**EcoMechanica Software Requirements Document:**

**Table of Contents:**

1)Header…………………………………………………………………1

2) Product Perspective……………………………………………….2

3) Product Functions…………………………………………………3

4) User Characteristics………………………………………………3

5) Constraints…………………………………………………………..3

6) System Features……………………………………………………3

7) Task Matrix……………………………………………………………6

Product Perspective:

* *This project was conceived as a game designed to educate primary and secondary school students on the environmental damage inflicted by industrial factories.*

Product Functions:

* There are 4 main functions in our game:
  + 1) Resource Extraction:
  + 2) Manufacturing New Resources:
  + 3) Selling or Researching with these Resources:
  + 4) To avoid creating pollution as much as possible:

User Characteristics:

* *The game is designed to appeal to learners across age groups, from schoolchildren to university-level youth . The game is designed to be intuitive and accessible, requiring minimal background knowledge for young learners and college students alike.*

Constraints:

* *A PC-only experience available in English exclusively.*

System Features:

* i. Title Resource gathering

ii. Main Actor gatherer

iii. Goal selling resources or

iv. Preconditions gatherer must be built in resources pile

v. Main Flow gather the resources according to resource type, give conveyor belt to tranport resource to main building

vi. Postconditions gain resources

i. Name the pattern observer pattern strategy pattern

ii. why observer pattern for notify main building strategy pattern for different resources

iii. Describe how it will be applied in the architecture to enhance flexibility,

modularity, or maintainability it will be easily manufactured and reliable

* i. Title Researching

ii. Main Actor researcher

iii. Goal to upgrade buildings

iv. Preconditions must have enough of resources

v. Main Flow check if the resource is necessity for researching

if is not necessity sell the resources if it is advance the researching progress

vi. Postconditions unlocked the necessary upgraments

i. Name the pattern observer and stragtegy pattern

ii. why stragey pattern for different resources to research observer pattern to notify as we have enough of resources

iii. Describe how it will be applied in the architecture to enhance flexibility,

modularity, or maintainability This will reduce the number of conditions we need to write.

* i. Title Conveyor Belts transportation

ii. Main Actor Conveyor Belts

iii. Goal Accurate conveying of products on conveyor belts.

iv. Preconditions Arrival of the products

v. Main Flow (sequence of steps) Transports Arriving products to other belts or factorys or Research Lab

vi. Postconditions Transmission of the products

i. Name the pattern Observer Pattern

ii. Explain why it is appropriate for the use case To verify if products have been received from the upstream belt before.

iii. Describe how it will be applied in the architecture to enhance flexibility,

modularity, or maintainability it will help us for transporting materials in correct way

* i. Title Cleaners

ii. Main Actor Cleaner

iii. Goal Enhancing the game's longevity

iv. Preconditions The pollution level must have increased.

v. Main Flow (sequence of steps) Decreases the pollutions increase

vi. Postconditions The pollutions extending level will decrease

i. Name the pattern Observer Pattern

ii. Explain why it is appropriate for the use case We will need our factorys count and cleaners count to judge the pollutions increase rate

iii. Describe how it will be applied in the architecture to enhance flexibility,

modularity, or maintainability it will increase our classes maintainability to find the increase rate

* The system will be user friendly with understandable buttons and menus , it can have some performance issues because there will be so much materials had been produced but it should be stable.
* The user's screen will feature interactive buttons and a map. Players can freely navigate the map using WASD controls, with each button clearly labeled to explain its function.
* This Project will mainly use Unitys libraries

TASK MATRİX

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | Finding Use cases | Making the UML Diyagram | *A debate regarding the project's intended audience* | Finding non Functional  Requirements | Finding constraints | Finding User Abilities |
| Umut Baran Boztaş | X |  | X | X |  | X |
| Mehmet Efe Palaz | X |  | X |  | X |  |
| Efe Selim Sürekli |  | X | X |  | X |  |
| Mehmet Fatih Akay | X | X | X |  |  |  |
| Kaan Behzetoğlu |  |  | X | X |  | X |