

RESEARCH INTO THE SIMULATION OF SHOCK WAVES

## **Use Case Diagrams**

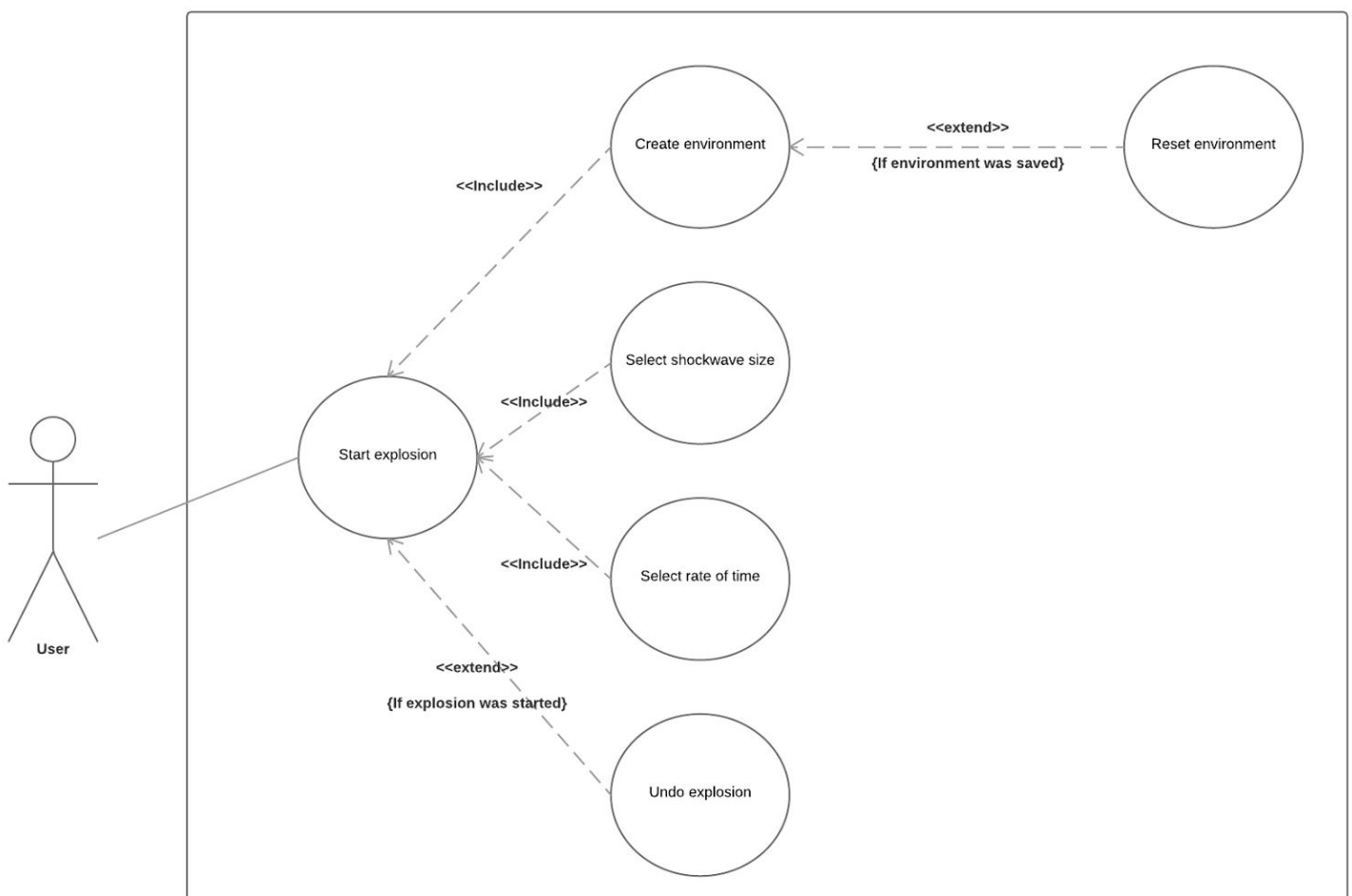
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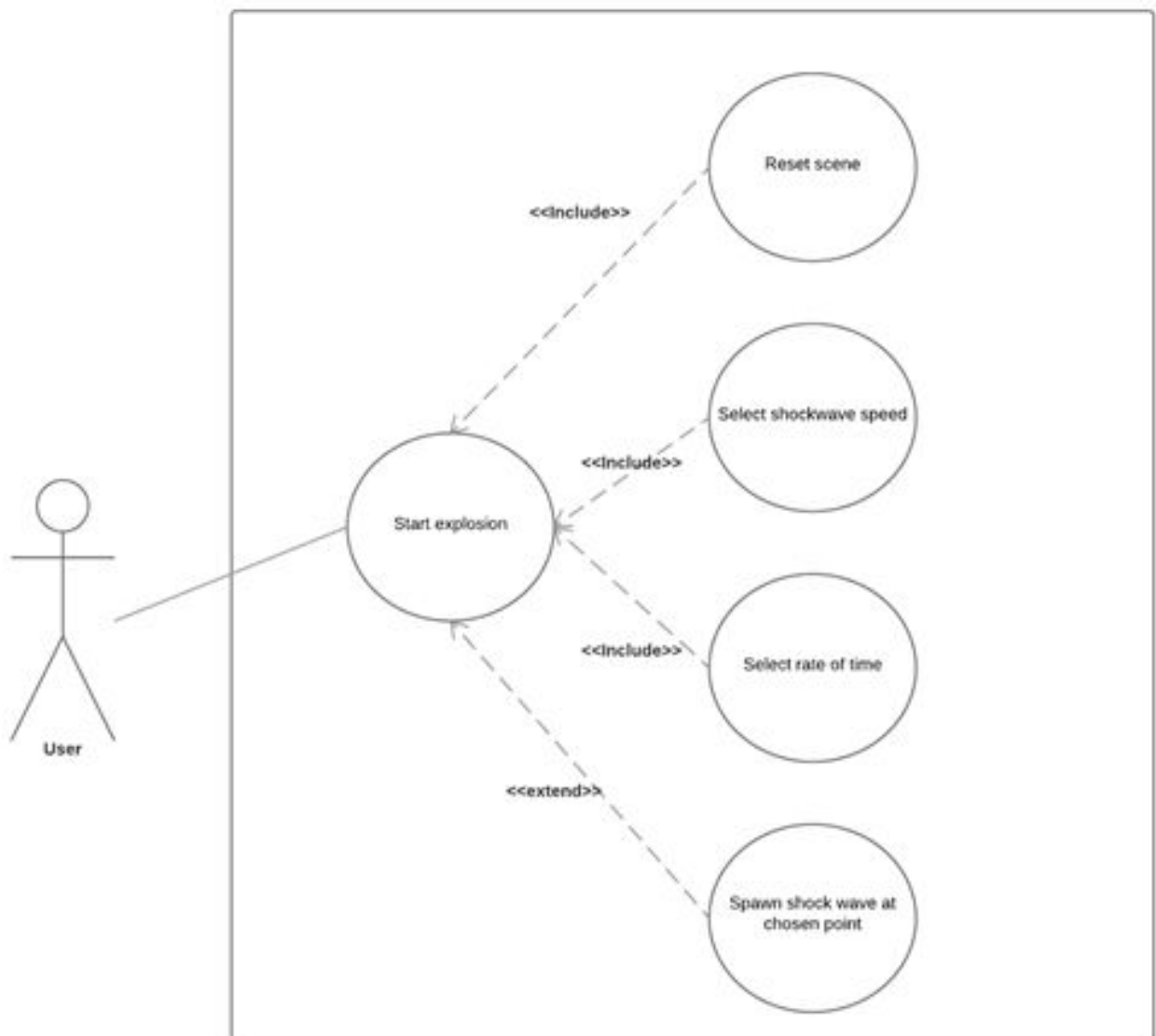
Tomasz Mackow

