



TED UNIVERSITY

CMPE 491 Project Specifications Report

EcoFriends Application

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1. Introduction

1.1 Description

EcoFriends is an application that aims to recycle nature. We wanted to utilize people's competition with themselves in something useful. So, this app will be gamified, and while you are helping the environment with recycling, you can also compete with your friends with your EcoPoints and customize your avatar with EcoCoins. For this, you have to insert the things you've done to make the earth better. Depending on the operation you've made, you will earn coins (EcoCoins) that help you to customization. We're believing that we may have a little bit of contribution to making our world better.



Figure 1: Our Application's logo which we designed.

1.2 Constraints

Our project also contains some constraints which are completely normal. We've observed these constraints section by section.

1.2.1 Economic

From the beginning, we aim to lead people to recycle and help the world. However, the cost of recycling materials can be high depending on the material type. Metals and glasses are worth recycling and cost but plastic is not. For example, plastic is a cheap material but its recycling operation is more expensive than its price [1]. So, recycling operations may not be the logical way when we think about the cost.

1.2.2 Social

Even though we want everyone to use this app to make awareness, truth to be told, there will be some people who may insert false information. Instead of using the application

just to compete with other people, people who are conscious and prioritize nature should use this application. This situation can be seen as a social constraint for application.

1.2.3 Health and Safety

While the health hazards of the use of plastic are discussed and the use of plastic is not recommended, recycled plastic may be more dangerous to health [2].

1.2.4 Sustainability

We shouldn't avoid the fact that materials can be recycled at limited times, not forever. We can recycle glass infinite times, and there won't be corruption in its structure but we can recycle a plastic bottle only 1 or 2 times due to its polymeric structure [3]. When we look at the bigger picture, this situation can be counted as a constraint for sustainability.

1.3 Professional and Ethical Issues

1.3.1 Professional Issues:

Accuracy and Validity of Data: The accuracy and validity of the data entered by users is critical for the success of the app. Therefore, the app must have proper mechanisms in place to ensure that the data is accurate and not manipulated.

Security of User Data: The EcoFriends app would require users to provide personal information to create an account, such as their name, email, and location. Therefore, it is essential to ensure that user data is secure and protected from cyber-attacks.

Availability and Reliability of the App: As the app's popularity grows, it is crucial to ensure that the app can handle a large volume of traffic and remain available and reliable at all times.

Integration with Recycling Centers: The app should integrate with recycling centers and allow users to find the nearest recycling center to drop off their recyclables. However, this may require partnerships and collaborations with recycling centers, which may pose a challenge.

1.3.2 Ethical Issues:

Privacy of User Data: The app collects personal information from users, and it is essential to ensure that this data is protected and not misused.

Fair Competition: The app's competitive aspect should be fair and unbiased, and the app should not allow any cheating or manipulation to occur.

Misleading or False Claims: The app should not make any misleading or false claims about the benefits of recycling or the environmental impact of the app.

Environmental Impact of the App: While the app aims to promote sustainability and reduce carbon footprint, it is also essential to consider the app's environmental impact, such as the energy consumption required to run the app. In conclusion, the EcoFriends app must address these professional and ethical issues to ensure that it promotes sustainability and

encourages responsible recycling practices while protecting user data and maintaining ethical standards.

2. Requirements

Functional Requirements	Description
Gain Eco Coin	Eco coins can be earned as long as recycling is done. Different materials may cause different amounts of eco coins to be earned.
Customize Avatar	The users will be able to customize their avatar by spending Eco Coins.
See Friend Activity	Users will be able to see each other's Eco Points to see how much each other has contributed in terms of recycling, and at the same time to compete.
Gain Eco Point	Eco points will be earned through recycling activities such as eco coins. Users will compete through eco points.

Nonfunctional Requirements	Description
Login	Users must be able to login to the application.
Availability	Users must be able to download the app from app store and google play store.
Security	Users' personal information must be protected.

3. References

- [1]: “Is recycling worth it? costs and benefits of recycling: RTS,” *Recycle Track Systems*, 11-May-2021. [Online]. Available: <https://www.rts.com/blog/is-recycling-worth-it/>. [Accessed: 30-Mar-2023].
- [2]: K. Shennum, ““it's as if they're poisoning us,”” *Human Rights Watch*, 28-Mar-2023. [Online]. Available: <https://www.hrw.org/report/2022/09/21/its-if-theyre-poisoning-us/health-impacts-plastic-recycling-turkey#:~:text=Plastic%20products%20contain%20toxic%20chemical,and%20living%20nearby%20recycling%20facilities>. [Accessed: 30-Mar-2023].
- [3]: Z. Şeniş, “Geri Dönüşüm Bilmecesi: Malzemeler Kaç Kez Geri Dönüştürülebilir?,” *Evrin Ağacı*, 07-Oct-2020. [Online]. Available: <https://evrimagaci.org/geri-donusum-bilmecesi-malzemeler-kac-kez-geri-donusturulebilir-9424#:~:text=Plastikler%3A%201%20veya%202%20Kez%20Dönüştürülebiliyor!&text=Bunun%20sebebi%2C%20plastiklerin%2C%20geri%20dönüştürüldüklerinde,ürünlerin%20parçalarını%20oluşturmak%20için%20kullanılır>. [Accessed: 29-Mar-2023]