VISVESVARAYA TECHNOLOGICAL UNIVERSITY
"Jnana Sangama", Belagavi-560014, Karnataka

<u>CGV MINI PROJECT REPORT</u>
<u>ON</u>

"MOVING TRAIN SIMULATION"
SUBMITTED IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE CGV LAB

BACHELOR OF ENGINEERING
· IN
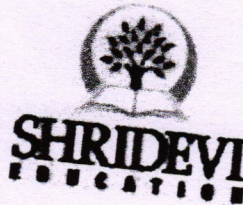## COMPUTER SCIENCE & ENGINEERING

<u>Submitted By</u>

MANTESH H RANGARADDI[1SV20CS024]

<u>Under the guidance of</u>
Mr.Renukaradhya P.C B.E., M.Tech.,
Assistant Professor, Dept. of CSE.

PRINCIPAL
SIET. TUMKUR.

Department of Computer Science and Engineering
SHRIDEVI INSTITUTE OF ENGINEERING AND TECHNOLOGY
(Affiliated To Visvesvaraya Technological University)
Sira Road, Tumakuru – 572106, Karnataka.
2022-23

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

<u>CERTIFICATE</u>

This is to certify that, Computer Graphics and Visualization Mini-Project of entitled "Moving Train Simulation" has been successfully carried out by Mantesh H Rangaraddi [1SV20CS024], in partial fulfillment for the CGV Lab of **Bachelor of Engineering** in **Computer Science & Engineering** of the **Visvesvaraya Technological University, Belagavi** during the academic year **2022-23.** It is certified that all the corrections/suggestions indicated for internal assessments have been incorporated in the report. The Mini- Project report has been approved as it certifies the academic requirements in respect of Mini-Project work prescribed for the Bachelor of Engineering Degree.

<u>Signature of Guide</u>

Mr. Renukaradhya P .C B.E., M.Tech.,
Assistant Professor,
Dept. of CSE,
SIET, Tumakuru.

PRINCIPAL
SIET. TUMKUR.

<u>Signature of H.O.D</u>

Dr. Basavesha D M.Tech, Phd
Associate Professor & HOD
Dept. of CSE,
SIET, Tumakuru.

Name of the Examiners

1 ....

2 ....

Signature with date

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

DECLARATION

I, Mantesh H Rangaraddi [1SV20CS024], student of VI semester **B.E** in Computer Science & Engineering, at Shridevi Institute of Engineering & Technology, Tumakuru, hereby declare that, the Mini-Project work entitled **"Moving Train Simulation"**, embodies the report of our Mini-Project work carried out under the guidance of **Mr. Renukaradhya P.C**, **Assistant Professor, Department of CSE,** SIET, Tumakuru as partial fulfillment of requirements for the CGV Lab in **Bachelor of Engineering in Computer Science & Engineering of Visvesvaraya Technological University, Belagavi,** during the academic year **2022-23**. The Mini-Project has been approved as it satisfies the academic requirements in respect to the Mini-Project work.

Place: Tumakuru

Date: 4.07.23

Mautesh. H. R.

Student Name & Signature

MANTESH H RANGARADDI

[1SV20CS024]

PRINCIPAL

SIET. TUMKUR.

ABSTRACT:

The Moving Train CGV Mini Project aims to develop a computer graphics visualization of a moving train. The project utilizes modern computer graphics techniques to create a realistic and immersive simulation of a train in motion.

The visualization begins with the creation of a 3D model of the train, incorporating accurate details such as locomotive, wagons, and external features. The train model is designed to be visually appealing and optimized for real-time rendering.

To simulate the movement of the train, various physics-based algorithms are employed. These algorithms take into account factors such as acceleration, deceleration, and velocity, providing a realistic representation of the train's motion. The position and orientation of the train are continuously updated based on the applied physics calculations.

The environment surrounding the train is also an integral part of the simulation. A virtual landscape is created, including terrain, tracks, and other elements like trees, buildings, and signals. The landscape is rendered using advanced rendering techniques, such as texture mapping, lighting, and shading, to enhance the visual quality and realism.
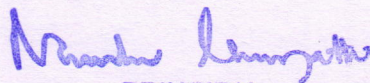
Additionally, the project incorporates interactive elements, allowing users to control the train's speed, change camera perspectives, and explore different parts of the scene. User-friendly controls and intuitive interfaces are implemented to enhance the user experience.

The Moving Train CGV Mini Project showcases the fusion of computer graphics, physics simulation, and interactivity to create an engaging and visually appealing simulation of a moving train. It demonstrates the potential of computer graphics in generating realistic and

Technology used

Graphics Software: various software packages are available for creating computer graphics, including 3D modeling and animation software,
Computer Hardware: A powerful computer with a good graphics card and sufficient storage capacity is required to run graphics software, C++ and python languages are used in graphics.

PRINCIPAL
SIET. TUMKUR.