End-Semester Report

on

PH 505: Dissertation Preliminaries

BUILDING A 3D-2D PHYSICS ENGINE USING ALGORITHMS FOR RIGID BODY SIMULATION AND COLLISION MECHANICS

Submitted by

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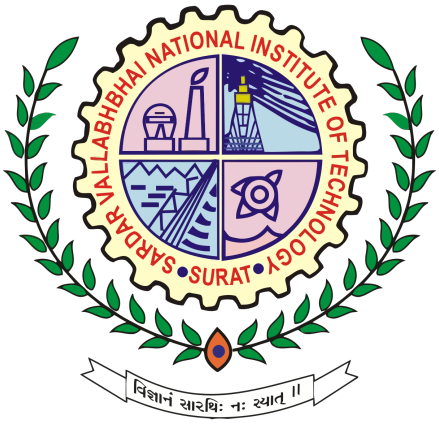

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DECLARATION

"I hereby declare that this submission is my own work and that, to the best of my knowledge and belief, it contains no material previously published or written by another person, which has been accepted for the award of any other degree or diploma of the university or other institute of higher learning, except where due acknowledgment has been made in the text."

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CERTIFICATE

This is to certify that the end-semester report entitled Building a 3D-2D Physics Engine Using Algorithms For Rigid Body Simulation and Collision Mechanics has been duly completed and presented by Keith Kamson Fernandes (I19PH004) in the 5th Year (Semester IX) of 5 Year Integrated MSc (Physics). This mid-semester report is found to be complete and satisfactory in all respects. and their work is satisfactory.

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EXAMINER'S CERTIFICATE OF APPROVAL

This is to certify that the end-semester report entitled Building a 3D-2D Physics Engine Using Algorithms For Rigid Body Simulation and Collision Mechanics submitted by MSc. student Keith Kamson Fernandes (I19PH004) as per the requirement of the M.Sc program, of Sardar Vallabhbhai National Institute of Technology, Surat is approved.

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ACKNOWLEDGEMENT

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My fellow batchmates and researchers without whom this research would not have been possible. Their willingness to share their experiences and perspectives has been invaluable in shaping the finding of the topic for this dissertation.

Keith Kamson Fernandes
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ABSTRACT/OBJECTIVE

This physics dissertation project aims to develop a game physics engine that can accurately simulate realistic physical interactions between objects in a virtual environment. The focus will be on implementing algorithms that can accurately model rigid body dynamics and collision mechanics while ensuring optimal performance. The resulting game engine will be tested and evaluated through the creation of a physics-based game, demonstrating the engine's ability to provide a compelling and immersive gameplay experience while following the laws of physics.

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Bibliography

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Annexure-1

DECLARATION CERTIFICATE

(Certificate to be submitted by M.Sc student through Supervisor(s) at the time of submission of Thesis)

I, **Keith Kamson Fernandes** (Reg. No. **I19PH004, Deptartment of Physics**) have completed my M.Sc. work with the following details:

Title of the Dissertation: **Building a 3D-2D Physics Engine Using Algorithms For Rigid Body Simulation and Collision Mechanics**

Supervisor(s): Dr. Yogesh A. Sonvane, Deptartment of Physics, SVNIT, Surat

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