**Developing Sword of Time: A Thesis in Gameplay Mechanics and Systems Design**

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**Scientific coordinator: Assistant Professor Alexandru Grosu**

Session: June 2025

**ABSTRACT**

Sword of Time este un joc video 2D platformer rogue-like realizat ca parte a lucrarii mele de licenta, explorand mecanici de gameplay si design-ul sistsemelor. The primary objective of this research was to create a dynamic and procedurally generated game experience that challenges players with time-based mechanics, randomly generated levels that challenge the player to think both creatively and strategically. Sword of Time combines the thrill of platforming with rogue-like progression elements, creating a unique loop of discovery and challenge.

The development process utilized the Unity game engine, focusing on procedural generation algorithms, player-controlled abilities and combat systems. Key design challenges included creating a balanced game environment and mechanics, thus ensuring that each playthrough is both challenging and rewarding. The game features mechanics such as wind-dashing, enemy variety, items and progressively harder environments that require adaptive strategies.

The outcome of this project is a playable demo of Sword of Time, where players can navigate through procedurally generated levels, overcoming enemies and environmental obstacles using the abilities or items they acquire. This thesis concludes with an analysis of the effectiveness of the game systems and suggestions for future development to expand the scope of player interaction and narrative depth.

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Sword of Time is a 2D platformer rogue-like video game developed as part of my thesis exploring gameplay mechanics and systems design. The primary objective of this research was to create a dynamic and procedurally generated game experience that challenges players with time-based mechanics, randomly generated levels that challenge the player to think both creatively and strategically. Sword of Time combines the thrill of platforming with rogue-like progression elements, creating a unique loop of discovery and challenge.

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Each chapter must have a clear structure, will begin on a new page and will have a title. It will be followed by two blank 12 pt. lines.

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Each sub-section title (e.g. 1.1 General information) shall begin after a 12 points blank line after the text and shall be followed by a 12 points blank line.

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6. *Page header* – it shall be inserted starting with the introduction page and contains, in successive lines, the following text, aligned left and with the size of 8 points: (i) the text *Politehnica University of Timișoara* ; (ii) the name of the program of study and the year of the paper defense; (iii) the name of the candidate (left) and the title of the paper. At the right of the header, the UPT logo may be inserted;

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INT_EXTjoint

Figure 1 – Example of a figure (source: The Scientific Bulletin of the UPT – series Building Engineering – Architecture, issue 2/2010)

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Table g. Example of a table

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | Yield stress, fy [N/mm2] | | Tensile strength, fu [N/mm2] | |
| Element | Mill certificate | Coupon tests | Mill certificate | Coupon tests |
| Beam IPE360 | 285.0 | 329.8 flange  348.4 web | 427.0 | 463.2 flange  464.0 web |
| Column HEB300 | 311.3 | 313.0 flange  341.8 web | 446.0 | 449.8 flange  464.4 web |
| End plate | 281.0 | 248.3 | 424.7 | 416.0 |
| Cover plate | 296.0 | 273.2 | 443.0 | 436.7 |

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(1)

# CONCLUSIONS (14 pt, Bold, Uppercase, Center)

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