## Use case diagrams

We created a use case diagrams to help us visualise how the user will interact with our system. The diagrams show the main functionality of our system and what actions the user needs to perform. Changes in our approach as well as complications we met along the way during development are reflected in these use case diagrams as the actual use case diagram differs from the original. The use case diagrams are shown below:

### Use case diagram for our initial plans



**Actual use case diagram for our system**

## Differences

Initially we had planned for the user to be able to create their own environments. We decided not to implement this due to a number of reasons. The main cause of this was due to the uncertainty that the project would be heading in. Around the time at which we started to look at development of wider user interaction, we also started to move from v2 to v3. This caused a number of priority changes in the front end. As there were some performance issues, it became apparent that front end functionality needed to be focused more on what would help development; furthermore, at this point we were even considering pre-rendering recordings of the system - making user interaction pointless. As such, time intensive user interaction took a back seat and instead other features, like the frame rate counter, were implemented. Towards the end of the project, we moved focus back onto the user interaction where we only implemented the spawning of shockwaves instead of environment creation, due to time restraints.

As our system focuses on simulating shock waves we felt that it would be useful to allow the user to spawn shock waves anywhere in the scene. We also allowed them to spawn in multiple shock waves at a time. These features were not considered initially and the ideas were discovered during the development process.

We felt that undoing a shock wave was unnecessary and that having a scene reset button was sufficient.