make informed decisions, drive positive change, and contribute to sustainable practices in their industries.

In conclusion, the overarching quality and effectiveness of these simulation models underscore their significance as educational resources. They not only empower individuals with knowledge but also inspire them to take responsible actions and make a meaningful impact.