A Unity Top-Down Shooting Game Prototype

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***Abstract*—This undergraduate thesis investigates a top-down shooting game created with Unity. A small game project provides a setting to practice scene design, controls, and core play mechanics. The student studies Unity and combines it with Visual Studio to implement a top-down shooting game with basic functions and a documented interface. The conclusion reports a playable student prototype and a completed report. It also states that game functions remain simple, some constraints are not optimized, and the game is not fully finished. The source does not present a controlled player study, performance benchmark, or evidence of an online multiplayer release. The contribution is a documented student study or prototype whose stated scope can guide further testing.**

***Index Terms*—Unity, top-down shooter, game development, Visual Studio**

I. Introduction

A small game project provides a setting to practice scene design, controls, and core play mechanics. This thesis investigates a top-down shooting game created with Unity. It begins from a practical engineering need and explains the technologies and workflow chosen for the case. The objective is to document a student implementation or comparative investigation, together with the evidence available in the manuscript. Broader operational or economic effects require separate measurements and are not assumed from the existence of a prototype [1]. Earlier ICTU student work on related designs is included here for context [2], [3], [4], [5], [6]. Related published studies provide context for the subject and methods [7], [8], [9], [10]. These contextual works were selected for this English summary; they are not asserted to appear in the original thesis bibliography.

II. Methods

The student studies Unity and combines it with Visual Studio to implement a top-down shooting game with basic functions and a documented interface. The source is summarized through its stated design, implementation material, examples, and conclusion. Features shown in the manuscript are distinguished from proposals for later development. This review does not add a new experiment, fill missing measurements with estimates, or treat a planned capability as an observed result. The source thesis remains the provenance for the reported work [1].

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III. Results

The conclusion reports a playable student prototype and a completed report. It also states that game functions remain simple, some constraints are not optimized, and the game is not fully finished. The report's screens, configurations, examples, or measurements constitute the evidence for this summary. A capability described only as a design intention is not counted as a validated operational outcome. No additional performance, adoption, financial, or safety figure has been introduced here. The result is interpreted within the scope of the student's documented setup [1].

IV. Discussion

The source does not present a controlled player study, performance benchmark, or evidence of an online multiplayer release. Further work could complete the game loop, add levels, test controls with players, and evaluate offline and online modes separately. These limitations affect how the evidence should be read. The current manuscript can support understanding of the design and reported demonstration, while independent tests would be needed for stronger claims. Any later deployment should document its environment and separate observed outcomes from intended benefits [1].

V. Conclusion

The thesis documents a top-down shooting game created with Unity. The conclusion reports a playable student prototype and a completed report. It also states that game functions remain simple, some constraints are not optimized, and the game is not fully finished. The source does not present a controlled player study, performance benchmark, or evidence of an online multiplayer release. Further work could complete the game loop, add levels, test controls with players, and evaluate offline and online modes separately. Accordingly, the present contribution is a source-grounded account of the student work and its tested or illustrated scope. Claims about broader effectiveness should be assessed in later work using explicit evaluation conditions [1].

References

[1] Nguyễn Thị Minh Tuyền, "A Unity Top-Down Shooting Game Prototype," internal undergraduate thesis (original in Vietnamese), Thai Nguyen University of Information and Communication Technology, 2024.

[2] ICTU Student 166, "Study of Game Design Techniques and Application of Breakout Game," internal undergraduate thesis, Thai Nguyen University of Information and Communication Technology, 2010.

[3] Phạm Minh Thông, ”Design of 2D Game Interface for ’Our Life: The Shadows of War’,” internal undergraduate thesis, Thai Nguyen University of Information and Communication Technology, 2022.
[4] ICTU Student 163, ”Game Development Techniques Applied to a Competitive Chess Game,” internal undergraduate thesis, Thai Nguyen University of Information and Communication Technology, 2010.
[5] ICTU Student 118, ”Development of a Chinese Chess Game on the Internet Using C#,” internal undergraduate thesis, Thai Nguyen University of Information and Communication Technology, 2009.
[6] ICTU Student 111, ”An Examination of J2ME and the Development of a Caro Game Application for Mobile Phones,” internal undergraduate thesis, Thai Nguyen University of Information and Communication Technology, 2009.
[7] Shree Telang et al., ”Shooting Game Using Unreal Engine,” International Journal for Research in Applied Science and Engineering Technology, 2023. doi:10.22214/ijraset.2023.49425.
[8] Yee Zi Xuan et al., ”Unity Technologies: The Story Behind Game Development Industry,” International Journal of Psychosocial Rehabilitation, 2020. doi:10.37200/ijpr/v24i2/pr200415.
[9] Junyoung Heo et al., ”Simple shooting game engine in Python,” International Journal of Computational Vision and Robotics, 2015. doi:10.1504/ijcvr.2015.068801.
[10] JiYong Ge et al., ”2D Flying Shooting Game,” TECHART: Journal of Arts and Imaging Science, 2017. doi:10.15323/techart.2017.11.4.4.13.